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Passenger satisfaction studies in global aviation context: trends and best practices

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Abstract

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The aviation industry is in constant crisis, with low margins, pandemics, and wars impacting operations. Airlines are competing fiercely to fill the planes with passengers and cargo. To attract passengers, to improve brand image, and make additional revenue, all aviation stakeholders need to measure the satisfaction of passengers regularly to meet and exceed the customer expectations.

This thesis aims to research standard questionnaires and passenger surveys the industry uses to improve and develop new products and services. The purpose is to examine whether these satisfaction surveys cover topics that match what passengers deem important to overall satisfaction and whether survey results are segmented in a way that matches the travelling population, allowing for efficient use of data for business development.

The air passenger journey has numerous touchpoints with different aviation stakeholders, and every actor in the touchpoint chain has their internal needs to measure and develop services.

This study investigates aspects of satisfaction measurements and methods, and snapshots some of the industry recognized surveys currently conducted. Details of the surveys are then compared to findings from academic research showing the dimensions of the air travel journey that passengers find the most important to their overall satisfaction. Thus, a comparison and ranking of surveys is made based on their coverage of topics contributing to overall passenger satisfaction, which serves as a basis for further analysis.

As the stakeholders have different business objectives, the surveys overlap in certain aspects of the journey, but are lacking in some parts. The results demonstrate the need to change currently conducted surveys to match the current traveling public, as well as to adjust survey questions to better address some touchpoints.

Results of this study do not illustrate all possible survey scenarios; thus, several potential fields of research were identified.

Keywords
Aviation, customer satisfaction, satisfaction surveys, air travel

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1 Introduction

The aviation industry is in constant crisis, with low margins, pandemics, and wars impacting operations. Airlines are competing fiercely to fill the planes with passengers and cargo. To attract passengers, to improve brand image, and make additional revenue, all aviation stakeholders need to measure the satisfaction of passengers regularly to meet and exceed the customer expectations. However, it is not enough that satisfaction surveys are conducted, but their content needs to be relevant as well if the stakeholders want to accurately capture the true sentiment of passengers.

This thesis examines passenger satisfaction surveys and questionnaires currently used by aviation industry stakeholders to gather data for business development purposes. The aim is to determine whether the content of current surveys matches what passengers deem important to overall satisfaction and whether survey results are segmented in a way that matches the travelling population, allowing stakeholders to get full use out of the data sets collected with their surveys.

This research stems from the authors' involvement in helping design and test the 2020 edition of the IATA Global Passenger Survey (GPS), conducted annually by the International Air Transport Association. It is one of the biggest and most recognised air passenger satisfaction surveys: the 2021 edition had more than 13,500 respondents from 186 countries worldwide. During the development process, some flaws and omissions were noticed, and thesis project was started to improve the quality of passenger surveys and to find answers to questions that arose during the design and testing of the survey.

During the research, the choice was made to limit the scope to seven surveys that are the biggest and most recognised in the aviation industry. The issues noted during the authors' involvement with the IATA GPS were formulated into four research questions as follows to support the objectives of the research:

RQ1. Are there industry-wide surveys covering all aspects of the passenger journey?
RQ2. Do surveys consider different travelling segments?
RQ3. How well do current surveys fit passenger needs and points considered to be important?
RQ4. What should be changed in current surveys to cover the whole journey?

This thesis is structured into seven chapters. Following this introductory chapter, Chapter 2 presents background information about the current state of the aviation industry, including current passenger satisfaction surveys. Chapter 3 presents the theoretical background for satisfaction surveys and their use in business development, passenger satisfaction as a phenomenon, and ways of segmenting passengers and the passenger journey. The methodology of this thesis is presented in Chapter 4, while Chapter 5 examines the results of the research. Chapter 6 discusses the findings in further detail, including reflection of the results to the research questions, while Chapter 7 concludes the thesis with suggestions for future research and the authors' personal reflection on the process.

References in this thesis have been compiled using the Zotero tool, following the 12th edition of Harvard's "Cite them right" convention.

2 Background

This chapter discusses the current state of the global aviation industry, aviation stakeholders, and satisfaction surveys currently conducted by the industry. These are examined to build an understanding of how the different stakeholders conduct satisfaction surveys as well as their context.

2.1 Industry analysis

From its early days a century ago, air transport has grown to be an economically significant industry and has a notable role in supporting global tourism and trade. In 2019, the global airline industry carried more than 4.5 billion passengers on scheduled flights, and air travel was the mode of transport chosen by 58 per cent of all international tourists. (‘Aviation: Benefits Beyond Borders’, 2020) Since the 1970s, the industry has seen major growth, as global passenger numbers have doubled every 15 years. The aviation industry is also a major employer. It directly employs 10.2 million people, and if indirect employment in tourism and other industries supported by aviation is counted, the figure rises to over 65 million people. (*International aviation in numbers*, 2019) In 2018, the total combined economic impact of the aviation industry, including indirect and induced impacts, was 2.7 trillion US dollars, which accounts for 3.6 per cent of the world’s gross domestic product. (‘Aviation Benefits Report 2019’, 2019) Air transport is also a notable driver for global trade, especially regarding high-value items. The volume of goods transported internationally by air is less than one per cent of all world trade volume, but it represents 35 per cent of the total world trade value at 6.5 trillion dollars. (‘Aviation: Benefits Beyond Borders’, 2020)

Despite its size and significance, the air transport industry has much smaller profit margins than many other large industries. In 2018, airlines earned an average of just 6.85 US dollars per passenger carried, which relates to profit margins of less than four per cent. Furthermore, the profitability varies greatly by region and airline, with some 30 airlines responsible for much of the industry’s profit and growth, while large amounts of airlines are struggling to break even or are making losses (Buyck, 2019). Another industry-defining aspect of aviation are high barriers to entry compared to many other industries. Besides being very capital-intensive, the industry has plenty of regulations newcomers need to comply with, is highly competitive leading to difficulties including lack of slot availability, and sees large economies of scale heavily in favour of big incumbent players compared to small newcomers. (Kappes and Merkert, 2013; Evans, 2017; Wolla and Backus, 2018) In comparison to other industries, the challenges of aviation also include large, geographically dispersed workforces, continued safety threats, and heavy regulation of operations

by governments. (Reichheld *et al.*, 2016) All in all, this makes aviation a difficult industry to enter as a new company. It also means that it is difficult for established companies to profitably enter new markets.

Due to its difficult and competitive nature, attracting and retaining customers by keeping them satisfied is of particular importance for the aviation industry. Curtis et al. (2012) mention passengers' perception of service quality, and thus their satisfaction, as one of the factors on which airline market shares and revenues depend, while according to Vokáč, Lánský and Szabo (2017), passenger satisfaction impacts airport profits by boosting commercial revenues, and may even be the deciding factor if there are several airports to choose from. It is considered important for brand differentiation, driving brand loyalty, and creating a competitive advantage. (Curtis, Rhoades and Waguespack Jr., 2012; Vokáč, Lánský and Szabo, 2017)

As a global industry dependent on many different stakeholders, air travel is particularly sensitive to shocks and disruptions caused by external events. Historically, such events have included wars and unrest, terrorist attacks, natural disasters, disease outbreaks, oil crises, political shifts, and economic recessions. Major events such as the 1990s Gulf crisis, September 11 attacks and 2008–09 global recession have caused passenger number growth to slow down or even turn negative for a period. Still, despite this sensitivity, the industry is resilient, bouncing back from periods of uncertainty and showing steady overall growth in the long run. (Oxley and Jain, 2015)

The most recent aviation crisis and one that is still ongoing is the COVID-19 pandemic, almost stopping all aviation at the beginning of 2020. Current forecasts predict traffic to return to 2019 values by 2024, as shown in Figure 1 below. (*EUROCONTROL Five-Year Forecast 2020-2024*, 2020) During the pandemic, achieving good customer satisfaction has been even more crucial than in normal times, as the industry has been struggling financially. Consumer loyalty created through passenger satisfaction, which translates into repeat purchases and recommendations, is critical, as airlines cannot afford to lose passengers and the revenue to competitors. Riantama et al. (2021) found that during the pandemic, the factors of customer satisfaction shifted. Due to the constantly changing and evolving situation as infection rates and travel restrictions fluctuated, responsiveness and flexibility became the most important attributes for passenger satisfaction due to the need to be able to change travel plans at a short notice. (Riantama *et al.*, 2021) This highlights the fact that passenger needs change with shifts in the operational environment, meaning that the industry needs to keep updating its satisfaction surveys to remain up to date and to keep survey results relevant for use in the business development cycle.

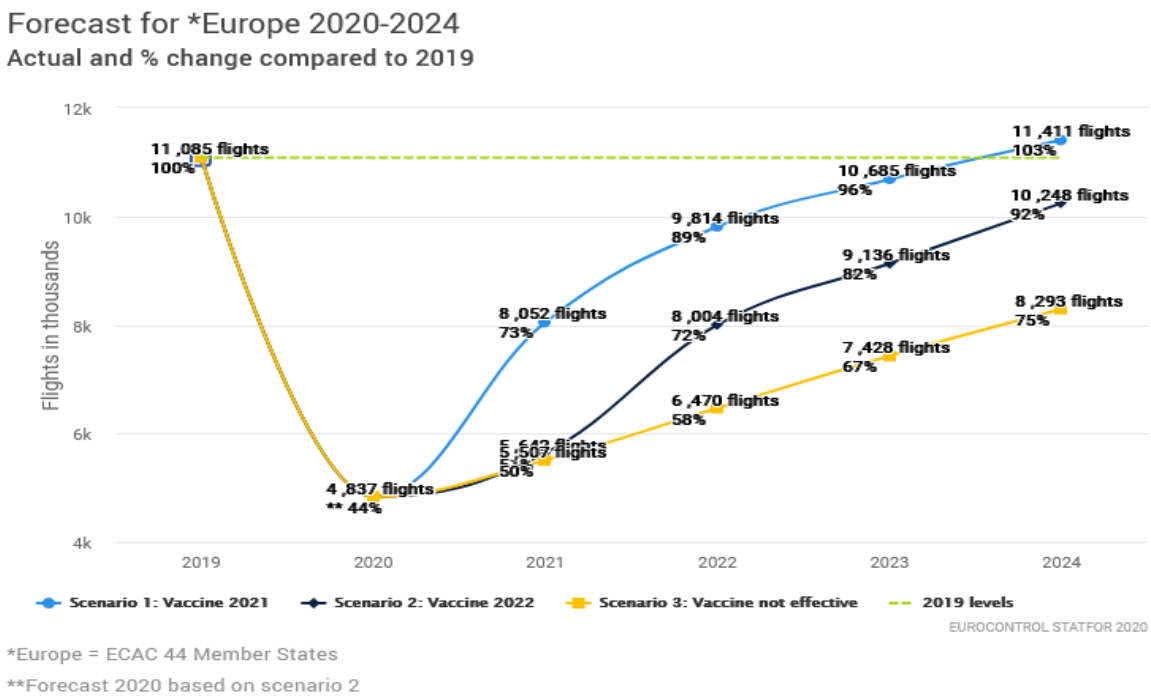


Figure 1. Eurocontrol traffic forecast for European air traffic up to 2024 (*EUROCONTROL Five-Year Forecast 2020-2024*, 2020)

Right after the COVID-19 crisis, the Russian invasion of Ukraine in February 2022 drove the European aviation industry into another crisis, as cancellation of trans-Siberian over-flight rights of European carriers pushed the industry to look for alternative routings to-wards Asia, avoiding Russian, Ukrainian and Belarusian airspace (Bachman, Lee and Pohjanpalo, 2022). This affects the profitability of city pairs that used the trans-Siberian routing, increasing the stage length by up to 4,000 kilometres, as shown in Figure 2 below (*EUROCONTROL Data Snapshot #29*, 2022). Again, this brings changes that may affect what customers deem important, at least in areas close to the conflict nations. Only time will tell as to what extent these changes may be, but it again highlights the need for the in-dustry to seek up-to-date insights into passenger satisfaction and its determinants.

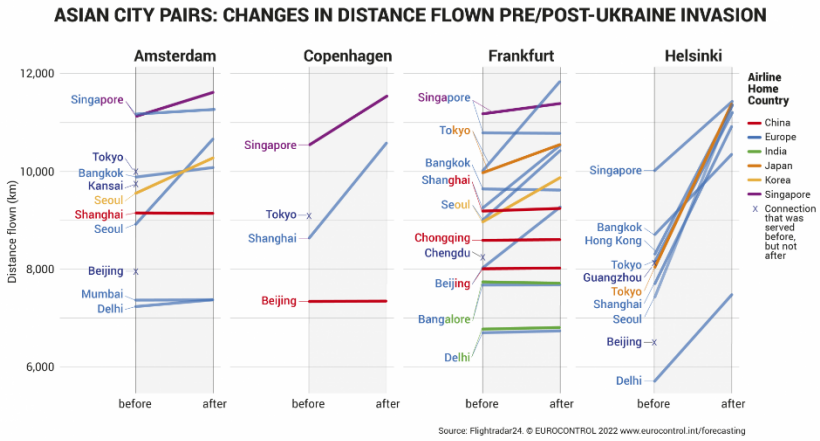


Figure 2. Changes in route length between European and Asian city pairs before and after the Russian invasion of Ukraine and the closure of Russian airspace to European carriers (*EUROCONTROL Data Snapshot #29*, 2022)

In summary, aviation is an economically significant global industry, characterized by small profit margins and high barriers to entry. As it is dependent on several different stakeholders, aviation is sensitive to crises such as wars and pandemics, which may lead to severe disruptions. Despite this, the industry is resilient, and overall growth remains steady. Due to the changing operational environment and high competition, it is crucial for aviation stakeholders to examine passenger satisfaction. The next chapter introduces these stakeholders and their roles in the industry.

2.2 Stakeholders

Aviation is a heavily regulated industry, governed by international standards. These standards are set by governmental organizations and regulatory bodies such as the International Civil Aviation Organization (ICAO), Federal Aviation Authority (FAA), and European Union Aviation Safety Agency (EASA). Safe aviation operations require every stakeholder to follow these common rules, and the breach of the rules carries heavy penalties. An Air Operator's Certificate (AOC) is granted by a local authority, such as Traficom, CAA or FAA, and the validity is checked periodically. An AOC has basic impact on customer satisfaction, as it mandates the airline to have defined processes and organization to act on accidents, incidents, and irregularities.

Local enforcement agencies are conducting country specific surveys for passengers, an example being the United Kingdom Civil Aviation Authority (CAA) and their Departing Pas-

senger survey covering Birmingham, East Midlands, Gatwick, Heathrow, Luton, Manchester, Stansted, London City, Aberdeen, Edinburgh, Glasgow, and Inverness airports. (*Civil Aviation Authority*, 2022)

ICAO (International Civil Aviation Organization), a specialized agency of the United Nations, sets the standards for safe operations of civil aircraft on ground and in the air. All 192 member states are committed to adopting the ICAO rules and regulations into their native legislation. Despite their overall impact on the industry, ICAO standards have little to moderate impact on customer satisfaction. (*ICAO, A United Nations Specialized Agency*, 2022)

Non-governmental organizations (NGOs) have a stake in aviation, but mainly in environmental aspects of the business. Several organizations are promoting greener aviation and have action plans to offset the emissions of air travel. NGOs also have initiatives to push humanitarian aid to areas in need. Some NGOs have a goal to reduce and limit air travel. (*Sustainable Aviation*, 2022; *Europe's largest airlines claim net zero future whilst lobbying to weaken EU's climate laws*, 2022)

Industry and passenger lobby organizations have a major role in conducting surveys in the aviation industry. A major stakeholder for airports is Airports Council International (ACI). For airlines, the International Air Transport Association (IATA) is in a similar role, while passengers are represented mainly by local advocacy groups. Local special needs passenger advocates collect opinions from their travelling members. (*Airports Council International*, 2021; *IATA*, 2022)

Business owners in the industry conduct surveys for business development needs. Airlines are monitoring their performance using post-flight surveys and brand awareness studies, airports are conducting departing passenger interviews and online surveys, equipment manufacturers conduct surveys for airlines and corresponding focus groups, business logic and IT providers aim to build airport equipment to suit the need of passengers with best usability.

Commercial surveys conducted by Skytrax receive plenty of attention within the industry, as these ratings are used by airlines and airports in their marketing activities. Airline ranking by Skytrax is conducted by an online survey, and according to Skytrax, they collect more than 13 million reviews annually ('World Airline and Airport Ratings from Skytrax',

2021). However, Skytrax is not willing to open the methods in more detail, and the UK Advertising Standards Authority (*The Advertising Standards Authority*, 2022) has given an order against Skytrax to stop using false claims and prove the authenticity of voters.

Other commercial industry surveys are The Freddie Award, APEX Passenger Choice Award, World Travel Award, and Crystal Cabin Award. These surveys have little informational and commercial value and are less referred by the industry.

The internet boom in the early 2000s brought several peer-review services to the industry. Companies like TripAdvisor started to collect travellers' opinions of travel-related services such as hotels, transport companies, attractions, activities, and restaurants. Google followed with their reviews.

A more recent phenomenon in the world of reviews is the rise of influencers who post their opinions of travel products on their personal Blog, Vlog, social media (Twitter, TikTok, Facebook) or website. Media attention seems to be dependent on the number of followers in social media enhanced with the celebrity status. These reviews are often biased by the fact that the influencers are consuming the goods and services for free, and the service providers want to use the material for marketing purposes. The industry is lacking the standards for influencers; it is not mandatory to disclose dependencies or beneficiaries, thus the commentary usually is biased.

Numerous stakeholders influence the end product of the aviation industry, and service quality is dependent on the stakeholders delivering service seamlessly to the consumers. The seamlessness is measured by satisfactions surveys. The next chapter examines surveys currently conducted by the industry.

2.3 Current surveys by industry

As shown in the previous chapter, the aviation industry is influenced by numerous stakeholders. To visualize this web of stakeholders, Air Transport Action Group (ATAG) has created a map to illustrate the top to mid-level owners of the business. (*ATAG Latest publications*, 2022) Only few of the stakeholders are involved in passenger traffic and related activities, and thus only some stakeholders have an incentive to conduct surveys for the traveling public. Figure 3 below shows the ATAG aviation stakeholder map where some selected stakeholders with business reason to conduct surveys are highlighted, such as Airport, Airline, Media, and Government institutions. These will be the focus of this study.

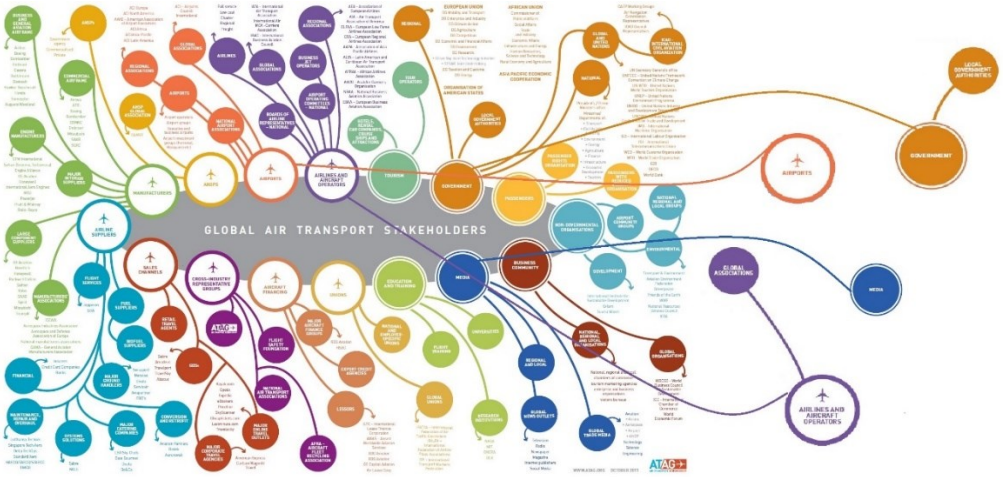


Figure 3. Organizations conducting satisfaction surveys and their places on the aviation stakeholder map. Adapted from map of the global air transport stakeholders (*ATAG Latest publications*, 2022)

Passenger satisfaction is surveyed and studied by several aviation stakeholders, the surveys varying in scope and content. As there are several surveys to choose from, a sample was selected. The surveys examined in this study and listed in this chapter were selected based on their size, number of respondents, and how well known and followed they are in the industry. In other words, the most impactful studies have been selected. Another factor affecting the selection was the availability of data, as accessing full survey question lists is not possible with all studies. Table 1 below summarizes, analyses, and compares the selected surveys.

Many airlines and airports conduct satisfaction surveys to their own customers. These surveys may be conducted either online, for instance after the customer has flown with an airline, or in person at the airport or on board the aircraft. The number of respondents, content, frequency, and timing of the surveys vary, as they are paid for by the stakeholder in question and are designed around their needs. Due to the tailored nature of these surveys, they suit the stakeholder's individual needs well and give answers to the questions important for them to improve the service they provide, but they do not provide comprehensive views of passenger satisfaction in general. Depending on the survey, the results can also vary based on who answers them, as they are usually voluntary, and the respondents may not accurately represent the whole customer base. Conducting these surveys is in many cases outsourced to an external company, as it is not the core business of airlines or airports. However, the ownership of the data remains with the contracting organization. In this study, this survey type is represented by a post-flight satisfaction study conducted via email by Finnair.

A wider view into passenger satisfaction can be gained from surveys conducted by national aviation authorities, such as the UK Aviation Consumer Survey commissioned annually by the United Kingdom Civil Aviation Authority (UKCAA). Besides customer satisfaction, it charts consumers' flying behaviours and attitudes toward aviation. The 2021 edition surveyed 3,500 people online and over telephone, and the sample was weighed to get a demographical representation of the UK adult population. In addition to overall satisfaction, UKCAA's study looks individually at each part of the journey, such as booking process, airport experience, and onboard experience (*UK Aviation Consumer Survey*, 2022). Although surveys conducted by national aviation authorities are in most cases unbiased and somewhat accurately depict the entire population, they are still limited in scope to a single country.

On a national level, passenger satisfaction studies are also conducted by consumer organizations or research companies, such as the public opinion research company American Customer Satisfaction Index (ACSI). They use interview data and a mathematical model to analyse customer satisfaction in various industries, including air travel. In addition to an overall satisfaction score, the ACSI study surveys passenger satisfaction for each major U.S. airline. Like the UK CAA study, it also has separate scores for different aspects of the journey, like cabin cleanliness and seat comfort (*ACSI Travel Report 2020-2021*, 2021). Research companies and organizations that do not have a special focus on aviation do not study in as much detail as those specialised in aviation. The usefulness of their data also varies. For instance, ACSI's report does not differentiate between different demographic groups, making it impossible to analyse the satisfaction of any certain group of passengers. They also have the limitation of only examining a single country.

There are other research companies focused solely on aviation. Perhaps the best-known example is Skytrax, previously introduced in Chapter 2.2. They publish the Skytrax World Airline Ratings and World Airport Ratings and give out annual awards for the best airlines and airports. The ratings are, in fact, not based on customer satisfaction surveys. Instead, Skytrax claims they are based on independent analysis of the airlines and airports' products and services. The awards, on the other hand, are based on online passenger surveys. There have been doubts about the objectivity of the ratings, and some airlines have left the rating system as a result. The validity of Skytrax's awards has also been questioned, as there have been instances in which the number of voters claimed by Skytrax has been greater than the number of visitors on their website during the voting period. Nevertheless, Skytrax ratings and awards remain highly valued by the industry. (Garcia, 2014)

One of the major surveys in the aviation industry is the annual Global Passenger Survey (GPS) conducted by the International Air Transport Association (IATA). The 2021 survey had 13,579 respondents across 186 countries. A significant part of the GPS focuses on passenger satisfaction, with questions related to the overall travel experience as well as particular aspects of the journey, such as booking, check-in, and boarding (*Global Passenger Survey (GPS)*, 2021). Its reach is geographically wide, but not completely global and universal, as the GPS does not cover all passenger groups equally. As IATA is funded by its member airlines, the survey has less of a focus on non-member airlines and their passengers. As many low-cost carriers are not IATA members, this means the GPS has a weaker coverage of low-cost carriers' passengers and their interests.

Consumer insight company J.D. Power conducts a survey in the US market called J.D. Power North America Airline Satisfaction Study, commissioned by US-based airlines. The North America Airline Satisfaction Study measures passenger satisfaction with airline carriers in North America based on performance in eight factors: aircraft, baggage, boarding, check-in, cost and fees, flight crew, in-flight services, and reservation. The survey also splits the passengers by segment to First/Business, Premium economy, and Economy groups. It is based on 7,000+ respondents, who have used air transport in the past month. The data collection period is somewhat long, as the data was collected continuously throughout the year. ('North America Airline Satisfaction Study', 2021) The report of the results mainly focuses on the rankings between carriers in US. (*North American Airline Passenger Satisfaction Declines: Here's Why That's Good News, Says J.D. Power*, 2022)

User review sites, such as TripAdvisor and AirlineRatings.com, have taken a notable role in affecting travellers' decisions, although not passenger surveys per se. In a 2013 TripAdvisor study, 53 per cent of respondents told they do not make property reservations before consulting at least one TripAdvisor review. (*Travellers' Choice*, 2022) TripAdvisor is perhaps best known for reviews of accommodation and sights, but it gives users the chance to leave their reviews of airlines as well. It has also included airlines to its Travellers' Choice awards, which are awarded annually based on global TripAdvisor reviews. In addition to the overall awards, TripAdvisor also awards the best airlines of each region, as well as the best airlines in each travel class. (Gonzalo, 2014)

Table 1. Summary of satisfaction surveys conducted by aviation industry stakeholders that have been examined for this study

Survey	Who conducts	Who pays	Demographic	Issues
Airline/airport surveys	Airline/airport themselves, or outside company on their behalf	Airline/airport themselves	Passengers of the airline/airport	Limited in scope, only those interested will take part
UK Aviation Consumer Survey	UK Civil Aviation Authority	UK Civil Aviation Authority	UK residents	Limited to one country
ACSI Travel Report	American Customer Satisfaction Index	Airlines	US residents	Limited to one country, data not segmented
World Airline/ Airport Ratings	Skytrax	Airlines and airports	N/A	Not based on surveys, methods lacking transparency
IATA Global passenger survey	IATA	IATA / Airlines / Analyst	Global	Annual
North America Airline Satisfaction Study	J.D. Power	Airline / Analyst	North America only	Limited to USA/Canada, annual
Travellers' Choice Awards etc.	TripAdvisor and other review sites	Review sites / Airlines	Global	Based on user ratings rather than proper surveys

In summary, satisfaction surveys in aviation are conducted by various stakeholders for various needs. As can be seen from Table 1 above, the surveys selected for examination in this study all have different scopes and are paid for by different kinds of stakeholders. Some issues can be identified in the scope and methods of all surveys, although some of these are likely to be deliberate choices stemming from different business needs.

This chapter explained the state of aviation industry in the past and present, collected the industry stakeholders and identified the most important surveys to be studied in this thesis, illustrated in Table 1. The survey data can be used to analyse best fits to traveling public. Chapter 3 focuses on the ways to use the data as a tool to improve customer satisfaction and what academia says about surveys in general.

3 Theory

This chapter introduces the theoretical background for satisfaction surveys and linkage to business development activities, types of surveys, systematics of surveys, passenger satisfaction, customer experience, and purchase behaviour. This chapter also reviews scholarly and academic sources to find out how the satisfaction phenomenon has been studied and what the key findings are.

3.1 Business process of gathering insights

Producing high-quality products and providing high-quality services is crucial for businesses to remain competitive. According to Hayes (2008), quality must often be measured through perceptions and attitudes, as more concrete, strictly objective criteria may not be applicable to many aspects of products and services. To use perceptions and attitudes for this, customer satisfaction needs to be accurately surveyed, as accurate information about customer satisfaction helps businesses adjust their offerings to better serve their customers. (Hayes, 2008)

The general process for building a customer satisfaction survey to gather insights, as displayed in Figure 4 below, consists of three steps. First, customer requirements are identified to pinpoint what aspects of the product or service the customers are looking for, and thus what should be surveyed. The second step is developing and evaluating the survey so that the information received corresponds to the customer requirements. Lastly, the survey is conducted in a way that delivers the specific information needed about customer perceptions. (Hayes, 2008)

Figure 4. The general process for building a customer satisfaction survey (Hayes, 2008)

Hayes (2008) introduces two methods for determining customer requirements, also referred to as quality dimensions: quality dimension development and critical incident approach. Quality dimension development involves using expert sources, such as industry literature and people within the business, to determine the most crucial quality dimen-

sions. These are then clarified with concrete examples to develop a specific list of customer requirements. The critical incident approach, on the other hand, puts the focus on the customers themselves, asking them about actual incidents that would define good and bad aspects for them in the process of acquiring the product or service. The list of critical incidents received from interviewing customers is grouped to find themes, which are then examined to find the customer requirements. (Hayes, 2008)

Developing a survey consists of four phases: selecting questions, choosing the response format, writing an introduction, and determining the final survey content. In addition, the reliability and validity of the methods selected should be considered. (Hayes, 2008)

Survey questions or statements should be selected so that they correspond to customer requirements. They should also be specific in their form, as any ambiguity may lead to customers interpreting the questions differently from one another. Specificity also means the survey results provide specific feedback on how to improve the product or service. The choice of response format determines how the data from the survey can be used. Formats range from a simple yes/no checklist approach to Likert scales, which allow customers to respond in varying degrees to each item. Each one has their advantages: the checklist is easy for customers to respond to, while the Likert scale yields more reliable results. The introduction to a survey should ideally be brief, explain the purpose of the survey, and tell respondents how to complete the items. Before taking the final version of the survey into use, a test survey can be conducted for the purpose of selecting the items for the final version. Based on the responses to the test survey, this can be done either by using one's own judgment in selecting items that best represent customer requirements, or through various means of mathematical analysis. (Hayes, 2008)

Once the survey has been conducted, often including a suitable sampling method as not all customers can be surveyed effectively, the data gathered can be used for several purposes depending on business needs. The results can simply be summarized and presented using descriptive statistics, such as mean, variance, and standard deviation. If need be, the data can then be used to determine the importance of each customer requirement by examining which requirement correlates the most with overall satisfaction. The data can be used to monitor development of the product or service quality over time by mapping it into a control chart. Furthermore, survey data can be compared with other businesses to discover areas where competitors are achieving higher ratings and then determining how they serve their customers in those areas, thus strengthening the business and improving business opportunities. (Hayes, 2008)

3.2 Satisfaction surveys as part of business development

Kennedy (2015) defines business development as “the discipline required to achieve growth through the acquisition of new customers and expansion of existing customers”. It is cyclical in nature, as further improvements are always made based on results and feedback from previous actions. (Kennedy, 2015) Business development needs and strategies differ for different sizes of companies, but in general, business development helps to build important relationships, boost revenue and lower costs, improve the company brand image, and create opportunities for expansion. As such, a company’s growth and value can largely depend on how successful their business development practices are. (*Business Development and Its Importance*, 2020)

Kennedy (2015) identifies the following steps to business development:

- Offer: Creating a solution for the customer’s need.
- Marketing: Making the market aware of the offer.
- Selling: Attracting new customers.
- Customer management: Delivering the solution so that the customer base is retained, expanded, and leveraged.
- Partnerships: Co-operation with other businesses to expand opportunities.
- Feedback: Improving the offer based on customer and staff opinions.

On this list of steps, satisfaction surveys are strongly linked to the last one, feedback. The closer a company can get to their customers and what they think, the clearer their view about what must be done to make the offer more suitable for the customer’s need. The best way to do so is to have a formal customer review process, usually in the form of a questionnaire. This allows for collection of both qualitative and quantitative data from the customers. (Kennedy, 2015) High levels of customer satisfaction have been shown to correlate with increased loyalty and repurchase intent, accelerated cash flow, reduced cost of capital, and better performance on the stock market, among other positive business indicators. (Curtis *et al.*, 2011; Williams and Naumann, 2011)

Airline financial survival is dependent on delivering high-quality services to passengers. Service quality affects company competitive advantages, retaining customers, drives the market share and ultimately profitability (Morash and Ozment, 1994). In a competitive marketing landscape, providing high-quality transport service becomes a marketing requirement for airlines. To deliver improved service for passenger, airlines must monitor and understand the needs and expectations of passengers (Aksoy, Atilgan and Akinci, 2003). Thus, getting satisfaction data from passengers allows companies to see the areas

that are most in need of improvement and focus on them to further develop their business. One of the main ways to achieve this is by conducting satisfaction surveys.

The main factor why businesses conduct customer satisfaction surveys is that satisfied customers are many times more profitable. According to Sheth and Parvatiyar (2001), statistical analysis shows that a totally satisfied customer contributes 2.6 times as much revenue to a company as a somewhat satisfied customer, and 17 times as much revenue as a somewhat dissatisfied customer. Meanwhile, a totally dissatisfied customer brings a revenue decrease 1.8 times as great as the revenue contribution of a totally satisfied customer. (Sheth and Parvatiyar, 2001) As such, keeping customers satisfied is vital for businesses to survive.

There are two main types of techniques that can be used for conducting satisfaction surveys (Heikkilä, 2014; Ojasalo, Moilanen and Ritalahti, 2015):

- Questionnaires consist of a list of questions that respondents can answer individually.
- Interviews involve asking a respondent a series of questions and following up with additional questions based on their answers.

The validity of a survey is dependent on the survey method in use. Susilo et al. (2017) found satisfaction to be in correlation to different determinants based on the survey method in use. They also found that baseline satisfaction depends on the survey method, as depending on the survey method, “the satisfaction that was gathered on the main trip leg does not necessarily correspond with overall satisfaction of the door-to-door journey” (Susilo *et al.*, 2017). This should be considered when designing air passenger surveys for the public. In most cases, the survey excludes the multi-modal aspect of the full journey. Susilo et al. (2017) also point out that studying an individual part, a leg of a journey, brings only limited results for overall satisfaction; also, segmentation details and knowledge of trip purpose has been excluded from the studied surveys.

All in all, satisfaction surveys are a vital part of business development, as successful development requires current data on what the customers think is important and what the performance in those areas is like. Studies show that satisfied customers bring notably more revenue than dissatisfied customers. Thus, the importance of satisfaction surveys as a development tool and understanding the customer experience for successful business development remains high.

3.3 Passenger satisfaction

The term ‘satisfaction’ is derived from the Latin *satis*, enough, and *facere*, to do or make. In other words, satisfaction could be described as the feeling of something being or doing enough to meet expectations. (Oliver, 2010) Oliver (1981) defines satisfaction as a feeling of pleasure or disappointment when comparing product performance with one’s prior expectation. Taken into a consumption perspective, satisfaction is known as customer satisfaction, which Rust and Oliver (1993) define as “an emotional response that results from a cognitive process of evaluating the service received against the costs of obtaining the service”. (Oliver, 1981; Rust and Oliver, 1993) If the quality of goods or service is lower than the individual expects, the consumer is dissatisfied, while quality exceeding expectations leads to satisfaction. A customer’s emotional response to their satisfaction is change in behavioural intentions, such as repurchase intention, word of mouth, or recommendations. (Curtis *et al.*, 2011; Harris, 2014) Since the level of satisfaction reflects how expectations match the perceived level of quality, it is an individual feeling. Thus, the same level of quality may cause satisfaction to one person and dissatisfaction to another.

In aviation, the consumer of the transportation service is the passenger, and thus, customer satisfaction is referred to as passenger satisfaction. Passenger satisfaction in the aviation industry and its effects on business have been widely researched from the perspective of both airlines and airports (Curtis, Rhoades and Waguespack Jr., 2012; Kos Koklic, Kukar-Kinney and Vegelj, 2017; Vokáč, Lánský and Szabo, 2017; Park *et al.*, 2019). With aviation being a highly competitive field, passenger satisfaction has been identified as a key factor for choosing both the airline to travel on and the airport to travel through (Vokáč, Lánský and Szabo, 2017; Park *et al.*, 2019). One of the main determinants of passenger satisfaction is the perceived quality of service, and the two are often used interchangeably. However, passenger satisfaction is a broader term than service quality, which focuses only on aspects of the service dimension. In addition to service quality, other factors influencing passenger satisfaction are product quality, price, situational factors, and personal factors. (Sanyal and Hisam, 2016)

According to Oliver (2010), satisfaction leads to increased profits, market share, and stock value. This happens both due to satisfaction being a precedent for customer loyalty and due to it increasing retention, purchasing, price tolerance, advertising vigilance, and competitive insulation. (Oliver, 2010) Similarly, enhancing passenger satisfaction, trust, and perceived value has been shown to improve repurchasing behaviour, increase company market share and profit and in the long run positively impact airline long-term success. (Chanpariyavatevong et al., 2021) As shown in Figure 5, customer satisfaction is directly

linked to perceived value, perceived service quality, and customer expectations, the perceived value link being the strongest of the three. (Chonsalasin, Jomnonkwao and Ratanavaraha, 2020)

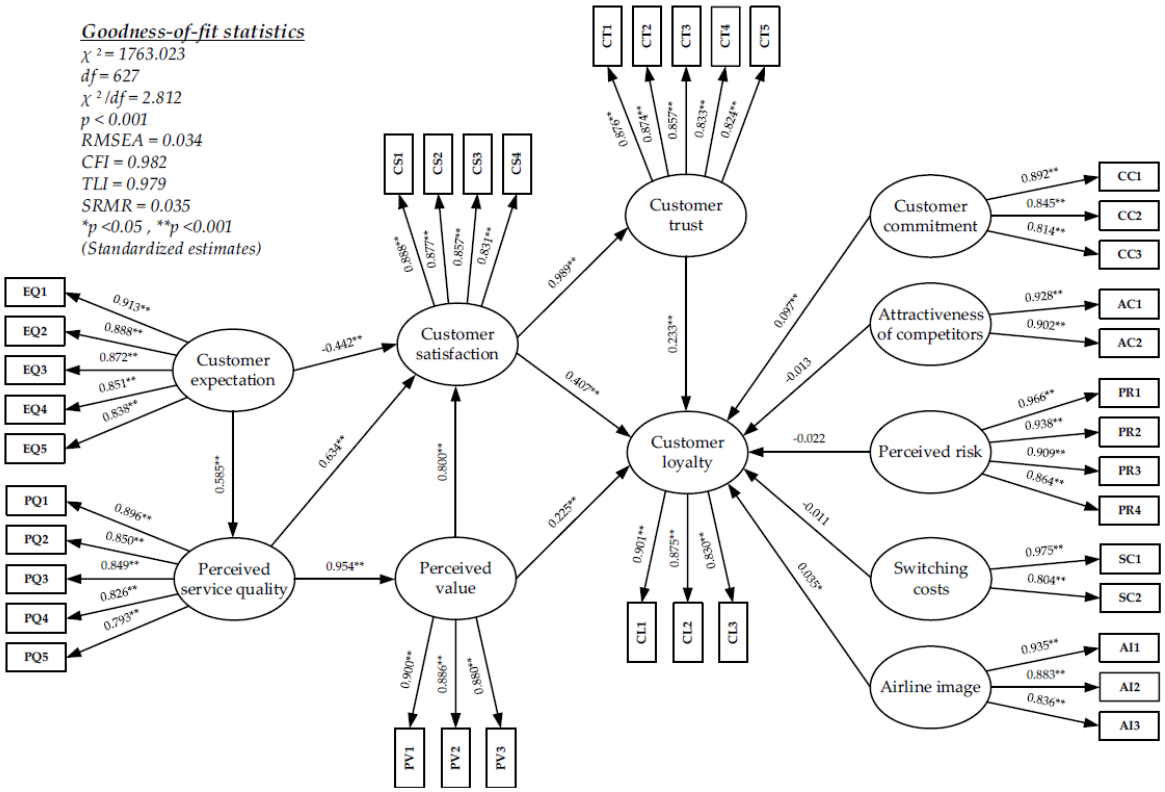


Figure 5. Factors influencing passenger satisfaction and their strengths (Chonsalasin, Jomnonkwao and Ratanavaraha, 2020)

In summary, understanding passenger satisfaction is crucial for aviation stakeholders, as satisfaction leads to increased customer loyalty and profits, among other benefits. Understanding satisfaction and how to survey it helps create surveys that are better suited to business needs of the organization, thus providing better insights into customers. This gives more accurate data that can be used for business development. Successful business development helps increase satisfaction, which leads to increased profits.

In industries where competing businesses all provide somewhat similar offerings, it has been suggested that to create customer satisfaction, companies need to provide positive experiences for the customer. Indeed, a positive customer experience is one of the most critical determinants of customer satisfaction, and satisfaction is a key indicator of customer experience. (Laming and Mason, 2014; Pei *et al.*, 2020)

3.4 Customer experience

Customer experience is a wide term used to explain the consumer response during all stages of product or service utilization: pre-purchase, consumption, and post-purchase stages (Rust and Oliver, 1993; Oliver, 2010). Despite having its roots in economic works of the early twentieth century and being extensively studied since, there is still no agreement on the definition, foundations, or even nature of customer experience. (Klaus, 2015) Gentile, Spiller and Noci (2007) define it as “originating from a set of interactions between a customer and a product, a company, or part of its organization, which provoke a reaction”. They go on to add that the experience is personal, and its evaluation depends on the comparison between the customer’s expectations and the stimuli coming from touchpoints of interaction with the company. (Gentile, Spiller and Noci, 2007) On the other hand, Meyer and Schwager (2007) use a much simpler definition of “the internal and subjective response customers have to any direct or indirect contact with a company”, while Becker and Jaakkola (2020) note that the term is used in reference to both the customer’s response to an offering and assessment of the quality of the offering. They suggest re-defining it as “comprising customers’ non-deliberate, spontaneous responses and reactions to offering-related stimuli along the customer journey”, ranging from ordinary to extraordinary based on the intensity of response. (Meyer and Schwager, 2007; Becker and Jaakkola, 2020) In summary, it seems most sources agree that customer experience involves interaction with and reactions to the offering of a company or product, but little agreement exists on further details.

In medical literature, experiences are widely recognized to be multidimensional, consisting of sensory, cognitive, and emotional components. According to Gentile, Spiller and Noci (2007), the same also applies to customer experience, although the difference is that it is not perceived so by customers while they are having the experience. Instead, customers perceive each experience as a complex but unitary feeling. To achieve best success, the value proposition of a business or service should include elements covering both experiential and functional categories of the customer experience. The following dimensions of customer experience have been identified: (Gentile, Spiller and Noci, 2007)

- Sensorial: sight, hearing, touch, taste, and smell to arouse aesthetical pleasure, excitement, satisfaction, sense of beauty. Example in aviation: Interior of an aircraft.
- Emotional: generation of moods, feelings, emotions to create an affective relation with the company, its brand, or products. Example in aviation: Friendliness of flight attendants.

- Cognitive: thinking or conscious mental processes; an offering may engage customers in using their creativity or in situations of problem-solving. Example in aviation: Finding a low air fare.
- Pragmatic: practical act of doing something; in this sense the pragmatic component; not only the use of the product in the post-purchase stage, but all the product life-cycle stages. Example in aviation: Getting transport from A to B.
- Lifestyle: affirmation of the system of values and the beliefs of the person through the adoption of a lifestyle and behaviours. Example in aviation: Association with luxury brand, frequent flyer program.
- Relational: encourages the use or consumption together with other people; creation of a community, tribe or social identity including sense of belonging or of distinction from a social group. Example in aviation: Sharing travel news in social media, status in frequent flyer program.

In aviation and specifically passenger traffic, the consumer experience begins from pre-purchase intentions that are guided by past experiences. Positive service perception has direct influence on behavioural intentions, and positive influence on airline image will get passengers to form a favourable overall image of the airline, which drives them to travel again and recommend the airline to others. (Park, Robertson and Wu, 2004) Delivering a good customer experience is crucial in a field as competitive as aviation, since almost 60 per cent of people are willing to switch brands for a better experience, and bad brand experiences are mentioned far more often than good ones. Measuring the value experiences create for the passenger is one of the main tools for airlines to build and maintain their customer experience. Acquiring, managing, and analysing data on passenger satisfaction allows airlines to track how changes in their customer experience affect their passengers and optimize their operations for maximum profitability. (Reichheld *et al.*, 2016)

In summary, customer satisfaction surveys can be used as a tool for refining customer experience. As customer experience is multidimensional, companies should cover both experiential and functional categories of it to improve their offering and the experience of customers. This allows for the best economic results, especially in highly contested fields such as aviation, as an improved customer experience positively affects the purchase behaviour of customers.

3.5 Purchase behaviour

The purchase behaviour of consumers is a topic that has been studied extensively even before the dawn of marketing research, through the fields of economics, sociology, psychology, and anthropology (Sethna and Blythe, 2019). Solomon et al. (2006) define consumer behaviour as “the processes involved when individuals or groups select, purchase, use or dispose of products, services, ideas or experiences to satisfy needs and desires”, while Sethna and Blythe (2019) use the simple definition of “the activities people undertake when obtaining, consuming and disposing of products and services”. Going further into detail, consumer behaviour can be presented as a dynamic interaction consisting of several internal and external factors. According to this model, actual consumer behaviour is formed by combining a person’s basic attitudes – cognition, emotion, and intention – with personal and environmental factors. (Solomon *et al.*, 2006; Sethna and Blythe, 2019)

The way consumers tend to behave when making a purchase can be presented as a six-step process, as displayed in Figure 6 below. This model covers the entire process from recognising the need to disposing of the purchase after its use. After having recognised the need for making a purchase, the consumer searches for information regarding the purchase they are about to make. This could include researching options on company websites, checking online reviews, or asking friends for word-of-mouth recommendations. Once the different options have been charted out, the consumer makes a list of their requirements and criteria, such as price and properties, and evaluates the options to see which ones fit best. Once the final choice has been made, the consumer makes the purchase. After that, the product or service is used by the consumer and evaluated against their expectations, which largely defines how they will feel about their purchase. Once the lifespan of the purchase is over, the consumer disposes of it. Depending on how they feel about the purchase, disposal can be followed by making a new purchase. This model applies best for high-involvement, somewhat expensive purchases. If the purchase in question is low-involvement, routine, and does not need extended problem-solving, some steps of the process may be skipped entirely. (*Principles of Marketing*, 2010)

Figure 6. Stages in the consumer's purchasing process (*Principles of Marketing*, 2010)

Another model that can be used to explain the motivation for consumer purchase behaviour is Maslow's Hierarchy of Needs. Its main idea is that people fulfil their needs in a specific order: survival and security needs must be fulfilled before the individual goes on to think about aesthetic needs, for instance. (Sethna and Blythe, 2019) Even though Maslow's hierarchy can be seen as somewhat outdated, its simplicity is the key driver for using it to illustrate motivation. It can be modified to suit the airline industry, as the lower-level needs must be satisfied before moving on higher levels. Figure 7 below shows how low-cost carriers influence their passengers' travel motivation on different levels of the hierarchy. As can be seen, the lower-level needs are not always met by buying the basic product, most dominantly in the case of low-cost carriers, but need to be purchased separately. Still, an individual can move towards self-actualisation, as the low-cost industry can facilitate more frequent participation in travelling due to lower ticket prices. (Edwards, 2011)

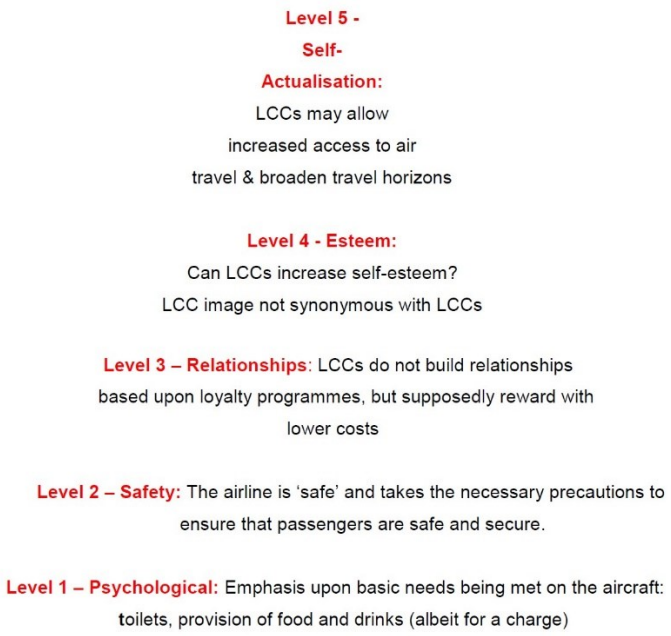


Figure 7. The influence of low-cost carriers on travel motivation, adapted from Maslow's Hierarchy of Needs (Edwards, 2011)

Passenger purchase behaviour can be influenced in multiple ways. One of the classical means of influencing consumers is conditioning, as introduced by Pavlov (Bitterman, 2006). By repetitive exposure to an advertisement or other stimulus, associated humour or fear can trigger an emotional response to a product or service. (Sethna and Blythe, 2019)

Mere exposure effect is a form of behaviour conditioning in which the consumer is blasted with product advertisement extremely frequently, the mere frequency making people consider the company or product over its competitors. The familiarity created by the mere exposure effect makes the product or service more likeable, but if the repetition becomes excessive, the consumer gets bored or fatigued and no longer pays attention to the stimulus. (Solomon *et al.*, 2006)

Radical conditioning (Sethna and Blythe, 2019) works well on the low-cost carrier market by introducing penalties for checked bags, check-in at a counter, or seat selection. This gets the passenger to feel good as they are saving money by avoiding these charges, while in fact this lowers the airline's costs, as most of these tasks are done by airline personnel on full-service carriers.

According to Park, Robertson and Wu (2004), there are three key components that have a direct effect on passengers' behavioural intentions: 1. Service value 2. Passenger satisfaction 3. Airline image. Similarly, customers in other industries have been shown to

change their purchase behaviour based on their satisfaction, as satisfied customers are more likely to be loyal to the brand and return to make new purchases. (Faullant, Matzler and Füller, 2008; Curtis *et al.*, 2011) This implies the need for airlines to closely monitor and understand the passenger-focused services to raise satisfaction and value perception to enhance company commercial viability. (Park, Robertson and Wu, 2004)

After the desired behaviour by purchasing the product or service, the consumer will start their air travel journey. The next chapter will investigate types of passengers and the physical touchpoints along the delivery of the air transport service.

3.6 Passenger segmentation and journey segments

A passenger journey in an aviation context is the chain of touchpoints a passenger experiences while consuming the transportation service. The passenger is considered to be the consumer while receiving the service. Touchpoints and the passenger flow require infrastructure to implement the services. (Alodhaibi, Burdett and Yarlagadda, 2018)

A passenger journey illustrates physical touchpoints of a transportation service the consumer is taking. It opens the touchpoints to wider observation and explains the background processes as well. The journey can be mapped in graphical form by creating a blueprint model of the journey touchpoints. (Bitner, Ostrom and Morgan, 2008)

Passenger journey

For this study, two major aviation stakeholders' views of passenger journey were considered: SITA and IATA. SITA is a leading information technology infrastructure provider for many airlines and airport operators and the International Air Transport Association (IATA) is a lobby organization for its airline members.

SITA definition for passenger journey

SITA is an information technology infrastructure vendor for many airlines and airports, providing passenger management services for most of the touchpoints along the journey including check-in, baggage drop, boarding and the luggage handling process. According to SITA, the air passenger journey has a total of 11 passenger facing touchpoints and 4 internal process events along the journey, as described in Figure 8 below.

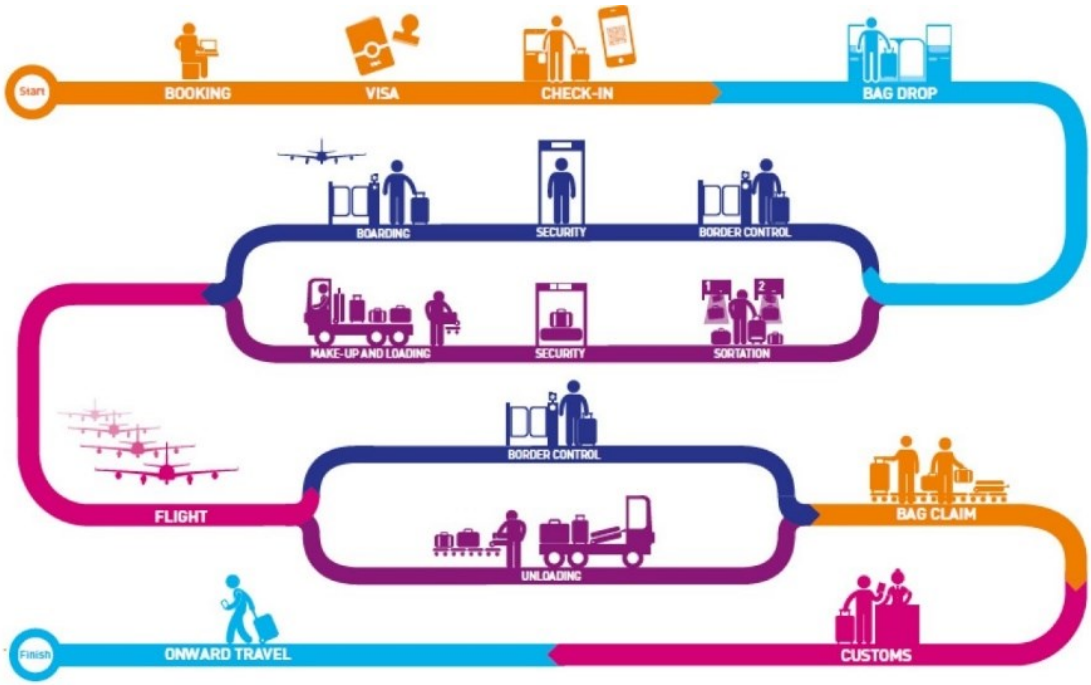


Figure 8. SITA A Whole Journey Approach 2017 (*SITA*, 2022)

Many touchpoints may have airline internal or invisible side processes connected to main touchpoints that are triggered by irregular operations such as delays, missed connections or lost luggage. SITA's Whole Journey Approach focuses only on uneventful or non-interrupted journeys. They also provide IT solutions for airlines to overcome the troubles of irregular operations, aiming to help airlines to reaccommodate stranded passengers and to improve the airline customer satisfaction.

IATA definition

The IATA approach to the passenger journey aims to improve the customer experience for passengers in air transportation. Their goal is to reduce unnecessary queueing by defining optimal times for different stages of the airport and airline process. The concept of "Level of service" (LoS), introduced in Figure 9 below, covers the airport and airline part of the journey in a total of 7 touchpoints, but excludes the booking, visa, flight, and customs touchpoints.

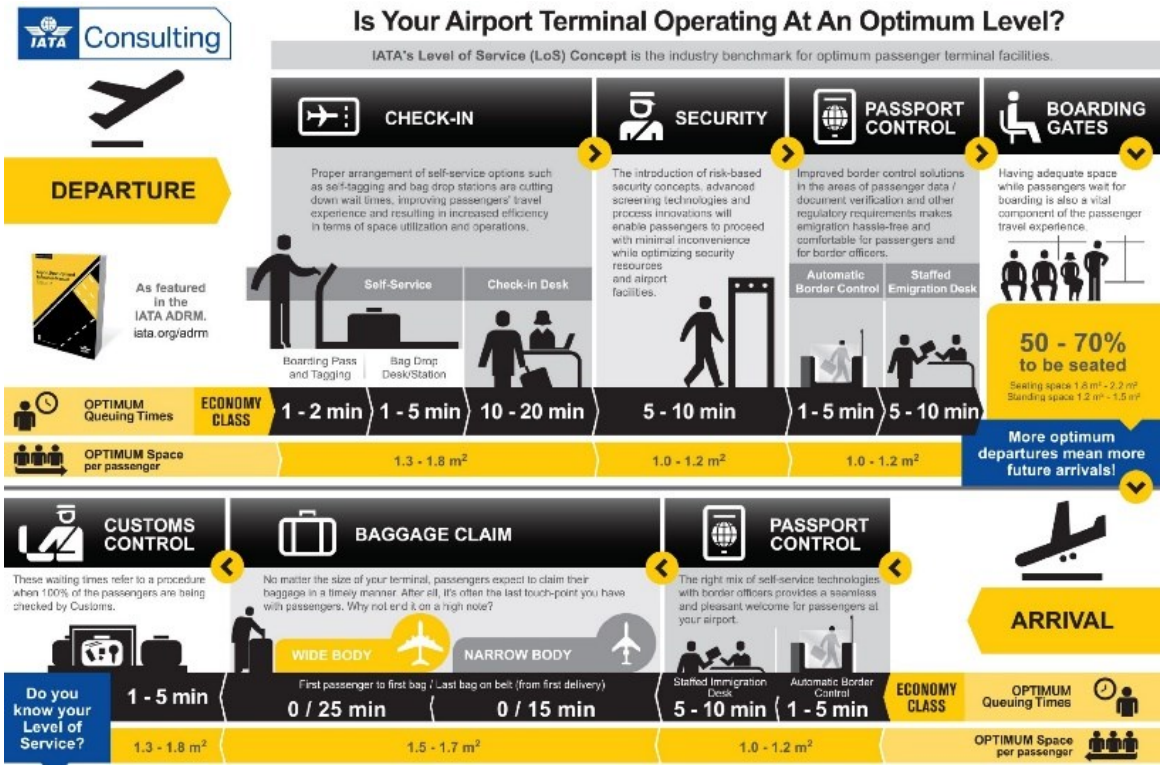


Figure 9. IATA Airport touchpoint definition 2019 (*IATA*, 2022)

As we found out in our study, IATA has no focus on the flight touchpoint, but focuses mainly on the touchpoints surrounding the flight segment. However, comparing the two definitions, it can be seen that the parts covered by both are arranged into touchpoints similarly. Besides including internal processes taking place behind the scenes while the passenger progresses through the airport, SITA's approach also takes a wider view of the passenger journey, beginning with booking and ending with onward travel from the destination airport. In conclusion, based on these two examples, there seems to exist a consensus on the touchpoints of a passenger journey, but different stakeholders may exclude certain parts of the full journey based on their areas of focus.

Passenger segmentation

According to Reid and Bojanic (2009), market segmentation divides the total market into "homogeneous sub-sets of customers, each of which responds differently to the marketing mix of the organization". (Reid and Bojanic, 2009)

Segmentation can be done for example in demographics, behavioural, attitudinal, geographical, or psychographic groups. Historically, airlines have created passenger segments based on the purpose of travel (demographics): leisure or business. The two main categories are then divided into sub-categories, three in business: meeting, conference,

and incentives; and three in the leisure category: holiday, visiting friends and relatives (VFR), and study. Figure 10 below illustrates the passenger segments in a hierarchical manner. (Cook and Billig, 2017) More sub-sets increase the accuracy of data and makes it possible to study on a more fine-grained level.

Figure 10. Airline passenger market segments and sub-segments (Cook and Billig, 2017)

Different market segments have different needs, and similarly, the drivers of satisfaction differ between segments. (Füller and Matzler, 2008) This highlights the importance of being able to identify the segment of each respondent in satisfaction surveys correctly and accurately to gain maximal use of the data. Despite this, only some of the passenger satisfaction surveys examined ask any segmentation details from respondents, which causes survey respondents to fall into generic groups and distort the accuracy of survey.

Passenger satisfaction and the passenger journey

Tsafarakis, Kokotas and Pantouvakis (2018) design a tool for measuring and analysing airline passenger satisfaction. In their study, they conduct a satisfaction survey for passengers of Aegean Airlines. The survey measures overall satisfaction for the entire journey, overall satisfaction for segments of the journey, and satisfaction for individual touchpoints within the journey segments. Using multicriteria satisfaction analysis (MUSA), the research charts the extent to which each segment and its respective touchpoints contribute to overall passenger satisfaction. (Tsafarakis, Kokotas and Pantouvakis, 2018)

For the purposes of their study, Tsafarakis et al. (2018) divide the passenger journey in six main segments: pricing policy, website, flight schedule and routes, airport services, service during the flight, and after landing. Based on a comparison of the passengers' overall satisfaction ratings and the separate ratings given in the six segments, the study

gives weights for each segment as a percentage of the overall satisfaction, displayed in Figure 11 below. (Tsafarakis, Kokotas and Pantouvakis, 2018)

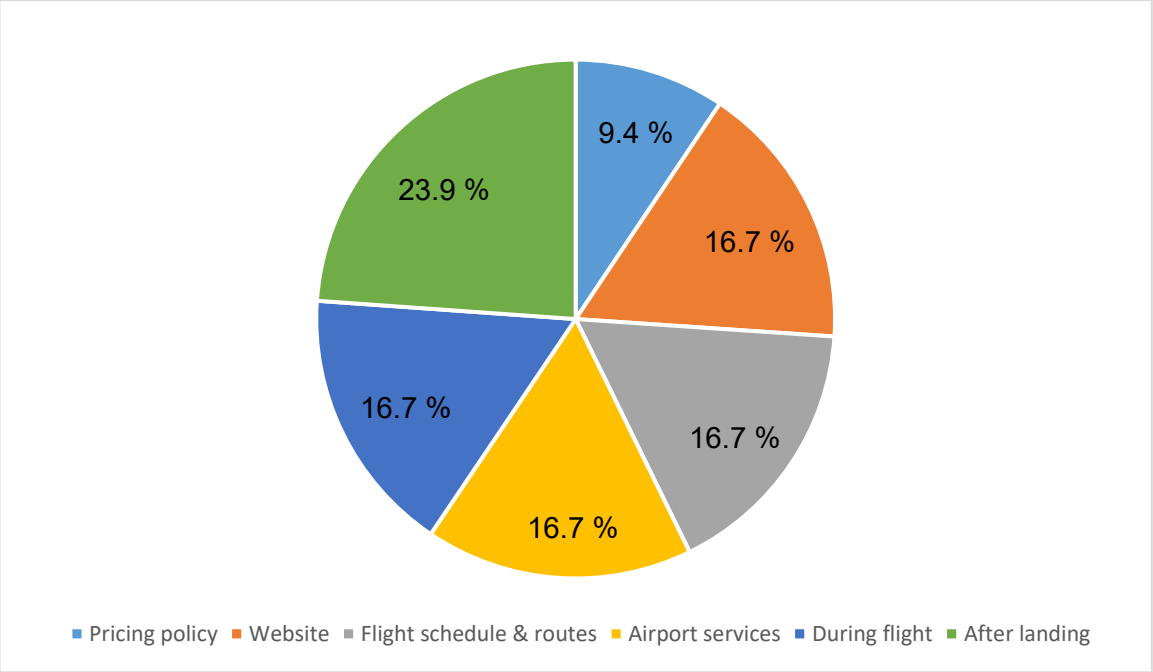


Figure 11. The weight of different segments of the customer journey on overall passenger satisfaction (Tsafarakis, Kokotas and Pantouvakis, 2018)

As can be seen in Figure 11 above, the most important journey segment for overall passenger satisfaction is after landing at 23.9 per cent of overall weight, while the segment with the smallest effect on satisfaction is pricing policy at 9.4 per cent. Between them, website, schedule and routes, airport services, and services during the flight are all deemed to be of equal importance, at 16.7 per cent of the overall satisfaction.

Tsafarakis et al. (2018) further divide each segment into touchpoints, similarly analysing the importance of each touchpoint for the satisfaction within each segment. Combining these two analyses, the overall weight of each separate touchpoint on overall passenger satisfaction across the entire journey can be calculated. These overall weightings, as displayed in Table 2 below, show that the three most important touchpoints are online check-in, staff service while boarding, and disembarking effectiveness, each accounting for more than 10 per cent of overall satisfaction. These results are used in this study to examine how well current passenger surveys fit what passengers deem important.

Table 2. The weight of each touchpoint of the customer journey on overall passenger satisfaction (Tsafarakis, Kokotas and Pantouvakis, 2018)

Touchpoint	Segment	Overall weight of segment	Weight of touchpoint in segment	Overall weight of touchpoint
Ticket pricing	Pricing policy	9.4 %	25.0 %	2.4 %
Value/money	Pricing policy	9.4 %	39.1 %	3.7 %
Extra charges	Pricing policy	9.4 %	13.1 %	1.2 %
Offers	Pricing policy	9.4 %	22.9 %	2.2 %
Travel info	Website	16.7 %	15.0 %	2.5 %
Online purchase	Website	16.7 %	13.7 %	2.3 %
Online check-in	Website	16.7 %	71.3 %	11.9 %
Destinations	Flight schedule & routes	16.7 %	26.9 %	4.5 %
Airport proximity	Flight schedule & routes	16.7 %	38.5 %	6.4 %
Schedule	Flight schedule & routes	16.7 %	34.7 %	5.8 %
Check-in desk waiting time	Airport services	16.7 %	11.9 %	2.0 %
Check-in desk service	Airport services	16.7 %	11.9 %	2.0 %
Boarding efficiency	Airport services	16.7 %	15.8 %	2.6 %
Staff service while boarding	Airport services	16.7 %	60.4 %	10.1 %
Flight attendants	During flight	16.7 %	14.3 %	2.4 %
Cabin cleanliness	During flight	16.7 %	17.0 %	2.8 %
Toilet cleanliness	During flight	16.7 %	14.3 %	2.4 %
Seat comfort	During flight	16.7 %	14.3 %	2.4 %
Food/drink service	During flight	16.7 %	18.7 %	3.1 %
Airline magazine	During flight	16.7 %	12.4 %	2.1 %
In-flight entertainment	During flight	16.7 %	9.1 %	1.5 %
Disembarking effectiveness	After landing	23.9 %	69.7 %	16.7 %
Luggage pick-up time	After landing	23.9 %	13.9 %	3.3 %
Luggage treatment	After landing	23.9 %	16.3 %	3.9 %

This chapter introduced the theoretical background for satisfaction surveys, the satisfaction phenomenon, and how they can be linked to aviation through passenger journeys and passenger segmentation. In summary, existing research clearly demonstrates the importance of customer satisfaction to bottom line, loyalty, and re-purchase intentions, thus

showing a need for stakeholders in the aviation industry to collect and analyse accurate customer satisfaction data to act as a basis for their business development activities.

4 Methodology

This chapter discusses the methods chosen for the research, starting with a description of research methods and approaches: qualitative, quantitative, and mixed methods research, as well as identifying the methods used in this study. This is followed with introducing the research design and process. To close the chapter, data sources used in the study are examined.

4.1 Research methods, approach, and philosophy

The methods used when conducting research can be divided into two main categories: theoretical and empirical research. Theoretical research focuses on studying the research object based on theoretical structures by defining structures and conceptual models with the help of research literature. The results of empirical research, on the other hand, are achieved by observing, analysing, and measuring the research object. Empirical research methods can further be divided into quantitative and qualitative research. (*Theoretical Research*, 2010; Heikkilä, 2014)

As the name suggests, quantitative research answers research questions related to quantities and percentages. It uses measurable properties to describe objects and phenomena and examines dependences between and changes to phenomena. Quantitative research usually involves a random sample with a large quantity to represent the statistical population being examined, so that the results received can be generalized for the entire population. In quantitative research, the researcher is clearly separated from the research object and does not influence it. (Heikkilä, 2014; Ojasalo, Moilanen and Ritalahti, 2015)

The fundamental philosophy behind quantitative research is positivism, which has its base in the scientific method. It involves creating hypotheses, which are then tested based on the analysis of observable, measurable data that is gathered about the research object. Quantitative data is often mapped into plots or graphs for preliminary analysis to spot patterns, outliers, and potential data entry errors. It is then analysed using statistical procedures, and the results of the analysis compared to the original hypotheses. (Kraska, 2010)

Instead of describing phenomena, qualitative research aims to better understand them and the reasons behind decisions and actions. Thus, qualitative research is often used when examining topics not well known in advance. Qualitative research focuses on a small sample whose members have been purposefully selected based on what objects and phenomena are to be studied closer. Unlike in quantitative research, the researcher is

often very close to the research object. (Heikkilä, 2014; Ojasalo, Moilanen and Ritalahti, 2015)

When analysing data with qualitative methods, research can be done without pre-set ways of thinking or definitions, instead building a theory based on empirical data. Thus, the researcher does not necessarily have a hypothesis of the research object or the results of the research. Eskola and Suoranta (1998) even suggest that in qualitative research, the researcher should be surprised or at least learn something new during the research process. In other words, the data in qualitative research allows for discovering new views and ideas, not only proving existing ones. (Eskola and Suoranta, 1998)

Despite their different approaches, qualitative and quantitative methods are not strictly antithetical. Using both methods in the same study is referred to as mixed methods research. Since research questions are often too complex to be answered by either method alone, its aim is to provide a more complete understanding than with qualitative or quantitative research alone. By not being limited to a single set of tools, researchers may be able to broaden the scope and dimensions of a study by using mixed methods research. Although mixed methods research is still rather new compared to either more traditional method, it is becoming popular especially in the fields of social and behavioural science. (Pinto, 2010; Creswell, 2015)

The base material for this study consists of both qualitative and quantitative data, as qualitative methods have been used to define the passenger journey and its segmentation, while the importance of each segment on the overall passenger experience is based on quantitative data gained from surveying passengers. In addition, some data was collected using participant-based observation through the authors' participation in designing and testing Survey A. The methods chosen for analysing and building upon this prior data are mainly secondary data analysis, since the aim is to gain data on how well current passenger surveys cover the most important segments of the passenger journey. This is mostly qualitative but involves elements of quantitative research, since the survey coverage is given a numerical value based on the percentage of importance to overall customer satisfaction. The numerical research data is still only a basis for explorative research, as the aim is to perform qualitative investigation on the current surveys based on the quantitative data and make suggestions for future improvement. Thus, the main methods and results are qualitative, while quantitative data serves as a basis and starting point.

In addition to research methods and approach, researchers need to consider the philosophy of research. This can be viewed through ontology and epistemology. Ontology is concerned with the nature of reality and can be defined as “the science or study of being”. (Dudovskiy, 2012b) Epistemology, on the other hand, deals with the sources of knowledge. It explains how the researcher classifies what is and is not considered knowledge, and how knowledge can be gained. (Dudovskiy, 2012a)

Ontology has two main views: objectivism, also known as positivism, and subjectivism. Objectivism considers entities to exist external to any actors concerned with their existence, while subjectivism perceives that phenomena are only created from the perceptions and subsequent actions of parties involved with them. (Dudovskiy, 2012b) For the purposes of this study, an objectivist view is adopted. This is due to the research being practical and pragmatic in nature, as the research questions are mainly focused on observable, replicable facts.

When it comes to epistemology, the general sources of knowledge can be divided into four main categories: intuitive knowledge based on faith and beliefs; authoritarian knowledge from books, research papers, and experts; logical knowledge created through applying logical reasoning; and empirical knowledge based on objective, demonstrable facts. (Dudovskiy, 2012a) In this thesis, the latter three types of knowledge mentioned are regarded as knowledge: theories the research is based on are examples of authoritarian knowledge, while logical and empirical knowledge are used and created in analysis of the results and conclusions of the research. This choice to rule out intuitive knowledge is made due to the research questions needing concrete data as proof. In general, the research philosophy in this study can be considered pragmatic, since the accepted sources of knowledge are dependent on the research questions, and different perspectives can be integrated to help interpret data.

4.2 Research design

The process for this study, shown in Figure 12 below, started in late 2019 from the authors’ involvement in helping design and test the 2020 edition of the IATA Global Passenger Survey (GPS), previously introduced in Section 2.3.

For any survey to create meaningful data, it is crucial that the survey questions cover what is actually important to the people being surveyed to find their true opinion, points of interest, and suggestions for future improvements. During the development process of the IATA GPS survey, the question arose as to how well it and other satisfaction surveys in

the industry cover different segments of the passenger journey, and how much they focus on what the passengers themselves find as the most crucial things for their overall satisfaction.

The research began by creating a knowledge basis on passenger behaviour, experience, and satisfaction, as well as examining how passengers and the journey of an airline passenger are segmented, aiming to gain a deeper understanding of the topic. Afterwards, passenger satisfaction surveys conducted by the aviation industry were comprehensively examined to find out which stakeholders conducted surveys of airline passengers, what their motivations were, and what biases they may have had. Previous academic research was then examined to find out the importance of each segment of the passenger journey for the overall satisfaction.

The surveys were examined based on either the full question list – if available – or the published results to see how well they cover passenger segments and touchpoints along the customer journey. The most comprehensive studies were then selected for our further review to see how they match the most important sections of the customer journey. Based on the results of this review, suggestions were made to further improve the design and coverage of passenger satisfaction surveys.

Figure 12. Visualization of the research design and process

It should be noted that the point of time in which this research was conducted had some effect on the process. As mentioned before in section 2.1, the COVID-19 pandemic

caused severe disruption to the aviation industry. Passenger surveys were affected as well: due to the exceptionally low number of travellers and the general situation, the running of the 2020 IATA GPS, which the authors took part in designing, was ultimately scrapped. After the pandemic, surveys have once again started. However, the ongoing war in Ukraine may affect the way passengers see air travel in the future, meaning that the most recent survey results may not accurately depict what passengers consider the most important in the changing security environment.

4.3 Data sources

For this study, data was collected from several annual and ongoing surveys. We utilize the publicly available results, questionnaires and reports from UK CAA, J. D. Power, ACSI and TripAdvisor. Empirical data was collected from Finnair post-flight survey, Skytrax and IATA GPS. Empirically studied survey questions can be found in Appendices 1, 2 and 3. Some IATA GPS specific observations are from our discussion and meetings with the commissioner and their subcontractor. Results of all mentioned surveys were used as secondary data for our research. Details of each survey can be found from chapters below.

Aviation stakeholders collect the data by conducting surveys at the consumption (UK CAA passenger survey) or post-consumption stage, usually by an email link to an online survey (Finnair post-flight survey). Some surveys are available for the travelling public on the organization web pages (IATA Global Passenger survey, Skytrax). The passenger is requested to rate the statements usually on a 5-level Likert scale.

Finnair post-flight survey is tailored for the individual journey, as the questions were related for that unique trip. The origin airport services were indicated by the question. Also, the possible frequent flyer (FF) status was indicated, as the survey asked the status recognition as well as the lounge facility offering. Survey questions were available for this study.

IATA Global Passenger Survey is made to be dynamic, as some questions are being asked only depending on one’s answers to previous questions. For example, when indicating you utilized the Special passenger services, or you are a passenger with reduced mobility (PRM), you will be prompted to answer question regarding the PRM services and the quality of offered help. Survey questions were available for this study.

United Kingdom Civil Aviation Authority (UK CAA) collects the answers by agents interviewing the passengers in airport terminals. They use tablet computers to guide the interview process, also taking into account the possible PRM segment. UK CAA also asks open ended questions with free form of data, although this is not indicated on the survey results, but only utilized for internal purposes. Survey questions were available for this study.

Skytrax is the most well-known study by the industry, has also been promoted as “Oscars of Aviation”. Lack of segmentation data was a surprise discovered in this study, as the purpose of Skytrax is come out with a list of rankings in each Aviation segment, by separating the airlines from the airports and travel agents. Survey questions for ranking the airlines were available for this study, but not the airport ranking.

TripAdvisor Awards, also known as Travellers’ Choice Awards, work different from the other rankings and ratings. The selection criteria are hidden behind editorial discretion, and top lists are generated based on the quantity and quality of travellers’ reviews on a rolling 12-month period. The ranking may be affected by serious security incidents, discriminatory behaviour, and discredited reviews. The survey data is not available, as the ranking is done on a qualitative basis.

The North America Airline Satisfaction Study by J.D. Power measures passenger satisfaction with airline carriers in North America based on performance in eight factors, in alphabetical order: aircraft; baggage; boarding; check-in; cost and fees; flight crew; in-flight services; and reservation. The study measures passenger satisfaction in three segments—first/business, premium economy, and economy/basic economy—and is based on responses from 7,004 passengers. Passengers needed to have flown on a major North American airline within the past month of completing a survey. Neither the survey data nor the questions were available for this study.

This chapter introduced research methods, approach, and philosophy, detailed the research design and process, and examined the data sources used in this study. In summary, an objectivist research philosophy was chosen, as the research focuses on observable facts. The approach mixes both qualitative and quantitative methods based on what is the most suitable way to get answers to the research questions. The research started from the authors’ involvement in survey design and testing, and after gathering a knowledge base and survey data from various sources, proceeded to analyse the selected surveys and make recommendations to improve future surveys. The next chapter introduces the results of the research.

5 Results

This chapter covers the results found when examining the seven selected satisfaction surveys. We apply findings to the criteria found by scholars to find the optimal fit to the ultimate survey. Examined surveys are being used as secondary data to be inserted into existing models of categorization and importance ratings.

5.1 Fit to touchpoint weights

The surveys examined are conducted by the aviation stakeholders mentioned earlier in Table 1 and do fit their own business needs and requirements. Airlines are interested in the flight and ticketing aspects of the journey (such as the Finnair post-flight survey), airports conduct the survey to capture the passenger sentiment at airport premises while consuming the airport services (such as the UK CAA Consumer survey), airline lobby organizations and their surveys (such as the IATA GPS) examine a wider range of touchpoints from the airline perspective, and survey agencies conduct surveys that have business potential to sell the results. Travel advice sites (such as TripAdvisor and Google ratings) gather the post-consumption sentiment by meta-analysis of the given reviews. Ranking agencies (such as Skytrax star ranking) are a hybrid between travel advice and survey agencies, where the ranking and the certificates granted are sold for participants willing to pay to be included.

As the initial project commissioned in 2019 was to verify the existing survey and its fit to the travelling public, the IATA GPS will be examined in further detail. Also, we put some special focus on the Skytrax survey as it was found to be the second-best fit to categories and the best-fitting survey for which the full question list was accessible.

By combining the SITA and IATA definitions of journey touchpoints and mapping the dimensions discovered by Tsafarakis, Kokotas and Pantouvakis (2018), full journey interactions can be examined. Creating the main categories of Pricing policy, Website, Schedule and Route, Airport services, Flight and After landing we can insert the studied surveys into a table to see how well they fit to the overall journey definition. Out of the seven studies examined, all but three (Finnair in Landing, Website and Schedule/Route categories; Skytrax in Schedule/Route category; IATA GPS in Flight category) have at least one question related to each main category, as can be seen in Table 3 below.

Each individual dimension can be divided into smaller sub-dimensions, as shown in Figure 13. Hierarchy and sub-dimension weights, adapted from Tsafarakis, Kokotas and Pantouvakis (2018), illustrate the hierarchical structure of customer satisfaction dimensions as well as the sub-dimensions. Figure 13 below also follows the timeline from left to right in accordance with how the service is consumed. Many of the examined studies fail to cover the sub-dimensions.

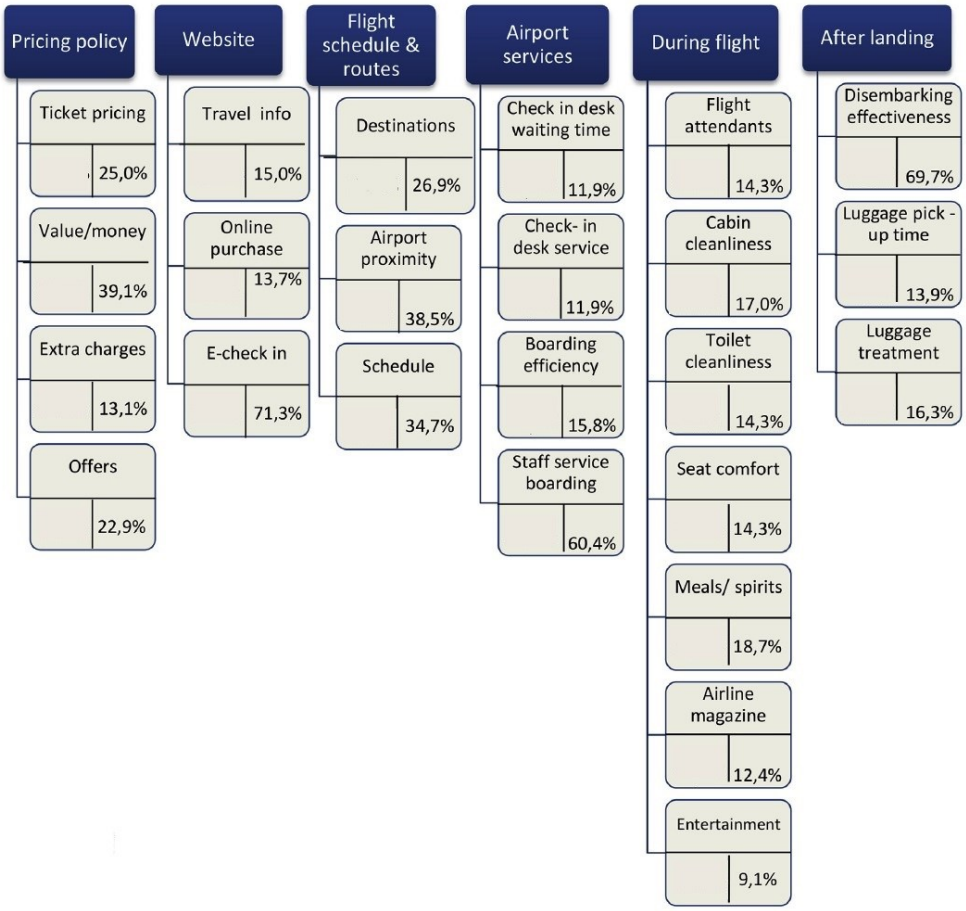


Figure 13. Hierarchy and sub-dimension weights, adapted from Tsafarakis, Kokotas and Pantouvakis (2018)

As the sub-dimensions have weights for their importance within their respective dimension, each sub-dimension can be given an overall weight for passenger satisfaction, as previously listed in Table 2. The examined surveys can be further mapped to these sub-categories in order to find out how well they cover the aspects affecting overall satisfaction. This is visualized in Table 3 below, where the width of each column corresponds to the touchpoint's overall significance to passenger satisfaction. Notably, out of the three sub-categories deemed most important to overall satisfaction, online check-in is only covered by three surveys, similarly to staff service while boarding. Disembarking effectiveness, deemed the most important of all touchpoints, is not covered by any of the surveys.

Table 3. Themes covered by the seven examined surveys

	Pricing policy				Website			Schedule & Route			Airport services				Flight						Landing			
	Ticket pricing	Value/money	1	2	Travel info	Online purchase	Online check-in	Destinations	Airport proximity	Schedule	3	4	Boarding efficiency	Staff service while boarding	Flight attendants	Cabin cleanliness	Toilet cleanliness	Seat comfort	Food/drink service	5	6	Disembarking effectiveness	7	Luggage treatment	% covered
IATA GPS 2022																									40.7
Finnair Post-flight																									23.3
UK CAA																									32.9
ACSI																									72.7
Skytrax																									55.9
Tripadvisor																									N/A
J.D. Power																									53.1

1 - Extra charges
2 - Offers
3 - Check-in desk waiting time
4 - Check-in desk services
5 - Airline magazine
6 - In-flight entertainment
7 - Luggage pick-up time

Included in the survey
Not included in the survey
Data not publicly available

With this information on sub-category coverage, it is possible to calculate the total percentage of overall passenger satisfaction that is covered by each of the surveys. This is illustrated in Figure 14 below, showing that coverage ranges from 23.3 % to 72.7 %. Thus, a difference of nearly 50 percentage points can be seen between the widest and narrowest coverage.

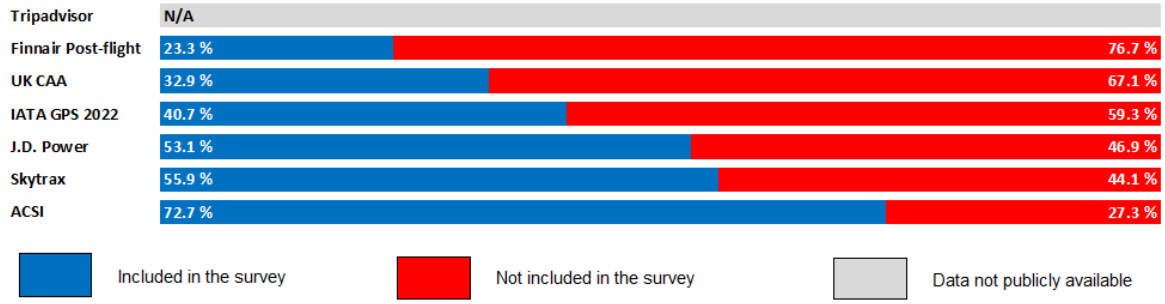


Figure 14. Touchpoints covered by each examined survey as a percentage of their overall significance on passenger satisfaction as defined by Tsafarakis, Kokotas and Pantouvakis (2018)

Out of the examined studies, the best-performing survey in the touchpoint aspect is ACSI, covering 72.7 % of total importance to passenger satisfaction. The survey has several questions in each of the main categories and covers a majority of the sub-categories.

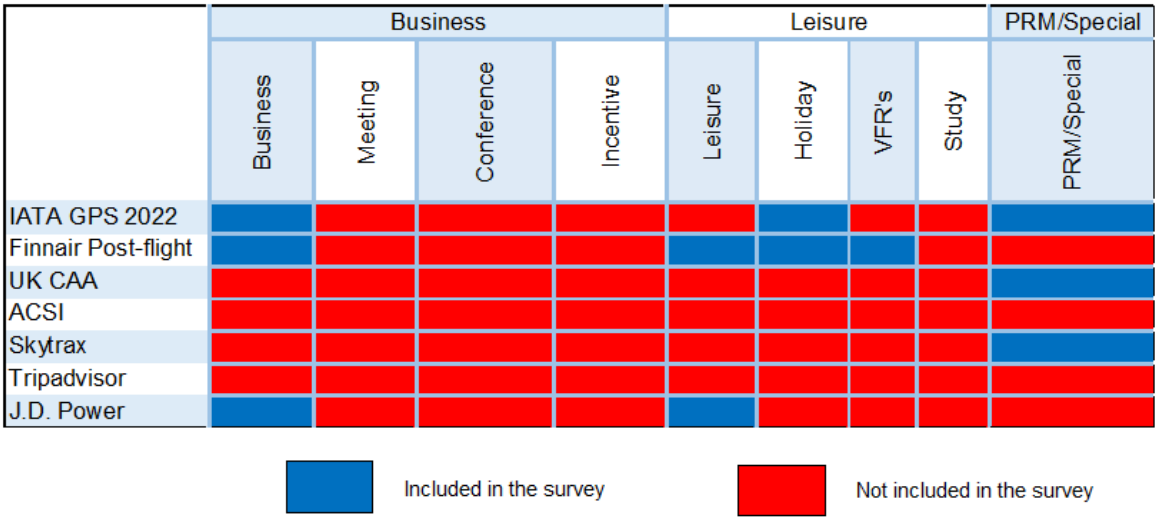
Due to the purposes of the surveys, the worst performers are the Finnair post-flight survey and the UK CAA study. Airlines, specifically in post-flight surveys, do not focus on the early stages of a journey, focusing rather on the delivered transportation and related in-

flight services. On the other hand, UK CAA has an opposite focus, aiming towards passengers that are using the airport services and thus ignoring the flight aspect almost entirely.

5.2 Fit to passenger segments

The seven examined surveys were found to be lacking the categorization based on trip purpose. The best attempt to understand customer segments was done by Finnair, by separating the passengers into a total of four categories (business, leisure, holiday and visiting friends and relatives). Meanwhile, rating agencies do not focus on having passengers from different segments. UK CAA, ACSI, Skytrax and TripAdvisor were found to only collect one segmentation parameter or no segmentation data at all. The collection of segmentation data is illustrated in Table 4 below.

Table 4. Survey fit to passenger segments defined by Cook and Billig (2017)



A parameter for passengers with special needs or passengers with reduced mobility (PRM) is available in three surveys, while four surveys lack the differentiation. Not surprisingly, one of the stakeholders collecting this information is the UK CAA. As a governmental organization, it has a legal obligation and the enforcement capability for British airports to supply services for special passengers.

5.3 IATA GPS

As access to the IATA GPS questionnaire was available, the dimensions it covers can easily be mapped. While taking part in the 2022 edition of the GPS, the questionnaire was observed to be the same one intended for use in the 2020 edition that was eventually cancelled.

Table 5 below illustrates how dimensions of IATA GPS match to those defined by Tsafarakis, Kokotas and Pantouvakis (2018). Out of 24 dimensions, only 12 were covered, representing a coverage of 50 %.

Table 5. IATA GPS fit to dimensions

Dimension	Match	Dimension	Match
Ticket pricing	Yes	Boarding efficiency	Yes
Value/money	No	Staff service while boarding	Yes
Extra charges	Yes	Flight attendants	No
Offers	Yes	Cabin cleanliness	No
Travel info	Yes	Toilet cleanliness	No
Online purchase	Yes	Seat comfort	No
Online check-in	No	Food/drink service	No
Destinations	No	Airline magazine	No
Airport proximity	Yes	In-flight entertainment	No
Schedule	No	Disembarking effectiveness	No
Check-in desk waiting time	Yes	Luggage pick-up time	Yes
Check-in desk service	Yes	Luggage treatment	Yes

There is little info available on the motivation for the IATA GPS to be lacking on the inflight and commercial category questions.

When taking the overall importance weights into consideration, the questions asked only covered 40.7 % of total importance to passenger satisfaction, meaning that the questions asked are not necessarily in categories that the travelling public feels are important aspects of the journey.

In the passenger segmentation questions, IATA GPS can separate categories of business and holiday, and passengers with reduced mobility or special needs are also taken into consideration.

5.4 Skytrax

During the preparation of this study, the 2022 Skytrax study was open for contribution and votes, and thus access to the questionnaire was possible. For previous years' studies, access was only available to the results in form of press releases, as the raw data was not available.

The Skytrax survey features questions in 16 dimensions out of 24, representing 66.7 % of sub-categories, having the second-best score out of the examined surveys. The dimensions covered are illustrated in Table 6.

Table 6. Skytrax fit to dimensions

Dimension	Match	Dimension	Match
Ticket pricing	Yes	Boarding efficiency	Yes
Value/money	Yes	Staff service while boarding	Yes
Extra charges	Yes	Flight attendants	Yes
Offers	No	Cabin cleanliness	Yes
Travel info	No	Toilet cleanliness	Yes
Online purchase	Yes	Seat comfort	Yes
Online check-in	Yes	Food/drink service	Yes
Destinations	No	Airline magazine	No
Airport proximity	No	In-flight entertainment	Yes
Schedule	No	Disembarking effectiveness	No
Check-in desk waiting time	Yes	Luggage pick-up time	Yes
Check-in desk service	Yes	Luggage treatment	No

Similarly to the IATA GPS, the Skytrax survey features fewer questions in categories passengers feel important, as the questionnaire reaches 55.9 % of total importance to passenger satisfaction. Despite this, it still outperforms the IATA GPS with quite a significant margin in terms of asking about what passengers deem important for their satisfaction. In the passenger segmentation questions, however, Skytrax fails to categorize passengers to any other than reduced mobility or special needs passengers.

In summary, examination of the results shows that current passenger satisfaction surveys do not cover the topics important to passenger satisfaction well, although this is partially due to the differing purposes of surveys. Many of the touchpoints deemed most important for overall satisfaction are poorly included in surveys. Similarly, most of the surveys do very little to categorise their respondents, and even the surveys with some segmentation fail to examine the sub-groups of business and leisure travellers.

6 Discussion

In this chapter, we discuss the implications of the findings and reflect the answers back to the original research questions. As this study has potential value for IATA, we continue by offering improvement suggestions to be implemented to future editions of the IATA GPS. Section 6.3 explains the applicable limitations and delimitations in this study, while the validity and reliability of the research are examined in Section 6.4.

6.1 Reflections on research questions

As described in Sections 2.2 and 3.1, every survey is tailored to cater to the needs of its conductor. As airlines are not interested in what takes place in the airport while waiting for their flights, nor are airport operators interested in what happens during the flight, individual surveys cover only some of the journey segments. This leaves gaps to be studied, especially when the service provider changes along the passenger journey, such as between check-in and security.

The IATA GPS attempts to cover most of the journey segments but fails to question the flight aspect of the journey entirely. One of the reasons might be that IATA gets all its funding from member airlines and creating comparison between members may not be beneficial for the organization.

Survey agencies are pushing for the widest coverage but are hindered by their business model. Skytrax could be the best-known survey agency of air passengers with their so-called “Oscars of Aviation”, but their credibility is questionable, as their business model is to sell consultancy services to participating airlines and airports. Only their consultancy customers can achieve high rankings in ratings. Also, they have been caught bending their rating criteria based on the consultancy service sales.

> RQ1: Are there industry-wide surveys covering all aspects of the passenger journey?

Based on the findings of this study, none of the industry recognized studies cover all touchpoints of the entire journey. In fact, the best study (ACSI) only reaches 75 % of the full journey map categories. Out of the seven examined surveys, the worst-performing study was the Finnair post-flight survey. Still, as highlighted in Section 2.3, the intention of the Finnair survey is to collect passenger sentiments after service consumption. The Finnair survey method is dynamic, and the measured touchpoints are only related to the flight

segments taken, with the questions tailored to the passenger profile, like asking about the use of lounge facilities that are only available for frequent flyer status members.

RQ2: Do surveys consider different travelling segments?

Segmentation is implemented poorly in the studied surveys. Surprisingly, the Finnair post-flight survey was the most accurate in segmentation. Some of the surveys were categorising passengers only to business or leisure categories, leaving out the more detailed segments underneath the main categories. Surveys utilizing metadata analysis have no means to capture the categories, so the passenger segment is unknown.

Passengers with reduced mobility (PRM) were separately categorized in three surveys, as frequently as the business passenger segment. This can be explained partly by existing regulations where airlines are not responsible for accommodating PRM movements in the terminal building, only during the flight, although this is only applicable to the European continent. All surveys except the IATA GPS allow respondents to select only one segmentation detail, excluding passengers who are taking a flight for multiple purposes, for instance for both leisure and business. This feature was added to the GPS as a result of the authors' involvement, as feedback given during the design process of the 2020 edition was implemented.

RQ3: How well do current surveys fit passenger needs and points considered to be important?

It is not only important that questions are being asked but they should also be on sub-categories passengers feel important. ACSI, which receives the highest score on the matching questions (75 %), also follows the sub-categories passengers feel important quite well, leading to 72.7 % coverage of what passengers deem important. Opposite observations can be made from the next-best surveys, Skytrax and J.D. Power, which tick 67 % of sub-categories but only achieve 53 to 56 % coverage.

RQ4: What should be changed in current surveys to cover the whole journey?

To improve survey performance and coverage, additional questions should be added to all the examined surveys. The sub-category with the most importance to overall satisfaction, and one that was not covered by any of the examined surveys, was "Disembarking effec-

tiveness". Thus, implementing questions related to this category should be given high priority. From higher level categories, questions related to "Scheduling and routes" are missing from most of the studied surveys.

6.2 Recommendations to IATA

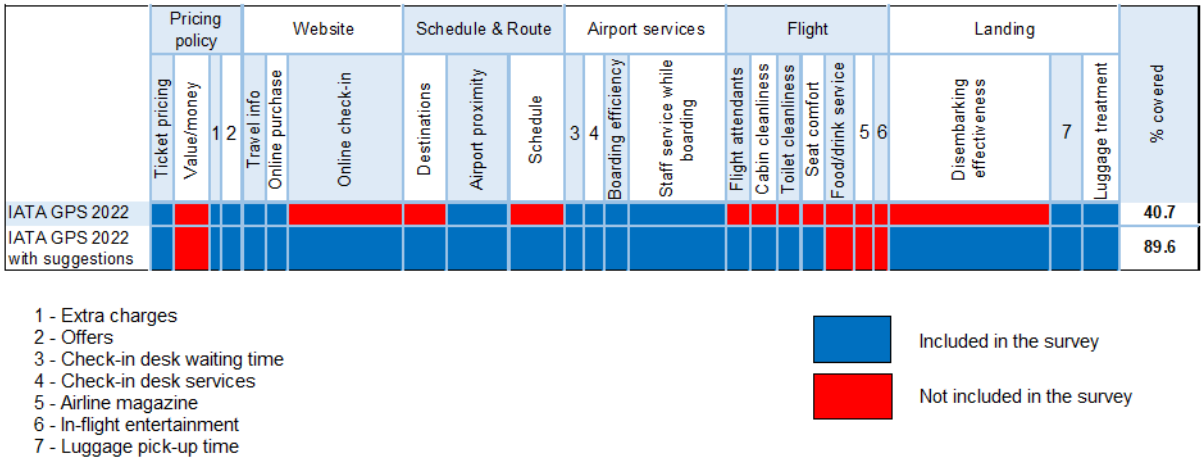
IATA should consider adding more questions to the following categories: website, schedule and route, flight, and landing. Suggestions for suitable questions in these categories are presented in Table 7 below.

Table 7. Recommended questions to be added to the IATA GPS

Website	Schedule and Route	Flight	Landing
How satisfied are you with the airline booking process?	How satisfied are you with current routes offered?	How satisfied are you with airline seat comfort?	How satisfied are you with airport assistance on arrival?
How satisfied are you with online check-in?	How satisfied are you with flight schedules served from your local airport?	How satisfied are you with cabin cleanliness?	How satisfied are you with baggage delivery at the destination airport?
How satisfied are you with the manage booking function?		How satisfied are you with toilet cleanliness onboard the aircraft?	How satisfied are you with the effectiveness of the disembarkation process?
		How satisfied are you with cabin crew service?	

By adding these 12 recommended questions to IATA GPS, the survey would gain major improvements in coverage of both the number of sub-dimensions and the total importance to passenger satisfaction. Table 8 below shows the comparison of sub-dimension coverage between the current survey and the same survey with the questions from Table 7 implemented. As can be seen, with the addition of these 12 questions, the coverage of the IATA GPS would jump from 40.7 % to 89.6 % of the total importance to passenger satisfaction. This would make IATA GPS the market leading passenger satisfaction survey in terms of covering what passengers deem important.

Table 8. Comparison of sub-dimension coverage between the current IATA Global Passenger Survey and the same survey with the additional questions suggested in Table 7



Passenger segmentation in the IATA GPS should also be changed to suit the industry-wide segmentation, detailing the purposes of leisure and business travel as previously shown in Figure 10. In the prior GPS 2019, segmentation was lacking the possibility of multi-selecting the appropriate categories. The current survey makes it possible to pick several segments simultaneously, allowing passengers to be both in leisure and in business at same time. This feature is missing from all the other surveys studied.

6.3 Limitations and delimitations

All research has potential shortcomings and other limiting factors, which should be considered and acknowledged. For instance, these may arise through study design, underlying theories, shortcomings in data collection, or replication potential. They can be divided into two main categories: potential weaknesses outside the researchers' control, known as limitations, and boundaries or limits set by the researchers themselves, known as delimitations. (Theofanidis and Fountouki, 2018)

Most limitations are closely associated with the selected research design, statistical models, funding, or other similar factors (Theofanidis and Fountouki, 2018). In this study, perhaps the main limitation is that full access to question lists or data sets from the selected surveys was not available. This was in part due to them not being publicly available in the first place, or with the lack of financial resources, as the data sets are often sold for hundreds if not thousands of dollars.

Another limitation comes from the use of Tsafarakis, Kokotas and Pantouvakis (2018) as the basis for the importance of touchpoints to travellers' satisfaction, on which much of the results of this study are based. Although reliable methods-wise, it should be noted that the

survey used as the basis for their research is rather limited in both size and scope. The survey only features passengers of Aegean Airlines – a full-service carrier in the Southern European short haul market – thus lacking views from passengers outside Southern Europe, or passengers travelling long-haul, on a low-cost carrier, or in business class, for instance. As the needs of these passenger groups differ, it means that their research does not necessarily depict a general view of what passengers deem important globally, which may also affect the general applicability of this study.

Delimitations, on the other hand, are mainly concerned with the theoretical background, objectives, study sample, research questions, and variables of research (Theofanidis and Fountouki, 2018). During the research process, the choice was made to focus on the most widely known satisfaction surveys and awards of the aviation industry, with data availability also playing a part in selecting the set of studies that was further examined. In addition, the research questions were designed and selected to focus on the quality of the content and coverage of current surveys instead of focusing on other factors, such as the methods used for distributing the questionnaires or selecting respondents. These selections were made to ensure the results correspond to the purpose of the survey instead of going out of scope. Should this topic be researched further, aspects ruled out by these delimitations can be examined, including some of the lesser-known satisfaction surveys. More suggestions for future research are presented later in Section 7.1.

6.4 Reliability and validity

The credibility of research results consists of two parts: reliability and validity. In research, reliability refers to whether the findings could be repeated by someone else doing the same research. (Hussey and Collis, 2003) Reliability is most commonly understood as the repeatability and accuracy of quantitative measurements, and it has even been suggested to be misleading and irrelevant in judging qualitative research. Golafshani (2003) comes to the conclusion that in qualitative research, reliability should be seen as a consequence of validity. Thus, demonstrating the validity of qualitative research also proves the reliability. (Golafshani, 2003)

Still, as establishing the importance of different sections of the passenger journey in this study is based on qualitative methods, the reliability of this section of the study can be assessed. The category weights, as previously displayed in Table 2, have been calculated using values determined by Tsafarakis, Kokotas and Pantouvakis (2018) and basic multiplication as described at the end of Chapter 3.6. This can easily be repeated by anyone, and the same applies for analysing the question sets of surveys to see whether they cover

the categories as described. Thus, the reliability of this quantitative part of the study should be clear.

Even if a study can be shown to be repeatable and reliable, it does not necessarily mean the results are valid. (Golafshani, 2003) Validity is the accuracy of the study – whether the findings demonstrate or measure what the researchers think they do. The simplest way for assessing validity is called face validity. It involves checking if the tests and measures used in the study work as the researcher claims. Another aspect of validity is construct validity. This means demonstrating that the relations between observable research findings and not directly observable phenomena behind them have been correctly linked. The validity of a study can be damaged by research errors such as inaccurate measurements, poor samples, and faulty research procedures. (Hussey and Collis, 2003)

Regarding face validity, the tools used for evaluating the selected surveys are presented in this study, along with the full question lists of the surveys where they were available. Chapter 4 details the research process and design as well as the reasons for selecting an approach involving both qualitative and quantitative methods. Quantitative methods are used for turning different kinds of surveys into comparable numerical data, upon which further qualitative analysis is based. As the study features a mix of both qualitative and quantitative research questions, this kind of approach is justifiable and serves the purpose of the study. When it comes to construct validity, the reasons for some surveys covering – or missing – certain areas of the passenger journey are accounted for and explained, where a clear external business need, legal requirement, or other reason is present. Overall, it can be concluded that the results achieved are valid and serve the purpose of the research.

7 Conclusions

This final chapter outlines suggestions for future research arising from observations made during the research. To close the thesis, the authors reflect on their personal learning points and the overall thesis process.

To answer the so-called ‘so what?’ question, the significance of this research is that it shows that passenger satisfaction surveys are in a sense inaccurate despite them being a massive industry involving big money. The aim is to outline directions for future research on the topic, as the importance of accurate satisfaction data for business development has been clearly shown. We hope that this research serves as a basis for further academic addressing of the topic of passenger satisfaction surveys, which will over time lead to improvements in how they capture the true passenger sentiment.

7.1 Suggestions for future research

While working on the original commission to improve the IATA GPS, we were able to identify several gaps in existing research by academia. Also, changing travel patterns, product differentiation, and crises affecting air travel suggest urgency for new research. For example, the ongoing COVID-19 pandemic and the war in Ukraine affect traveller segments by pushing people to visit family and friends less frequently but increase the need for urgent family function visits. Pent-up demand after the COVID-19 crisis has caused meltdowns at airports globally, manifesting in massive queues at check-ins and security checks, which will drive people to use other means of transportation, select different layover airports, or cancel their travel plans altogether.

Travel segmentation has changed since the work of Reid and Bojanic (2009), used as a basis for segmentation in this study, was published. The travelling public does not necessarily fall into simple categories for Business or Leisure but is more diverse. This was taken into consideration in the authors’ suggestion for the categorization part for IATA GPS, which now allows respondents to choose multiple categories for a single journey. Even the segmentation sub-categories do not correspond to the traveling public anymore, as leisure travellers are likely to combine their travel among multiple interests, such as visiting friends, sights, and cities. Business travellers are less likely taking journeys fitting in the incentive category but might well combine business trips with visiting friends and relatives. Also, all studied surveys fail to include group travel as one of the segments. All this calls for new research to study the current traveling public and the drivers and reasons for travel.

As stated earlier, different crises have changed the air travel for good. The travelling public will put more emphasis on COVID-19 prevention related measures taken by airports and airlines. One manifestation of COVID-19 is the travellers' active avoidance of queues by selecting layover airports based on the expected congestion. It has also caused travellers to choose their destinations based on the entry requirement when it comes to possible PCR or lateral flow tests or even the vaccinations. All these changes have shifted the public to appreciate different things in their travel journey, in different touchpoints. The cleanliness of various touchpoints (airports, aircraft, interior) has most likely gained weight in the eyes of passengers. On the other hand, paper versions of inflight magazines have become obsolete as digital versions are becoming more common, and this may reduce the weight of inflight entertainment or magazines in the eyes of the travelling public. New research is needed to identify current weights for touchpoints passengers consider important on a global scale.

The findings of Tsafarakis, Kokotas and Pantouvakis (2018) applied in this study cover one single airline in the Mediterranean area and may not be fully applicable for the global passenger population. Similar research should be conducted for the global travelling public to find if the clientele of Aegean Airlines is a good comparison for the global air passenger population. This research should also cover customers using different types of airlines (low-cost versus full-service) and travelling in different travel classes, as different segments have different needs. This would allow for more reliable results when examining the percentage of overall importance covered by each study.

7.2 Reflections

Overall, the thesis project has provided a great learning opportunity regarding how passenger satisfaction is surveyed and how the results are used as a basis for business development. It has given a strong and clear understanding as to how important it is for businesses to acquire and utilize current and accurate information on their customers' satisfaction. In this light, it is quite surprising how all the examined surveys lack coverage on at least some journey segments deemed important by passengers, showing that there is a need for knowledge and understanding regarding how and where to improve satisfaction surveys.

Outside the topic itself, the main learning outcomes relate to time management, academic writing, and evaluating the reliability and validity of research. After a slow start, the thesis came together with a relatively rapid schedule, proving that with proper time management, even sizeable projects can be completed alongside studies and work. As this thesis was

the authors' first major work involving academic writing, many aspects of the process were completely new. This included the evaluation of reliability and validity, which has not been a topic of consideration before, but clearly forms an important aspect of creating trustworthy research.

The start of this thesis project more or less coincided with the early stages of the COVID-19 pandemic. It extended the overall timeframe needed for the completion of the work, as it led to a shift to fully online communications and slowing down the work, as well as the cancellation of many surveys, including the 2020 edition of the IATA GPS the authors were working on. Still, it must be noted that it also brought interesting perspectives on the effect of crises on the determinants of passenger satisfaction, without which the thesis results and the learning experience would not have been as extensive.

Despite some delays from the original thesis schedule, the authors agree their work ethic has been good after the final push for thesis completion started. Once a final schedule was agreed, the division of the workload has been clear and painless, and both authors have kept to their internal deadlines, keeping the overall progress smooth. Communications with the project staff during the initial commission and the thesis instructor during the research and writing have been comprehensive and frequent, leading to invaluable feedback, ideas, and discussion. All in all, even with some ups and downs along the way, the authors feel they can be happy about the process and the quality of the final work.

As a final word, we would like to thank IATA for the opportunity to be involved in modifying the IATA GPS to better suit the passenger segments and touchpoint categories. We would also like to extend our thanks to Haaga-Helia lecturers for in-person and online lectures in aviation, sales, and marketing in these turbulent times.

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Appendices

Appendix 1. Finnair post-flight survey questions

1. Kun arvioit matkaasi kokonaisuudessaan, kuinka todennäköisesti suosittelisit Finnairia sukulaiselle, ystävälle tai kollegalle?
    a. Miten meidän pitäisi parantaa palveluamme, että onnistuisimme vielä paremmin?
2. Kuinka hyvin lennon varaaminen onnistui kokonaisuudessaan?
3. Kuinka hyvin Finnair tiedotti ja piti sinut ajan tasalla ennen lentoasi?
4. Arvioi seuraavia palvelun osa-alueita lähtökaupungin lentoasemalla:
    a. Kokonaiskokemus lähtölentoasemalla
    b. Lähtöselvitys (Finnair.com, Finnair app tai lentoasemalla)
    c. Turvatarkastus
    d. Koneeseen nouseminen (lähtöportti ja lentokoneeseen meno)
5. Arvioi kokemustasi lähtölentoaseman loungesta.
    a. Mikä loungen palvelussa tai tiloissa ei vastannut odotuksiasi?
6. Arvioi seuraavia palvelutekijöitä:
    a. Kokonaiskokemus lennosta
    b. Istumapaikan mukavuus
    c. Matkustamon ulkoasu
    d. Istuimen ja pöydän siisteys matkaan lähdettäessä
    e. WC-tilojen siisteys
    f. Matkustamohenkilökunnan palvelu
    g. Tarjoilun ajoitus
    h. Kuulutukset ja tiedottaminen
    i. Emerald-asiakkuuden huomiointi
7. Arvioi lennon ruoka- ja juomatarjoilua:
    a. Ostettava valikoima
    b. Lennon hintaan sisältyvä tarjoilu
8. Tapahtuiko matkallasi mitään seuraavista häiriö- tai poikkeustilanteista?
9. Kun mietit matkaasi ja sen eri vaiheita, minkälainen tunne sinulle jäi?
10. Arvioi Finnairin toimia ympäristövaikutusten minimoimiseksi.
11. Mikä oli matkasi pääasiallinen tarkoitus?
12. Miksi valitsit Finnairin tälle lentomatkalle?
13. Minkä maan kansalainen olet?
14. Kuinka monta kertaa olet lentänyt viimeisen 12 kuukauden aikana, lukuun ottamatta tätä matkaa? Meno- ja paluulento lasketaan yhdeksi matkaksi.

Appendix 2. Skytrax 2022 survey questions

1. Which Airline do you consider to be the world's best?
2. What is your reason for naming this airline as the best?
3. Which cabin do you normally travel with this airline?
4. When did you last travel with this airline?
5. Please rate the standards for this airline:
    a. Value for Money
    b. Website user-friendliness
    c. Making a booking
    d. Online Check-in
    e. Manage Booking function
    f. Airport self-serve check-in
    g. Waiting times at check-in
    h. Baggage allowance / limits
6. About your flight:
    a. Advice on Delays
    b. Boarding efficiency
    c. Staff service thru boarding
    d. Cabin cleanliness
    e. Seat Comfort
    f. Amenities, pillows, blankets
    g. Food & Beverages
    h. Inflight Entertainment
    i. WiFi Service & Connectivity
    j. Toilet cleanliness
    k. Cabin staff service
    l. Airport assistance on arrival
    m. Baggage Delivery

Appendix 3. IATA Global Passenger Survey 2022 questions

1. Have you travelled by air in the past 12 months?
2. What is your country/area of residence?
3. How many trips have you taken in the past 12 months? Please count an outbound and return flight as one round trip.
4. Did you travel internationally and/or domestically in the past 12 months?
5. Which class did you usually use when flying in the past 12 months?
6. On which basis do you usually select your departure airport?
7. Overall, how satisfied are you with your air travel experience in the past 12 months? Please take all aspects of your journey into account (e.g. booking, security, boarding, flight, baggage collection, etc.).
8. Considering all of the trips you made over the past 12 months, how satisfied were you with the following air travel experiences?
    a. Searching for travel options
    b. Booking
    c. Check-in
    d. Arrival at the airport
    e. Bag drop
    f. Security
    g. Boarding
    h. On-board experience
    i. Transfer at the airport
    j. Border control/Immigration
    k. Baggage collection
    l. Arrival at your final destination
9. How satisfied are you with information received from the airline throughout your journey (about check in/disruption/required travel documents/covid-19 measures/transit information)?
10. How satisfied are you with the preparation of your trip / booking in regards to:
    a. Access to the information in one single place (i.e., no need to visit multiple websites to get all the information)
    b. Clarity and transparency of the content of the offer
    c. Ease of seat selection
    d. Ease of adding baggage
    e. Purchasing additional services
    f. Preferred payment method available
11. Which of the following do you think needs to be addressed the most?
    a. *(same list as in question 10)*
12. How did you book most of the flights in the past 12 months?
13. Did you offset your carbon emissions?
    a. Why didn't you offset your flight carbon emissions?
14. In the past 12 months, did you request any special service assistance for yourself or someone else at any point of your journey?
15. Have immigration requirements (ex. visa, health status) to enter a particular country ever discouraged you from traveling to that destination?
    a. What was the main reason for the discouragement?
16. What is the best way for you to obtain a visa if required?
17. How likely would you be to digitally share your immigration information (e.g. passport, visa, health questionnaire etc.) with immigration authorities anytime / at your convenience before departure to speed-up the arrival process at the airport?
18. Imagine that the airlines would enable you to track your checked-in bag online all the time. How likely would such service motivate you to check in your bag?
19. Have you ever flown with an airline that shared information about your baggage during your journey (such as bag status via an airline app)? How was your experience?

20. To what extent would you be interested in the following services:
    a. The airlines would pick up your bags at your home/hotel and drop them off at your final destination
    b. The ability for you to check-in your bag at a location near you (e.g. hotel, conference center)
    c. Have your bags travel on a separate flight than you, provided they arrived at your final destination as intended
21. Have you ever used an electronic bag tag? An electronic bag tag is a device attached to your bag which allows you to generate your bag tag on your mobile device during check-in.
22. How likely would you be to share your biometric information (e.g. face recognition) to use it instead of a passport and boarding pass when going through the airport processes such as check-in, security, border control, or boarding?
23. In the past 12 months, did you use a biometric identification at the airport (e.g. face, fingerprint) instead of presenting your passport and boarding pass?
    a. At which step of the process was it?
24. How satisfied overall were you with the biometric identification process?
25. What are your biggest concerns with regards to the use of your biometric information?
26. How do you usually get to the airport?
27. Which of the following processes would you prefer to complete before the arrival at the airport?
28. Would you be interested in notifications for special offers when arriving at the airport?
29. If you were to choose one element of the security screening process that needs improvement, what would it be?
30. Would you be interested in a program for trusted travelers that would allow for a faster security screening?
31. Overall, how much time do you believe you usually spend at the airport?
32. What should be the maximum time from the moment you arrive at the airport until you reach your boarding gate (excluding shopping, lounge visit, dining experiences)?
33. Which areas could improve your experience the most when boarding an aircraft?
34. Did you take a connecting flight in the past 12 months?
35. On which basis do you usually select your connecting airport?
36. Which of the following could improve your connection experience at the airport?
37. Have you experienced any travel disruptions (e.g. delays, cancellations) in the past 12 months?
38. The last time your flight was disrupted, how satisfied were you with the way the airline handled the situation?
39. Which of the following could best improve your travel disruption experience?
40. If you were to choose one element of the border control/immigration process at arrival that needs improvement, what would it be?
41. If your bag has been mishandled in the past 12 months, overall, how satisfied were you with the service provided to you?
42. Which of the following could best prevent bag mishandling experience?
43. How do you usually get to your final destination?
44. You are… (male/female/non-binary/prefer not to disclose)
45. How old are you?