


**IBN HALDUN UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF AIR TRANSPORTATION**

MASTER THESIS



**SEGMENTATION OF PASSENGERS
TECHNOLOGICAL PREFERENCES AT
TURKISH AIRPORTS**

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**THESIS SUPERVISOR
PROF. ÜMİT HACIOĞLU**

İSTANBUL, 2023

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by

MUHAMMAD HUMZA

**A thesis submitted to the School of Graduate Studies in partial
fulfillment of the requirements for the degree of Master of Air
Transportation Management**

**THESIS SUPERVISOR
PROF. ÜMİT HACIOĞLU**

İSTANBUL, 2023

THESIS APPROVAL PAGE

This is to certify that we have read this thesis and that, in our opinion, it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science in Air Transport Management.

Thesis Jury Members

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Opinion

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This is to confirm that this thesis complies with all the standards set by the School of Graduate Studies of Ibn Haldun University.

Date of Submission

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ACADEMIC HONESTY ATTESTATION

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ÖZ

YOLCU TEKNOLOJİK TERCİHLERİNİN
TÜRK HAVALİMANLARINDA SEGMENTASYONU

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Havacılık odaklı şirketler, endüstrinin yolcu deneyimini ve operasyonel etkinliğini iyileştirmek için sürekli olarak yeni, yaratıcı yöntemler arıyor. Bu çalışma, Türk havalimanlarında yolcuların teknolojik tercihlerinin segmentasyonunu değerlendirmeyi amaçlamaktadır. Hedefler, Türkiye'deki Havacılık Şirketlerine, yolcuların birincil ihtiyaçlarının değerlendirilmesinde teknolojik tercihlerini değerlendirmek ve yolcuların teknolojik tercihleriyle açıkça ilişkilendirilen özelliklerini incelemek için daha iyi bir fikir vermektir. Bu çalışmada pozitivist düşünce okulu, mantıksal yöntem ve nicel araştırma tekniklerinden yararlanılmıştır. Ayrıca, Türk havalimanlarını kullanan çeşitli havayollarını kullanan yolculardan anket anketleri yoluyla bilgi toplanmaktadır. Örneklem büyüklüğü 455 olan bu çalışmada amaçlı örnekleme kullanılmıştır. Verilerin analizinde regresyon, korelasyon ve betimsel istatistik gibi farklı istatistiksel yöntemler kullanılmaktadır. Sonuçlar, biyometrik teknolojinin, kişisel cihaz kullanımının, kişiselleştirme ve kişiselleştirmenin, akış ve isteğe bağlı eğlencenin, gezginlerin teknolojik tercihleri üzerinde önemli bir etkiye sahip olduğunu göstermektedir. Ancak temassız çözümler, uçak içi Wi-Fi, mobil uygulamalar ve dijital hizmetlerin yolcuların teknolojik tercihlerini etkilemediği görülüyor.

Anahtar Kelimeler: Havacılık Endüstrisi, Nicel Analiz, Teknolojik Etki, Teknolojik Tercihler, Türk Havalimanları, Yolcu Deneyimi.

ABSTRACT

SEGMENTATION OF PASSENGERS TECHNOLOGICAL PREFERENCES AT TURKISH AIRPORTS

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Companies with an aviation focus are constantly looking for new, creative methods to improve the industry's passenger experience and operational effectiveness. This study aims to assess the segmentation of passengers' technological preferences at Turkish airports. The objectives are to provide better insight to Aviation Companies in Turkey to assess passengers' technological preferences on assessing their primary needs and to examine the characteristics of passengers that are openly associated with their technological choices. The positivist school of thought, the logical method, and quantitative research techniques are all utilized in this work. Additionally, information was gathered through survey questionnaires from passengers using various airlines who use Turkish airports. Purposive sampling was used in this study, with a sample size 455. Different statistical methods, including regression, correlation, and descriptive statistics, are used to analyze the data. The results show that biometric technology, personal device usage, personalization and customization, streaming, and on-demand entertainment significantly impact travelers' technological preferences. However, contactless solutions, inflight Wi-Fi, mobile apps, and digital services have no impact on the technological preferences of travelers.

Keywords: Aviation Industry, Passenger Experience, Technological Preferences, Turkish Airports, Technological Impact, Quantitative Analysis.

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LIST OF SYMBOLS AND ABBREVIATIONS

BT	Biometric Technology
CS	Contactless Solutions
IW	In-Flight Wi-Fi
MADS	Mobile Apps and Digital Services
PC	Personalization and Customization
PDU	Personal Device Usage
SDE	Streaming and on-Demand Entertainment



CHAPTER I

INTRODUCTION

1.1. Background of the Study

The airport experience greatly attracts researchers (Jiang & Zhang, 2016) because it can be a main factor in the competitiveness of airports by impacting expenses in different commercial regions (Chung, 2015), airport reuse (Hong et al., 2020), and recommendation probability (Halpern & Mwesiumo, 2018). It has some broader implications by impacting destination image and re-visitation. However, considering that they are shuttled from one touch-point to another by various service providers, the airport experience is a tedious and stressful struggle for travelers (Graham et al. 2019). Because of the poor and unpredictable levels of service quality, these collaborations may impede customers' travel and increase their frustration (Halpern & Mwesiumo, 2018). Airports frequently put the passenger experience first when making investment decisions, and technology solutions are considered for their potential role in improving the passenger experience (Brida et al., 2016). The improvement of the passenger experience is the main incentive for funding digital technology at airports, according to a poll of 115 managers at airports worldwide (Halpern et al. 2019).

This is pursued by improving security and safety, producing extra revenue, and minimizing operating expenditures. Moreover, Halpern et al. (2021) identified that airports financed a record US\$11.8 billion on technology in 2019 and had robust plans of investment for introducing solutions in the related areas of passengers. According to SITA's 2019 report, 85% of airports would have invested in biometrics for identity management by 2022, 77% in interactive guidance, and 67% in artificial intelligence technologies, including virtual agents, chatbots, and predictive analytics. The COVID-19 pandemic losses at airports are predicted to significantly influence investment plans and increase the likelihood that many will be delayed. However, the technologies are believed to contribute to any present or future airport security measures significantly.

In the post-COVID-19 environment, biometrics, artificial intelligence, and interactive navigation offer touchless and contactless solutions that are still closely related. To improve the financial stability and profitability of airports that would see long-term traffic decreases due to COVID-19, adopting technology is also anticipated to be essential.

Companies with an aviation focus are constantly looking for new, creative methods to improve the industry's passenger experience and operational effectiveness. One example of this sector is the growth and evolution of virtual technology concerning airport operations. By reducing long lines and the need for physical workers, self-service software and other technology developed for airports have helped the sector achieve its goal of lowering costs and increasing revenues (Halpern et al. 2021). The fundamental categorization of passenger kinds and digital airport technology is provided in this thesis. The research will also reflect how customers view this new technological era since new self-service technology has recently been introduced to Turkey's airline business.

Additionally, the study by Flouris & Oswald (2006) summarizes the development and significance of aviation in global trade. They claim that nowadays, commercial aviation is in charge of handling 3 billion people and 50 million tons of cargo transportation on average. About 44% of the world's population is represented by the volume of passengers. Passengers at Turkish airports are greatly motivated to go through quick and effective procedures. However, the study will cover the categorization of passengers based on the technological procedures they favor. The age and purpose of passengers' travel may be included in the segmentation of passengers. For instance, business travelers prefer to do their pre-trip preparations online to save time and effort. They frequently check-in online, utilize kiosks to print their boarding cards, and use the airline's online lost-and-found service if they misplace something (Flouris & Oswald, 2006).

On the other hand, older individuals prefer personal direction and complete the check-in process, luggage handling, boarding passes, and, in case, help physically for their complete satisfaction as they are out of touch with newer technological advancements and do not form that type of trust. According to customer research conducted at the

Istanbul airport, there is stress among travelers up to boarding (Flouris & Oswald, 2006). Young people may worry about their links to internet processes, while older people may worry about finding the correct gate. This research concluded that there could not be an effective "one size fits all" approach for air travel. This prompted the creation of the "Youth Lounge" at the airport, where they can play games like pinball, board games, and play stations for free online for four hours (Halpern et al. 2021). There, they can drink coffee and snacks at discounted prices, listen to live music, participate in occasionally scheduled events, and access streaming services.

1.2. Problem Statement

To make the best probable investment decisions, airports need to understand and know the choices of their passengers. Past research has assessed choices for personal technologies like biometrics, self-service check-in, and information services, while international surveys have investigated passenger preferences overall (IATA, 2023). Other researchers have assessed the effect of opinions and attitudes. For example, Beck et al. (2018) identified how privacy, safety, and distrust issues influence passengers' preferences for security processes at airports.

Airports Council International (ACI), the international airport trade association, also creates "personas" based on average passenger and journey characteristics for more exact customer experience planning. While the study's primary focus is on the use of digital technology at airports, a dearth of research attempts to categorize passengers into groups based on shared preferences, traveler and trip characteristics, and attitudes on these topics (Halpern et al. 2021).

1.3. Research Aims and Objectives

This study aims to assess the segmentation of passengers' technological preferences at Turkish airports.

The objectives are:

- To provide a better insight to Aviation Companies in Turkey to assess passengers' technological preferences on assessing their primary needs.
- Examine passengers' characteristics that are openly associated with their technological choices.

1.4. Purpose of the Study

This thesis seeks to understand the characteristics and preferences influencing travelers' priorities. Additionally, it can highlight areas that need improvement and any gaps that can be filled to enhance the user experience (Kurtulmuşoğlu et al. 2016). The monitoring of technical systems at airports is one of the top priority routine jobs to be completed every time the operations go through a new age of requirements because the aviation industry is the sector of the transportation industry that is developing the fastest (KILIÇ et al. 2021). The client's behaviors toward modern technology advances and their reactions to the rapidly changing digital technologies employed at the airport's landside will be reflected in this thesis.

The survey considers how many people travel through Turkey's major airports. This study aims to give the Turkish aviation industry a better knowledge of how passengers use technology to meet their fundamental needs. As a result, businesses can create strategic management strategies that consider travelers' characteristics using Turkish airports. This study investigates the central claim that passengers' attributes are closely related to their technology preferences, and investigating this theory helps to comprehend the two crucial goals. The first step is to establish open lines of communication between the Air Transportation Corporation and the passengers. The second is to recognize the difficulties that the company can experience in creating strategic strategies for delivering time and cost-effective technological production.

1.5. Structure of Dissertation

There are five sections to this thesis. Background information, a problem description, the rationale for the study, and the study's aims and objectives are all included in the introduction's first section. The second chapter discusses a survey of the literature,

which compiles research data and evaluates pertinent theories. Research methodology, including research philosophy, approach, method, data collecting, and data analysis, is covered in the third chapter. Results and a discussion in which the gathered data is assessed are covered in the fourth chapter. Conclusions and recommendations are covered in the fifth chapter.



CHAPTER II

LITERATURE REVIEW

2.1. Introduction

This section discusses the findings of previous studies and examines the related theories regarding the segmentation of passengers based on technological preferences at Turkish airports. These findings identify and examine the research gap throughout the study.

2.2. Aviation Industry and Technological Preferences of Passengers

The passenger trip is a series of major stages in air transportation research. For instance, IATA (2023) will divide the passenger journey into ten main stages, which will include payment, booking, bag tag, check-in, border control, security, boarding, on-board service, in-flight entertainment, and bag collection, while SITA (2018) will divide the passenger journey into nine main stages, which will include check-in, booking, bag tag, passport control, bag drop, dwell time, and other factors. While other phases occur "at airports," some are associated with the airline experience, such as booking, on-board service, and in-flight entertainment.

Others conduct on departure, while some conduct on arrival, including luggage collecting. The primary airport departure stages are the focus of this study. It places particular emphasis on the completion of the seven primary phases, which include the following: security screening, personal identification (ID), payment for services and goods while in transit, and recovering client services. In recent years, new digital technologies have been implemented during key stages of the airport journey, following broader trends toward airport digitalization (Zaharia & Pietreanu, 2018). For instance, check-in has often been handled by workers at a desk. Passengers can now access their boarding passes independently thanks to digitalization, initially through

self-service kiosks (Wittmer, 2011) and, more recently, through a mobile device (Inversini, 2017). The bag tag and drop procedures have made similar advances, now widely employed using self-service technologies. The possibilities of a digital bag tag are likewise gaining more and more popularity. With features like the ability to assess the baggage during the entire journey, automatically report lost or mishandled baggage, set off an alarm in the event of theft, and send a message when baggage is available for collection and from which belt, these could add value for passengers. With the possibility for passengers to pay to have their baggage gathered by a company that is transported to the airport and checks it in for them, there is an increasing effort to move check-in, which includes bag drop and bag tag processes, away from the terminal building and airport, for example to airport car parks or downtown locations (Halpern et al. 2021).

In addition to allowing travelers to travel and arrive at the airport "baggage-free," these solutions can also assist in reducing traffic and wait times. Digital alternatives like mobile-based boarding permits that can be scanned at automated gates gradually replace the requirement that employees present physical documentation like a boarding pass and a passport or other ID. Several airports are currently testing biometric authentication. It has been implemented at e-gates at passport control in addition to the customary airport travel stops such as check-in, luggage drop, security, and the departure gate (Halpern et al. 2021). This operates by using a passenger's finger print, iris, or face characteristics as distinctive identifiers (Negri et al., 2019). Visitors can enter the terminal at a slower "walking pace" if they pre-register their biometric data before getting to the airport. Similarly, interest in biometric technology is growing because it can scan travelers as they pass through security without requiring them to remove their belongings for inspection, as with other cutting-edge technologies like infrared cameras (Halpern et al. 2021). Airports are beginning to offer mobile payment options, such as through a mobile application that links card payments to phone numbers or via an e-wallet, in addition to accepting cash, credit or debit cards for retail and catering purchases (i.e., to buy goods, food, or drink during layover time at the airport).

Information and communication systems for passengers depend heavily on technology (Brida et al., 2016). Customers have spoken with staff employees directly, either in

person at an information counter, while roaming the airport, or over the phone. Passengers can access various self-service options in many airports nowadays, including touchscreen information kiosks, QR codes that can be scanned with a smartphone to get more information, video connections, real-time online chat services, and other self-service options. Some airports have included augmented reality or AI-based technologies like robots, chatbots, and holograms. In this study, each of the possibilities mentioned earlier is considered. Of course, this study does not cover all the technology airports might employ to enhance the consumer experience. Before entering the terminal, travelers can use airport digital channels like websites or social media to gather information or advance airport goods or service purchases. They might also use driverless shuttles to transport people airside (similar to those already being tried at Brussels Airport and Tokyo Haneda Airport). They might also park their cars at the terminal using self-driving robot valets. The usage of body-embedded ID, drone-based luggage pickup and delivery, ambient security scans at airports, acceptance of digital currencies like Bitcoin, and experimental centers (such as those with 3D printed goods or food) are other cutting-edge possibilities (Halpern et al., 2021). However, those that are either now under consideration or in use at airports in Norway (as well as many other countries) receive the majority of the study's focus. Airports still have a wide range of viable options; therefore, investment choices must be based on a complete knowledge of traveler preferences.

Given that passengers have a high adoption rate of digital technologies and increasingly need and demand interactions with digital technology at various phases of their journey (IATA, 2019), adding technology-based alternatives to human operations makes sense. According to research, travelers who utilize digital technology are happier with important airport procedures than those who do not (Bogicevic et al., 2017). Incorporating digital technology may have major financial benefits and positive operational and service quality consequences for airports, as it is generally acknowledged that happy customers are more likely to spend more money on retail and food and drink at the airport. Airports must consider the needs of travelers who are hesitant or uninterested in adopting digital technologies, even while many embrace technology. Negri et al. (2019) found that 17% of travelers at Brazilian airports prefer not to check in using biometric technologies. In addition, older cultures may become less acclimated to self-service and airport automation technology and need help

(Graham et al., 2019). It is crucial to take these visitors' tastes and demands into account. Segmentation is a useful strategy to consider these variances in passenger preferences that can be strategically employed to enhance investment decision-making and customer experience planning. Segmentation is commonly employed in transportation research, especially when analyzing air travel. For instance, Teichert et al. (2008) divided travelers into groups according to their desired trip objectives and preferred airline product attributes. With the addition of traveler and trip characteristics as explanatory variables, Martinez-Garcia & Royo-Vela (2010) divide low-cost airline customers into subgroups based on the perceived quality of the flight and the destination. Gender, age, nationality, education, income, travel style, and purpose are a few of these. Budd et al. (2014) divided airport visitors into groups based on their attitude statements to determine which airport visitors had the greatest potential to reduce the use of cars for ground transportation to the airport. The division comprises the destination of the travel. According to service preferences, Lu (2017) distinguishes passengers using full-service and low-cost carriers, adding individual and trip characteristics as additional explanatory factors. Gender, age, education, income, frequency of travel, and the purpose of travel are a few of these. Studies routinely combine numerous journey and passenger factors with psychographic and behavioral indicators. This is significant because, in Tkaczynski et al. (2009) opinion, trip or passenger statistics alone are rarely adequate to capture customer variance accurately. The main segmentation criterion in this study is passenger preferences at significant airport journey stages. In addition, privacy and human dignity are two more important social and ethical challenges connected to using digital technology, according to Royackers et al. (2018). Situations like dehumanization and unemployment affect human dignity. Passengers' perceptions of their environment's social and ethical issues may impact their interest in and readiness to accept digital technologies. As a result, any previously undiscovered pieces will be included in the study's conclusions.

The main technologies in which passengers are interested are examined below.

2.3. Biometric Technology

In airports worldwide, the quick development of technology has ushered in a new era of ease and security. In the aviation sector, biometric technology, which verifies

people's identities using distinctive physical or behavioral characteristics, has emerged as a game-changer. Using biometrics, airports can increase security, speed up passenger procedures, and enhance travel experience. According to Morosan(2012), the first feature is biometric identification at Check-In. Traditionally, travelers had to show their passports or other forms of identification at the airport check-in desks to prove who they were. Biometric technology, however, has changed this procedure. At specialized kiosks or automated gates, passengers can quickly scan their fingerprints, iris patterns, or face features. These biometric identifiers are compared to the information in governmental databases, enabling quick and precise identification. Doing so removes the necessity for tangible documents, and the check-in procedure is sped up, cutting down on lines and increasing operational effectiveness. Another feature is about biometric boarding, and processes of biometric boarding have completely changed how passengers aboard aircraft (Morosan, 2012). Passengers no longer need to show their boarding cards or passports to board the plane, thanks to biometric authentication. Cameras employ facial recognition technology to capture images of passengers' faces, which are cross-referenced with stored data to grant access to the boarding gate. By limiting unwanted access and removing the trouble of looking for paper documentation, this easy procedure improves security and makes boarding faster and more convenient (Abomhara et al. 2021).

Moreover, another feature is security screening, and biometric technology is essential for strengthening airport security screening practices. At security checkpoints, automated biometric technologies are used to verify travelers' identities by scanning their irises, fingerprints, or both. To execute quick and precise checks against criminal and watchlist databases, security staff can link these biometric identifiers to the passengers' background data. The risk of identity fraud is reduced, and overall airport security is strengthened with biometric-based security screening (Ioannou et al., 2020). Immigration and customs clearance processes have undergone a substantial transformation thanks to biometric technologies. Biometric eGates have been installed in many nations, allowing tourists to self-process through immigration control. These electronic gates (eGates) record fingerprints or facial photographs and contrast them with biometric information kept in immigration databases or on passport chips (Labati et al. 2016). By ensuring that only authorized individuals enter or leave the nation, biometrics speed up border control procedures, ease congestion and improve security.

Additionally, Labati et al. (2016) biometric technology is also used in handling baggage, and it is used to transform how bags are handled. To facilitate tracking and identification throughout the flight, passengers can now attach their biometric identity devices to their bags. At baggage drop-off locations, biometric authentication can replace physical tags and lessen the chance of lost or forgotten luggage. Biometrics enhances travelers' travel experience by increasing the effectiveness and precision of baggage handling.

Moreover, the prospects and biometric technology at airports have a wide range of prospective uses in the future. Face recognition technology, for instance, can be used to customize services, enabling airport workers to greet visitors by name and offer personalized help. Additionally, biometrics can be incorporated into mobile apps, allowing travelers to use their smartphones to access a variety of airport amenities, such as lounge access. Emerging technologies with enormous potential for improving security and passenger convenience include vein pattern recognition and gait analysis. Biometric technology has changed airport passenger navigation, which provides more comfort, efficiency, and security (Ioannou et al. 2020). Biometrics has expedited numerous procedures, cutting wait times and improving the travel experience. These processes include check-in and boarding, security screening, and immigration clearance.

2.4. Contactless Solutions

Air travel has long been a crucial means of getting people from one place to another. However, the COVID-19 epidemic brought a host of new difficulties, including the demand for cleaner and safer travel conditions (Zhao et al., 2022). As a result, airports worldwide quickly embraced contactless technologies to reduce physical interaction and ensure passenger safety. The first feature is about touchless Check-In, and conventional check-in procedures frequently require lengthy lines and several interactions with airport personnel. According to Hao (2021), airports now use touchless technology to speed up the check-in procedure. Passengers may print their boarding tickets, pick their seats, and drop off their bags without help, thanks to self-service kiosks with barcodes or QR code scanners. Travelers can check in using mobile

check-in software directly from their cellphones, avoiding personal touch and saving time.

Biometric authentication technologies like facial recognition and fingerprint scanning have transformed airport security and passenger identification procedures. By removing the need for physical documents like passports and boarding permits, these systems offer travelers a safe and frictionless method of identity verification. Passengers may go quickly through security checkpoints using biometric gates, which lowers traffic and improves overall efficiency (Rahimizhian & Irani, 2020). Moreover, based on automated security screening, processes for security screening now include contactless solutions. Security employees can identify forbidden goods without doing physical pat-downs thanks to advanced image equipment like full-body scanners, which reduces direct interaction between staff and customers. Automated tray return systems further lessen the handling of communal surfaces by enabling passengers to autonomously return empty security trays (Yasami et al., 2022).

Airports have embraced mobile boarding permits instead of conventional paper-based tickets to improve the boarding experience. Now that smartphone boarding tickets can be accessed instantly, fewer paper documents are required, and boarding is simpler. Mobile boarding cards provide a smooth and contactless transition from check-in to boarding by being scanned at numerous checkpoints, such as security, boarding gates, and immigration. Moreover, contactless solutions promote touchless payment methods and have grown in popularity as a way to reduce physical contact during retail transactions at airport shops. Passengers may conduct secure and convenient transactions without handling cash or exchanging physical cards thanks to contactless credit or debit cards, mobile wallets, and digital payment platforms like Apple Pay and Google Pay. While promoting a clean atmosphere, these technologies ensure passengers can purchase quickly and easily. According to Yasami et al. (2022), chatbots and virtual assistants are essential airport tools for answering travelers' questions and providing real-time information. Kiosks, smartphone apps, and airport websites all provide access to these AI-powered technologies. The necessity for face-to-face encounters with airport staff is reduced because passengers may get information about flights, gate changes, baggage claims, and other pertinent details. Rahimizhian & Irani(2020) mentioned that self-service, baggage tracking, and

contactless alternatives have also been incorporated into bag handling procedures. Mobile applications allow passengers to track their checked luggage, eliminating needing to visit customer care desks for updates.

Furthermore, self-service baggage drop-off locations let passengers weigh, tag, and deposit their luggage independently, reducing encounters with airport workers and guaranteeing a smooth flight. The aviation sector underwent a rapid shift in response to the global pandemic, adopting cutting-edge contactless technology to improve the passenger experience while putting health and safety first (Bilton, 2015). Airports have successfully minimized physical contact and expedited numerous operations, including touch-less check-in, biometric authentication, automated security screening, mobile boarding, touch-less payments, virtual assistants, and self-service baggage handling.

2.5. Inflight Wi-Fi

Inflight Wi-Fi is the term used to describe the accessibility of internet connectivity for passengers while flying. However, you also said "in an airport" along with "inflight," which may mean that the airline company wants customers to access Wi-Fi while they are still at the airport. According to Hayadi et al. (2021), airlines offer Wi-Fi services to customers when they are aboard many contemporary aircraft. The onboard Wi-Fi network allows passengers to connect their devices and use the internet while flying. Passengers can utilize this service to stay connected, surf the web, check social media, check their emails, and even stream entertainment. Depending on the airline and the particular aircraft, the inflight Wi-Fi service's accessibility and quality can change. Some airlines provide free Wi-Fi to every passenger, while others charge a price. Some flights offer a basic surfing experience, while others offer speedier streaming or video conferencing connections. The speed and coverage can also vary (Hayadi et al., 2021). The majority of airports throughout the world offer Wi-Fi access to patrons inside the terminal buildings. Travelers may normally access the Wi-Fi network at the airport by selecting the network name (SSID) and taking any required authentication actions, like accepting the terms of service or entering a password (Noviantoro & Huang, 2022). Although some airports may charge a fee for faster or more premium options, airport Wi-Fi services are frequently provided for free. The airport, the number of users, and

the equipment in place can affect the quality and speed of the Wi-Fi connection. It is important to remember that the Wi-Fi network may face greater congestion and poorer speeds during periods of high travel demand. According to Jiang(2018), it is essential to verify with the airline or the airport's official website or contact their customer care to acquire detailed information on inflight Wi-Fi services or the availability of Wi-Fi within a certain airport.

2.6. Mobile Apps and Digital Services

Airports rapidly utilize mobile apps and digital services to give travelers useful tools and information to improve their travel experience. The first app is an app for booking flights and checking in. Many airlines provide mobile applications that let users make bookings, check in online, and book flights. These apps frequently offer boarding cards, gate information, and real-time flight updates. Another app is about airport navigation applications. These assist travelers in navigating terminals, finding amenities like toilets, shops, and restaurants, and finding access points for transit alternatives like parking lots, taxi stands, or public transportation (Kim et al., 2023). These apps provide maps and directions within the airport. Apps that follow flights in real time provide departure and arrival times, gate information, and delays or cancellations. They are particularly helpful for tracking subsequent flights or keeping an eye on someone you pick up at the airport when they arrive (Kunekar et al., 2023). Moreover, apps for tracking baggage and some airlines and baggage handling businesses provide customers with smartphone apps that let them follow the movement of their checked luggage. Letting travelers know where their baggage is at all times might provide them peace of mind. Apps that estimate wait times at security checkpoints are available, enabling travelers to schedule their time effectively and select the fastest screening line (Bilton, 2015).

Moreover, airport loyalty apps are also important for passengers because airports may give benefits and prizes to loyal customers through loyalty programs. These programs are accessible through their mobile applications, giving users access to lounges, earning and redeeming rewards, and personalized offers. Additionally, airport parking applications let users find and reserve parking spots at the airport, give details on parking fees, and provide updates on current availability (Bilton, 2015). Apps for

dining and shopping at airports are also given to passengers, and some airports have specific apps that list the dining and retail options offered inside the terminals. Menus, store directories, and exclusive deals are frequently included in these apps. International travelers may find these tools valuable when conversing with airport employees, reading signs, or mingling with other passengers (Schawalder, 2014). The customer service app also helps travelers contact staff members who can answer questions, offer support, and deal with issues. It is important to remember that some applications and services might not be available depending on the airport and airline the airline company is using. To learn more about the apps and digital services a particular airport or airline provides, directly contacting them is a good idea (Schawalder, 2014).

2.7. Personal Device Usage

Airports have adjusted to satisfy the needs of tech-savvy tourists as personal device usage has become an essential component of the travel experience. Personal electronics have revolutionized how we navigate airports, enabling us to do everything from checking flight information to being entertained and productive. Accessing flight information and check-in procedures on personal devices is one of the most common applications of these gadgets at airports. Travelers may easily check the status of their flights, receive real-time updates on gate changes or delays, and even obtain mobile boarding cards using their smartphones or tablets. Airlines have created user-friendly mobile apps that give passengers all the required information, expediting and improving the check-in procedure (Chen & Chen, 2011). Another essential component of using personal devices in airports is entertainment. Users using smartphones, tablets, or e-readers can enjoy various entertainment alternatives. Travelers can now view movies or TV series, play games, read e-books, and listen to music on their own devices, thanks to the growth of streaming services and digital media (Chen & Chen, 2011). In response, airports now offer free Wi-Fi or charging stations to accommodate travelers with electronic devices and guarantee nonstop entertainment.

In airports, communication has a key role in personal electronics. Travelers can stay in touch with friends, family, or coworkers through phone calls, text messages, or messaging apps. Social media platforms are important for sharing travel stories

because they let users record their journeys and connect with other travelers (Pradhan et al., 2018). Another area where personal electronics excel at airports is productivity. Many people use their computers, tablets, or cell phones while on the road to catch up on work, respond to emails, make presentations, or participate in virtual meetings. Cloud-based services simplify retrieving crucial documents, ensuring business travelers can continue working during layovers (Rhee et al., 2018). Personal electronics are essential for researching and arranging trips. Travelers may use their devices to explore sites and activities, book lodging, research destinations, and plan transportation. Passengers may access various information via travel websites, review sites, and mobile apps, enabling them to make wise selections and efficiently organize their journeys—Paris et al. (2015) state that language translation applications have become indispensable for airport travelers. By enabling users to communicate with airport workers or other travelers or interpret menus and signs, these apps assist in bridging language gaps. Travelers may bridge communication gaps and more easily explore strange places with just a few taps. According to Paris et al. (2015), travelers increasingly use e-tickets and digital wallets. Passengers can store digital tickets and use mobile payment methods at airport stores, restaurants, or services rather than carrying physical tickets or cash. This makes traveling easier and requires less tangible documents and pieces of currency. Travelers are updated on any flight updates or modifications thanks to personal electronics. Airlines ensure passengers are informed of delays, gate changes, or cancellations by sending notifications via mobile apps, emails, or text messages (Paris et al., 2015). This real-time information lets Travelers make informed decisions and change their plans. Travelers must use maps and navigation to get around airports. Passengers can find their way around, discover amenities, and even track their luggage's whereabouts using GPS-enabled gadgets and map apps (Rhee et al., 2018). These technologies give travelers a sense of direction and make traveling easier in the busy airport setting.

Last but not least, travel photography and documentation have been changed by personal electronics. Travelers may record special moments, take beautiful pictures, and make digital mementos of their airport experiences thanks to the high-quality cameras on smartphones. These pictures can be shown to others as a memory of their adventure (Bounie et al. 2019). The use of personal devices has changed how travelers use airports. Personal devices make traveling more convenient and enjoyable by

providing access to entertainment, communication, and flight information. By offering Wi-Fi, charging stations, and digital services, airports have reacted to this trend and made it simpler for passengers to stay connected and amused while traveling.

2.8. Personalization and Customization

Airports provide entry points for discovery and adventure in today's fast-paced world. However, the experience at the airport is frequently overpowering and impersonal, making visitors feel like insignificant parts of a large transportation system. The idea of personalization and customization has evolved as a significant component of enhancing the traveler's journey as a solution to this problem (Amer-Yahia et al., 2020). Airports may change the passenger experience and create a more joyful and stress-free atmosphere by customizing experiences and services to individual needs. Before passengers ever arrive, airports begin to personalize their experience. Passengers can tailor travel by choosing particular preferences and services on online platforms and mobile applications. Passengers can customize their travel experience to meet their needs, including selecting their favorite seating options, ordering meals in advance, and setting up special assistance (Lee & Lehto, 2010). Airports enable people to feel in charge of their travel by offering these alternatives, immediately encouraging a sense of customization.

Personalized experiences further enhance the traveler's journey after they arrive at the airport. Advanced interactive information kiosks with voice assistants and facial recognition technologies can give real-time, individualized advice and updates. By studying passenger data, these systems can provide tailored flight information gate directions and propose local attractions depending on the passenger's likes and preferences (Amer-Yahia et al., 2020). This degree of personalization simplifies the travel process and reduces anxiety and confusion. Customization goes beyond informational features and can improve the airport's physical surroundings. By planning places with adaptability in mind, travelers may customize the airport to their own needs. For instance, flexible seating configurations that may be reconfigured or converted into private rooms let passengers design welcoming and useful environments based on their preferences (Shoval & Birenboim, 2021). Adding

charging stations, workspaces, and relaxation areas broadens the customizing choices and meets the needs of various passengers.

Airport dining and shopping experiences have likewise embraced customization and personalization. Based on a person's dietary choices, cultural preferences, or previous purchases, restaurants and retail establishments may provide customized menus or product recommendations. In addition to improving the traveler's experience, this level of personalization enables companies to provide more specialized products and services, boosting client loyalty and satisfaction. Airports can tailor services using digital platforms in addition to physical spaces. Applications for mobile devices can send users customized notifications about changes to flights, boarding times, and luggage information (Shoval & Birenboim, 2021).

Additionally, location-based services can provide tailored recommendations for airport retail stores, services, and amenities. This increases passenger convenience and makes the best use of their time. These apps can also be integrated with airport loyalty programs to offer specialized discounts and advantages to frequent travelers. Airports must prioritize data privacy and security to achieve high personalization and customization (Lee & Lehto, 2010). Gaining the trust of travelers requires open communication about data collection and usage and strong data protection procedures. Personalization initiatives are carried out ethically and responsibly when applicable laws and industry standards are followed. Personalization and customization are completely changing how people move through airports. Airports can foster a more interesting, cozy, and stress-free environment by allowing passengers to customize their trips to suit their needs (Sebby et al., 2022). Airports embrace technology and innovation to deliver a smooth journey for each traveler, from pre-travel customization choices to customized assistance, adaptive venues, and bespoke eating and shopping experiences. Airports have the chance to significantly change how we experience air travel by making it more pleasurable, effective, and memorable as personalization progresses (Nitu et al., 2021).

2.9. Streaming and On-Demand Entertainment

Travelers at airports now have a wide range of options to make their waiting time more fun and interesting, thanks to the revolution in media consumption brought about by streaming and on-demand entertainment. The time when travelers had to rely only on a few television stations or transport heavy DVDs is long gone. Alemi et al. (2018) claimed that for travelers going through airports, streaming services and the increasing use of Wi-Fi and mobile data have opened up a world of entertainment options. The convenience that streaming and on-demand entertainment provide travelers is one of their main benefits. Travelers can watch various movies, TV episodes, documentaries, and even live sporting events with a smartphone, tablet, or laptop suited to their tastes. Travelers can select from various genres and languages because of the large content libraries offered by streaming services like Netflix, Amazon Prime Video, and Disney+ (Vinod, 2011). The choices are endless, whether someone wants to catch up on their favorite series, find a new movie, or watch a documentary. Airports have taken notice of the desire for streaming and on-demand entertainment and invested in strong Wi-Fi networks to meet that demand and provide travelers with a smooth experience. As free Wi-Fi is now widely available in airports, travelers can connect their devices and view content without using mobile data plans. This allows travelers to stay connected to their favorite streaming services and take advantage of nonstop entertainment during layovers or delays (Acheampong et al., 2020).

Airports have started to strategically place charging stations and power outlets throughout their terminals in addition to Wi-Fi. These features are essential for travelers who want to keep their electronics charged to stream their favorite TV episodes or movies without worrying about their batteries running out in the middle of the show. These features improve the airport experience and assure visitors that they can enjoy the media they want for as long as they like (Suatmadi et al., 2019). Airports have also begun to adopt the technology by setting up sizable digital displays or interactive kiosks that provide travelers with curated material. These displays show what is available on streaming services by showcasing well-known TV shows, movie trailers, or live events (Suatmadi et al., 2019). This promotes streaming providers while assisting tourists in finding new series and movies. Airports can encourage visitors to

download or subscribe to streaming services' applications to enjoy seamless entertainment throughout their trip by highlighting the variety of available content. Additionally, airlines have begun integrating streaming and on-demand content into their in-flight entertainment systems due to their growing popularity. Now, travelers can stream various movies and TV shows from the aircraft's onboard servers or use their gadgets to enjoy them on their screens. Travelers enjoy a smooth experience thanks to the continuity of entertainment options from the airport to the aircraft, which makes their trip more convenient and fun (Granados et al. 2012).

The way that travelers perceive airports has changed due to streaming and on-demand entertainment. Wi-Fi, power outlets, charging stations, digital displays, and interactive kiosks have all been integrated to create a traveler-friendly ecosystem that makes accessing a huge library of content easy. Travelers can immerse themselves in their preferred shows, movies, or live events while waiting for a connecting flight or dealing with a delay, transforming their airport experience into a pleasurable and individualized entertainment adventure (Granados et al. 2012). Streaming and on-demand entertainment will certainly become increasingly important as technology develops to improve the travel experience for travelers worldwide.

2.10. Research Model and Hypotheses

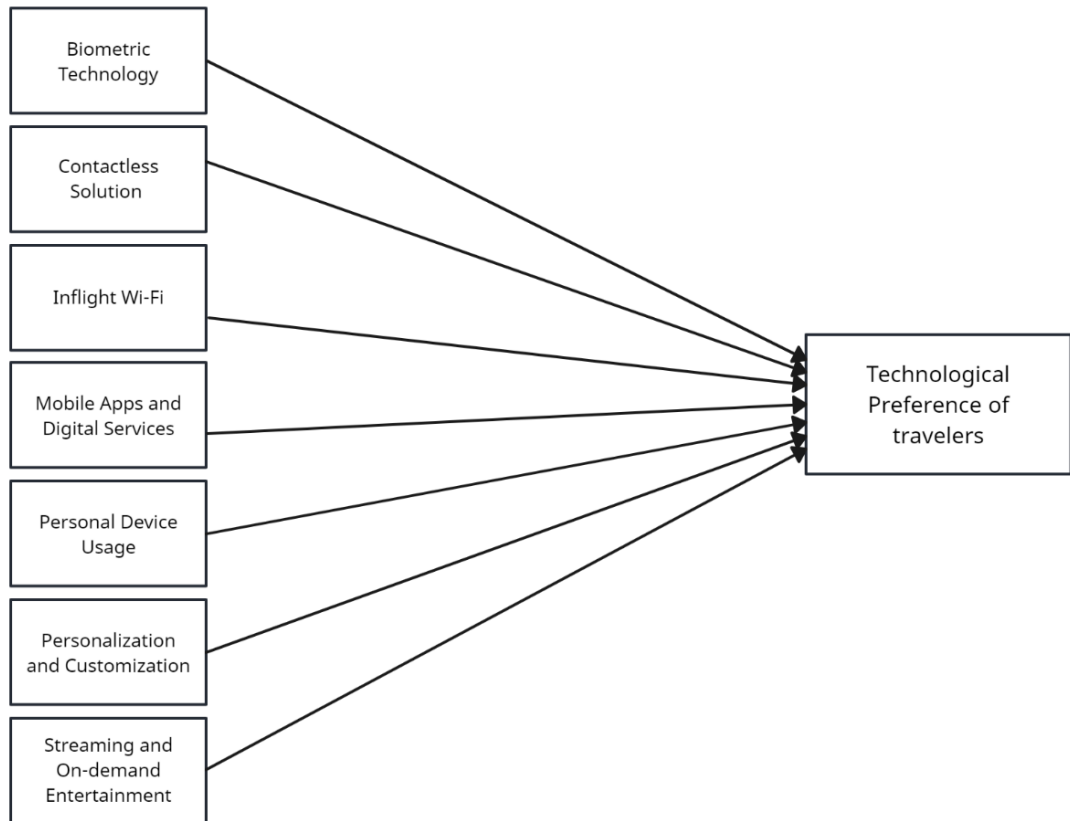


Figure 2.1. Research Model Source: Author’s Illustration

In this study, BT refers to biometric technology, CS refers to contactless solutions, IW refers to in-flight Wi-Fi, MADSDS refers to mobile apps and digital services, PDU refers to personal device usage, PC refers to personalization and customization, and SDE refers to streaming and on-demand entertainment.

The following are the hypotheses of this study:

H1: There is an impact of biometric technology on the technological preferences of travelers.

H2: There is an impact of contactless solutions on the technological preferences of travelers.

H3: There is an impact of inflight Wi-Fi on the technological preferences of travelers.

H4: There is an impact of mobile apps and digital services on the technological preferences of travelers.

H5: There is an impact of personal device usage on the technological preferences of travelers.

H6: There is an impact of personalization and customization on the technological preferences of travelers.

H7: There is an impact of streaming and on-demand entertainment on the technological preferences of travelers.



CHAPTER III

METHODOLOGY

3.1. Introduction

In pursuit of creating diverse outputs that elevate quality, this chapter elucidates the research methodology. The researcher ensures that the research is conducted efficiently and per ethical and systematic principles. This chapter covers an area of knowledge, and the study design comprises several methodologies and concepts centered on that branch of knowledge, such as philosophy, research method, methodology, data collecting, data analysis, ethical issues, and constraints. It evaluates the researcher's philosophical stance, methodological choices, and methodological strategy. Additionally, the research onion and data-gathering methodology are examined.

3.2. Research Philosophy

This study has employed positivism as a philosophical framework because it clarifies how the study of society depends on and prioritizes empirical evidence through various experiments and statistical methods demonstrating how a genuine society functions. Positivism is also employed because it focuses on a visible social reality that generates the laws that make generalizations. Another justification for utilizing this philosophy is that in this study, which used numerical and quantitative data, the already formed theory is tested by testing the hypothesis. This mindset is, therefore, more suited for this research (Yin, 2018). This study is not based on participants' perceptions and verbal experiences; rather, it is based on factual data. This study is quantitative, and positivism is best suited for generally quantitative studies; there is another reason to choose this philosophy.

3.3. Research Approach

The deductive method, which is more suitable for quantitative data, is utilized in this study to examine hypotheses. In this method, the previous study is reproduced to determine whether the results are the same or whether new results are achieved based on a different setting. According to Collis and Hussey (2003), this method often starts from a theoretical standpoint, develops hypotheses derived from theory, and collects and evaluates the data for testing hypotheses. This methodology is utilized in this study because it aids in theory testing since the researcher is testing an existing idea rather than developing a new one.

3.4. Research Methods

The author employed quantitative research, which refers to statistical and numerical data, and conducts hypothesis testing based on acquired results. However, because the information is acquired through a questionnaire, this method is limited in that it excludes the views and perceptions of the participants. However, the quantitative research approach is used in this study since it is efficient for assessing and collecting factual and numerical data. Utilizing this strategy is further justified because it systematically demonstrates links and incidents and is based on genuine, quantifiable facts. By establishing various connections between various quantifiable factors that evaluate the control of predictability and phenomena, the quantitative research approach responds to the questions. The reliability and validity elements of the quantitative research approach are important for this study since they add rigor to the dataset.

3.5. Data Collection Methods

For this study, the data was collected from the customers of airports in Turkey and was approached through a personal visit. The instrument used for data collection was a questionnaire adapted from the previous study. According to Collis & Hussey (2003), the questionnaire is a type of closed-ended data collection for statistical information from the samples through a set of questions. Each of the questions in the instruments corresponds to a particular variable. The questionnaire was adapted, and it was

finalized through the assistance of a supervisor. The primary data was collected in the research, and the data was collected by visiting the respondents. The questionnaire was adapted from the previous studies on the subject segmentation of passengers' technological preferences.

3.6. Sample and Sampling Techniques

Probabilistic sampling and non-probabilistic sampling are the two different types of sampling. When each member of the population has an equal probability of being chosen, probabilistic sampling is applied. With non-probabilistic sampling, the sample is picked based on judgments rather than having an equal chance of being chosen for each member (Bell et al., 2022). Non-probabilistic sampling is used in this study since the participants were not chosen at random. Purposive sampling is the method employed in this study. This method is employed since this study relies on the researcher's judgment in deciding which population to include. Purposive sampling was used to choose the sample, and respondents were chosen based on their level of subject expertise. Before the questionnaire was distributed, this was discovered by asking various questions of the participants. Another factor is that it only targets survey participants who comment on behalf of the entire population (Bell et al., 2022). This method also selects study participants in line with the stated objective, as Rojas et al. (2017) noted. The data for this study was gathered from individuals who work in various roles within the organization and are also passengers of Turkish airports. The consumers who fly with several airlines were contacted by phone and email.

The research collection tool was initially supplied to 475 individuals; however, 20 of them did not complete the questionnaires; therefore, they were disregarded. For this study, a sample size of 455 people was used. The questionnaire was emailed to the respondents via survey monkey after they provided their email addresses, and some of the respondents who lived close to the researcher's location also received paper copies of the questionnaire.

3.7. Validity and Reliability

Khalid (2012) defined validity as the extent to which a research instrument assesses what it is intended to measure. The degree to which an instrument measures what needs to be measured is determined by its validity (Morgeson et al., 2019). It is the degree to which the results are accurate. A pilot research was undertaken using 25 participants to determine the questionnaire's validity and the items' accuracy. The questionnaire has an appropriate structure. According to Khalid et al. (2012), a pilot study is a kind of experiment conducted on a small scale to evaluate the viability, duration, cost, and adverse events and improve the study design before the start of the full-scale project. Additionally, pilot research is useful for evaluating the questionnaire's content and criterion validity and identifying areas that need improvement. The data-gathering tool regarding statement structure, syntax, and wording was somewhat modified.

Along with the instrument's validity, it's also critical to consider its reliability. According to Khalid et al. (2012), dependability assesses how consistently the instrument produces similar results across trials. This improves the results' relevance and accuracy and makes generalizing the findings to the entire population easier. The Cronbach's Alpha test determines whether the instrument's items are reliable. Each variable's consistency is evaluated using this tool, and any items without reliability values are removed from the study. In this study, those items with values greater than 0.7 are included. If not, they will be taken down (Morgeson et al., 2019).

3.8. Data Analysis

The researcher evaluated the dataset gathered using SPSS 24 to analyze the study's findings efficiently. The researcher used SPSS 24 to check the validity of the instrument's items. Additionally, the researcher used this program to calculate the frequency distribution of responders for each question and later used this frequency to represent the data graphically. The quantitative data accurately depicts how passengers were divided into groups based on their preferences for technology in Turkish airline firms and the major topics investigated to determine which antecedents were significant to customers and to develop an analysis. The author also performed a

regression test to evaluate the study's hypothesis and a correlation test to determine the link between the variables.

3.9. Research Ethics

In this study, ethical considerations were considered concerning the research project. Ethical principles are considered when data is obtained, analyzed, and presented (Saunders et al. 2015), and there are some ways in which ethical consideration is carried out. Moreover, it was ensured that all the participants participated in the study voluntarily, full consent was obtained, and all customers were given a brief about the research's purpose, methods, and use. Moreover, the researcher also considered the confidentiality element while collecting the data from the customers of Turkish aviation companies, and it was ensured that their personal information was secured and not utilized in the study. These elements are assessed further in below discussion.

3.9.1. Confidentiality

One of the main elements of ethical considerations is confidentiality, which refers to the condition in which the author understands the identity of the research subject and takes steps to defend the identity achieved by others. Many types of research require gathering signed agreements from respondents (Said, 2015). In this regard, maintaining confidentiality is an important measure to assess personal information protection.

3.9.2. Voluntary Participation

Voluntary participation is also one of the research ethics elements that indicates that people participate in the study without force or coercion (Roberts, 2015). In this study, the researcher ensured the participants could withdraw from the research at any point in time without any notice. It is the respondents' right to leave at any time, for whatever reason, and there is no pressure placed if they decide not to continue (Andrews & Squire, 2012). Moreover, the respondents are not obliged to explain why they left the study.

3.9.3. Informed consent

Informed consent means that the individual participates in the evaluation and is completely informed. The participants must know the purpose of the study, who and which group is funding the project, how the study findings are used, and if there is any negative impact on their participation, and evaluate who will have access to the results. This consideration in this study will help the participant decide whether to participate (Starkings, 2012).



CHAPTER IV

RESULTS AND DISCUSSION

4.1. Results

In this section, the collected data is analyzed through different statistical techniques. The demographic variables are assessed through graphical representation. Moreover, descriptive statistics is conducted to get a summary of data, and after that, reliability results are tested. The correlation test is conducted to assess the extent of the relationship, and regression is used to assess the impact of independent variables (IVs) on dependent variables (DV). In this study, BT refers to biometric technology, CS refers to contactless solutions, IW refers to inflight Wi-Fi, MADS refers to mobile apps and digital services, PDU refers to personal device usage, PC refers to personalization and customization, and SDE refers to streaming and on-demand entertainment. The results are shown below.

4.2. Demographic Analysis

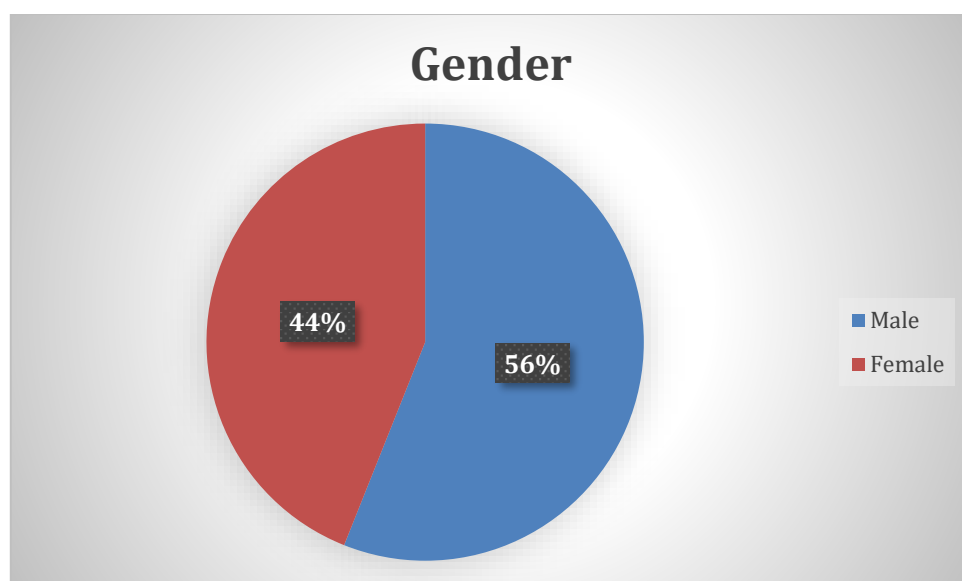


Figure 4.1. Gender

The graph depicts that approximately 56% of participants who participated in this survey were males, and 44% of respondents who participated in this survey were females. Approximately equal proportion was taken from both genders in this survey.

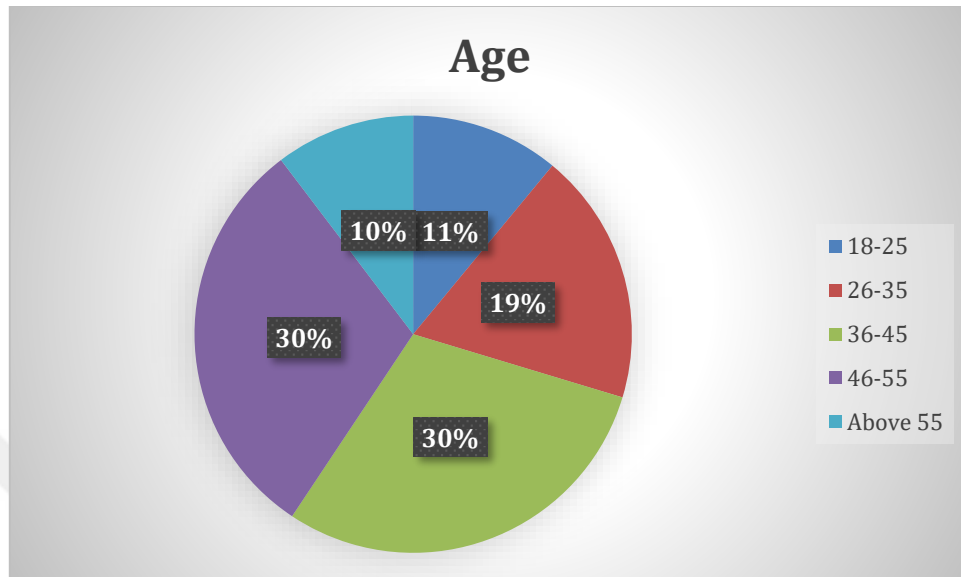


Figure 4.2. Age

The above results show that many respondents fall in the age group of 36-45 and 46-55, respectively. This shows that travelers who are part of this study are mature and are more experienced.

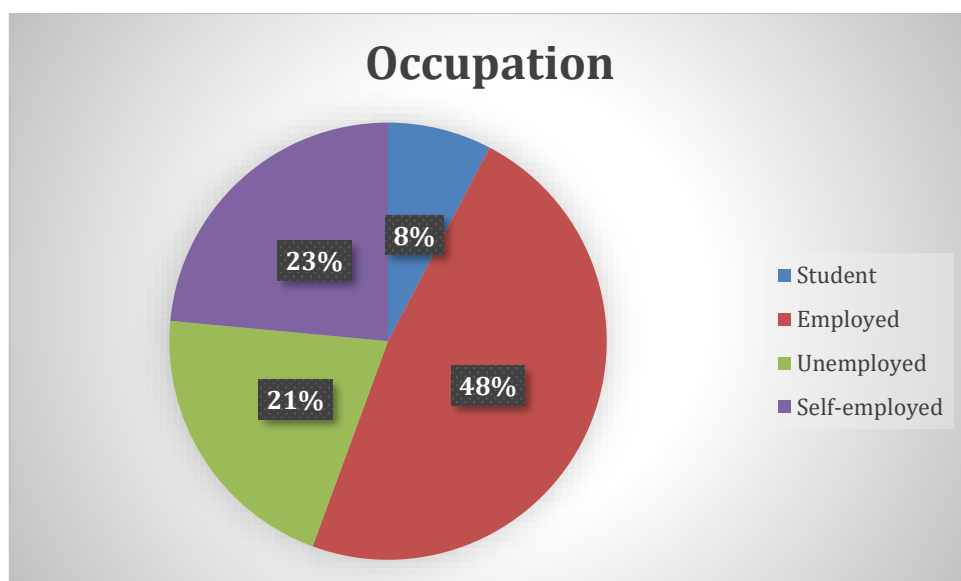


Figure 4.3. Occupation

The above figure indicates that most respondents are employed, i.e., 48% and 23% are self-employed, whereas 21% are unemployed. Also, 8% of respondents are going through their student lives. This shows that around 71% of accumulated respondents are earners.

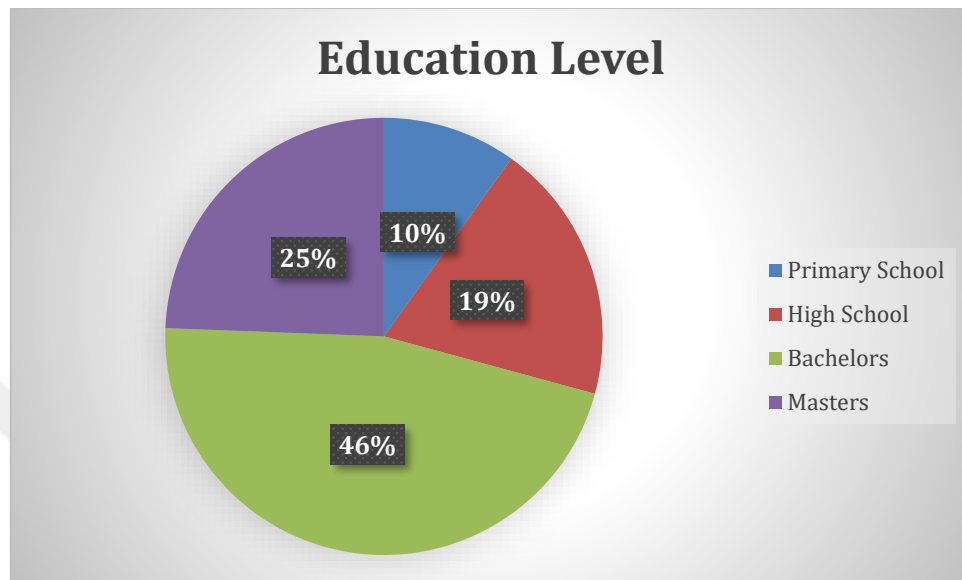


Figure 4.4. Education Level

The above graph indicates that 46% of respondents completed their Bachelor's degree, while 25% completed their Master's degree. Around 19% of respondents have completed high school, while 10% have completed their primary school. This shows that most respondents are well-educated and have completed their education.

The last question asked from the respondents was about the frequency of traveling, and the results are depicted below:

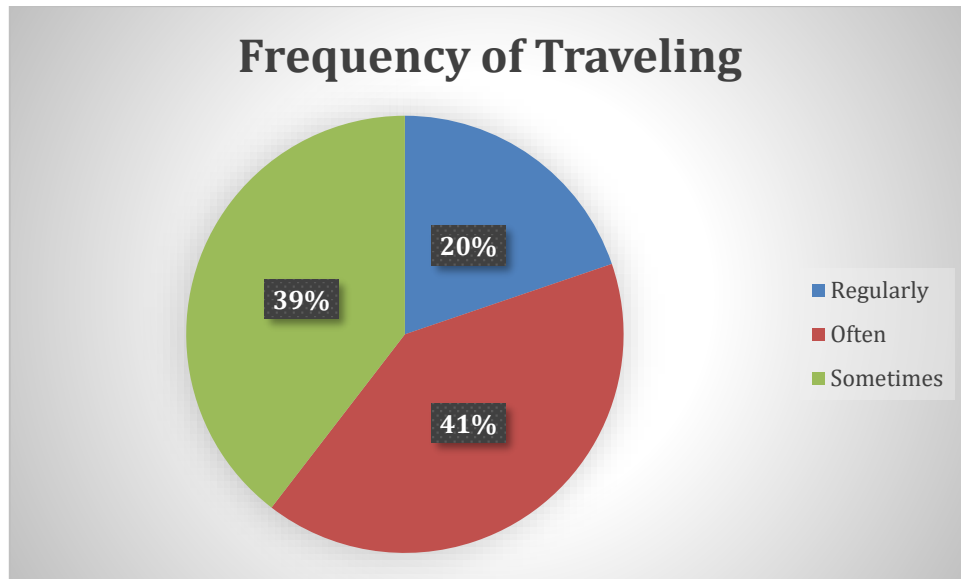


Figure 4.5. Frequency of Traveling

In the above figure, it is shown that 41% of respondents visit often, while 39% of respondents visit sometimes. Additionally, 20% of respondents also travel regularly. This means that the target audience is travelers of any airline.

4.3. Descriptive Statistics

Descriptive statistics (DS) are utilized in this study to collect the research's metrics and sample sizes. DS aids in illuminating sample data behavior (Bryman & Cramer, 2011). The DS exam is crucial because it divides a large amount of data into manageable amounts. The four main parts of DS are mean, standard deviation (SD), kurtosis, and skewness. The data provided by the respondents is the mean value. The SD number represents the typical difference between the values when comparing data and mean values. The SD value demonstrates how far the values deviate from the mean (Pallant, 2020). The dataset's kurtosis and Skewness computations also demonstrate the dataset's regularly distributed nature. Kurtosis and skewness must have a maximum range of -1 to +1. The following table is used to calculate the DS.

Table 4.1. Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
BT	455	1.00	5.00	3.6498	.89730	-.524	.114	-.655	.228
CS	455	2.00	5.00	3.8769	.67578	-.543	.114	-.216	.228
IW	455	2.00	5.00	3.6996	.79100	-.050	.114	-.510	.228
MADS	455	1.67	5.00	3.6996	.73686	-1.104	.114	.695	.228
PDU	455	1.00	5.00	3.9194	.63881	-.360	.114	.818	.228
PC	455	1.00	5.00	3.7707	.84183	-.315	.114	-.833	.228
SDE	455	1.67	4.67	3.6762	.55191	-.224	.114	-.096	.228
TPT	455	1.67	5.00	3.6996	.73686	-1.104	.114	.695	.228
Valid N (listwise)	455								

The above table shows that $n = 455$, which means the total sample size is 455. The mean value shows that the average value lies between 3.6 and 3.9, and that shows that most of the respondents have given responses on the agreement side. Additionally, all of the variables' SD values are smaller than 1, which indicates that the dataset has a lower standard deviation. Additionally, the values for skewness and kurtosis fall within the range of -2 to +2, indicating that the dataset is roughly regularly distributed.

4.4. Reliability Test

This study used a reliability test to assess the inter-consistency of each item. This test is conducted to examine the accuracy of items with the help of the technique of Cronbach's Alpha. According to Arkkelin (2014), if Cronbach's α value is higher than 0.6, it shows that the items of variables are reliable. The outcomes are depicted below:

Table 4.2. Reliability Test

Variable	Number of items	Cronbach's Alpha value
BT	3	0.87
CS	3	0.67
IW	3	0.84
MADS	3	0.73
PDU	3	0.63
PC	3	0.77
SDE	3	0.65
TPT	3	0.73

The above reliability table shows that the number of items for each variable is 3, and the reliability values for each variable are more than 0.6; this indicates that the data is reliable. As the reliability is ensured, it means data is good to go for further analysis.

4.5. Correlation Test

The correlation test is carried out to assess how closely linked variables are with one another. Meyers et al. (2013) identified that when the values are closer to 1, there is a high degree of correlation. If the value is more relative to 0, it depicts a lower degree of association between the variables. We are examining whether the association is positive if there is a positive sign before values are essential. If the value has a minus sign, the relationship is negative. McCormick & Salcedo (2017) mentioned that the benchmarks of correlation show that a link is considered weak if the value is less than 0.3.

Additionally, the association is moderate if the values lie between 0.4 and 0.6. The association between the variables is robust if the value is greater than 0.7 for the relationship. The correlation test is shown below:

Table 4.3. Correlation Test

		BT	CS	IW	MADS	PDU	PC	SDE	TPT
BT	Pearson	1	.733**	.641**	.639**	.590**	.740**	.596**	.639**
	Correlation								
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000
CS	N	455	455	455	455	455	455	455	455
	Pearson	.733**	1	.795**	.636**	.580**	.635**	.785**	.636**
	Correlation								
IW	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	455	455	455	455	455	455	455	455
	Pearson	.641**	.795**	1	.621**	.628**	.687**	.813**	.621**
MAD	Correlation								
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	455	455	455	455	455	455	455	455
S	Pearson	.639**	.636**	.621**	1	.713**	.575**	.670**	1.000*
	Correlation								*
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
PDU	N	455	455	455	455	455	455	455	455
	Pearson	.590**	.580**	.628**	.713**	1	.700**	.651**	.713**
	Correlation								
PC	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	455	455	455	455	455	455	455	455
	Pearson	.740**	.635**	.687**	.575**	.700**	1	.574**	.575**
SDE	Correlation								
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	455	455	455	455	455	455	455	455
TPT	Pearson	.639**	.636**	.621**	.680**	.713**	.575**	.670**	1
	Correlation								
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	455	455	455	455	455	455	455	455

** . Correlation is significant at the 0.01 level (2-tailed).

The above table shows that BT with CS, BT with PC, CS with IW, CS with SDE, IW with SDE, MADS with PDU, PDU with PC, and PDU with TPT have a high level of

correlation because the correlation value is above 0.7. Additionally, the correlation values for other associations range from 0.5 to 0.6, indicating a modest amount of relationship. Remembering that all correlations are positive is crucial, meaning that if one variable rises, the other will rise.

4.6. Regression Analysis

Multiple linear regression (MLR) is employed in the regression analysis based on the variables and data. There are multiple independent variables (IVs) and one dependent variable (DV), which is why the MLR technique is used. The results are shown below.

Table 4.4. Model Summary

(a) Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.789 ^a	.622	.617	.45576

a. Predictors: (Constant), SDE, PC, PDU, BT, CS, IW

(b) ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	153.449	6	25.575	123.124	.000 ^b
1 Residual	93.057	448	.208		
Total	246.505	454			

a. Dependent Variable: TPT

b. Predictors: (Constant), SDE, PC, PDU, BT, CS, IW

(c) Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.150	.162		-.927	.354
1 BT	.225	.041	.274	5.458	.000
1 CS	.072	.064	.066	1.130	.259
1 IW	.015	.055	.017	.280	.780
1 MADS	.018	.887	.021	.211	.684
1 PDU	.506	.052	.438	9.721	.000
1 PC	-.101	.046	-.116	-2.213	.027
1 SDE	.297	.077	.222	3.866	.000

a. Dependent Variable: TPT

In the regression analysis, the first table is about the model summary, and in this table, the adjusted R-square is calculated. The value of adjusted R-square is 0.617, which means the model's explanatory power is 61.7%. Moreover, as far as the Anova table is concerned, it is assessed that the f-value is 123.12, and the sig value is 0.00>0.05, which shows that the overall model is significant. The coefficient table depicts that BT, PDU, PC, and SDE are statistically significant, meaning they significantly impact TPT. Moreover, CS, IW, and MADS are insignificant, which means they do not impact TPT. It is noted that PC have a negative impact on TPT because of its negative beta values, while others have a positive impact on TPT.

4.7. Hypotheses Assessment Summary

Table 4.5. Hypotheses Assessment Summary

Hypotheses	Retain/Reject
There is an impact of biometric technology on the technological preferences of travelers.	Retain
There is an impact of contactless solutions on the technological preferences of travelers.	Reject
There is an impact of inflight Wi-Fi on the technological preferences of travelers.	Reject
There is an impact of mobile apps and digital services on the technological preferences of travelers.	Reject
There is an impact of personal device usage on the technological preferences of travelers.	Retain
There is an impact of personalization and customization on the technological preferences of travelers.	Retain
There is an impact of streaming and on-demand entertainment on the technological preferences of travelers.	Retain

4.8. Discussion

The above results have tested the hypotheses of this study. The first hypothesis is about the impact of BT on the technological preferences of travelers in Turkish airports. The results show a significant impact of this technology on passengers. This study's results align with the findings of Yadegaridehkordi et al. (2021), in which it is assessed that BT has transformed many industries recently, including the travel and aviation industry. Turkish airports rapidly use biometric systems like facial recognition, fingerprint scanning, and iris detection to increase security, improve passenger experience, and expedite operational procedures. According to Yadegaridehkordi et al. (2021), BT provides additional security measures, and strengthening security measures is one of the main reasons biometric technology has been adopted in Turkish airports. Traditional identity verification procedures can be time-consuming and prone to human mistakes, such as manual document checks and boarding passes. A more dependable and effective alternative is provided by biometric technology, which allows for speedy and precise identity verification of travelers. The risk of identity fraud and unlawful entry has greatly decreased thanks to using biometrics, improving airport security throughout Turkey. Kurtulmuşoğlu et al.(2016) advocated the findings of our study and mentioned that BT simplifies passenger processing. Turkish airports have greatly streamlined their passenger clearance procedures thanks to biometric technology. Travelers say passports and boarding permits are no longer required at each checkpoint. Instead, identity checks can be made using biometric information gathered and maintained in centralized databases (Rezaei et al. 2011).

For instance, facial recognition technology can speed up the check-in, security screening, and boarding procedures by matching passengers' faces to passport images. Passengers now enjoy a more efficient and enjoyable travel experience because of the seamless integration of biometrics, reducing congestion and queue times. Additionally, Graham(2023) found that BT helps enhance the traveler experience, which supports our study's results. Using biometric technologies has improved the general traveler experience in Turkish airports. Passengers' journeys have been made simpler by eliminating manual processes, decreasing paperwork, decreasing stress, and increasing convenience. Travelers may move quickly through the airport using biometric devices, reducing the need for paper documents and face-to-face meetings with airport workers.

Travelers who value efficiency and time savings, such as regular flyers and tech-savvy tourists, have responded well to this simplified approach (Kurtulmuşoğlu et al. 2016). Moreover, Graham(2023) assessed that BT is important for travelers because it changes technological preferences, and travelers' technological choices have changed as biometric technology becomes more commonplace in Turkish airports. More people now prefer using such cutting-edge systems and expect the incorporation of biometrics into the experience of using airports. Biometric solutions have become a convenient and effective replacement for conventional identifying techniques. Due to their growing confidence in the precision and dependability of these systems, travelers are now more likely to choose automated biometric procedures over manual inspections. Gunay & Gokasar(2020) mentioned that using BT in Turkish airports offers many advantages, but there are also some drawbacks and issues to be aware of. Many passengers continue to have serious worries about privacy and data security. Biometric data collection, storage, and exchange raise legitimate concerns about data protection and potential abuse. Strict rules and procedures must be implemented to guarantee the ethical and responsible use of biometric data, ensuring travelers the security and privacy of their data.

The second hypothesis is about the impact of contactless solutions on the technological preferences of travelers, and the results of this study have rejected this hypothesis because of its insignificant p-values. The result of this hypothesis deviates from the findings of Karağaoğlu & Çiçek(2019); technology has increased rapidly in recent years, and its impact on different elements of life that are obvious. The way people travel has been meaningfully changed by technology. The implementation of contactless technologies has robustly transformed how people are required to travel. Travelers have a seamless and pleasant experience because of contactless solutions that depend on Bluetooth, Near Field Communication (NFC), and smartphone applications (Graham, 2020).

According to Zeybek(2018), in the boarding and ticketing areas, contactless technologies have had a considerable impact on travelers' technology preferences. In the past, travelers had to carry actual tickets, which were prone to damage or loss. Travelers may now safely save their tickets, and boarding passes on their iPhones thanks to contactless technology like mobile boarding passes. As a result, the check-

in and boarding procedures are expedited, and paper tickets are no longer necessary. Travelers are more likely than ever to adopt contactless solutions due to their simplicity and effectiveness.

Moreover, the result of this hypothesis deviates from the findings of Gemici & Alpkani(2015), in which contactless payment methods have also changed how consumers conduct business while driving. Travelers had to carry cash or physical credit cards in the past, and both were vulnerable to theft or loss. Travelers can now make secure and simple purchases with only a tap or wave of their devices thanks to contactless payment solutions like mobile wallets and wearables. Travelers' technology tastes have changed due to this convenience, and many now favor contactless payment methods over conventional cash or card-based purchases.

The accommodation sector has seen a substantial transformation due to contactless technology. Travelers now have access to contactless check-in and check-out procedures because of the growth of smart hotels and home-sharing companies. Travelers may use their iPhones to access rooms, manage room amenities, and even order room service without standing in line at the front desk (Ekinici et al., 2018). In addition to offering visitors a more personalized and practical experience, these contactless technologies also boost safety and hygiene precautions, which have become key factors in the wake of the COVID-19 pandemic (Pan & Truong, 2021).

Additionally, contactless technology has altered how visitors view other locations. Travelers may access the most recent information on the various modes of transportation, nearby attractions, and local recommendations using smartphone applications and mapping services. The augmented reality (AR) technology's immersive and interactive characteristics can improve the sightseeing experience. Modern travelers increasingly depend on technology to improve their travel experiences and make wise decisions and increasingly require these contactless solutions (Kilic et al. 2021). Outside of the actual travel experience, contactless technologies impact travelers' chosen forms of technology. It has also impacted how travelers organize their trips and make reservations. Travelers looking for information and making reservations increasingly turn to online travel companies, hotel booking websites, and travel blogs. These platforms are the go-to choice for many travelers

because of their simplicity of use, wide range of options, and affordable rates (Harantová et al., 2023). The booking procedure has also been simplified by incorporating contactless payment methods into these platforms, improving its efficiency and security.

There is no impact of inflight Wi-Fi on the technological preferences of travelers, and this is what the results of this study suggest. This hypothesis's results deviate from the findings of Harantová et al.(2023), in which in-flight Wi-Fi has drastically altered how people fly and influenced their technological preferences. Flyers may now stay engaged, productive, and connected the entire flight thanks to the ability to surf the internet in the air. This seamless incorporation of technology has substantially altered how people view and interact with many devices and services.

Aksoy& Ozbuk (2017) identified that one of the most evident implications of in-flight Wi-Fi is the increase in personal electronics use. Thanks to internet access, travelers may now use their smartphones, tablets, and laptops to stay in touch with friends, family, and coworkers. In-flight entertainment systems are being replaced with direct streaming of movies, TV shows, and music to passengers' devices. Airlines are adapting to this change by investing in improved Wi-Fi systems and offering in-flight entertainment apps to satisfy travelers' changing technology preferences.

In-flight Wi-Fi's accessibility has also changed how individuals plan their trips and make decisions while traveling. If a traveler has access to the internet, they can research and book flights, accommodations, and activities in real-time, even while flying. Because they desire quick access to information and ease, travelers are increasingly selecting online travel agencies, hotel booking websites, and review sites (Amer-Yahia et al., 2020). Additionally, staying connected while traveling has improved passengers' overall travel experiences by enabling them to be updated about travel recommendations, weather predictions, and other important information.

In-flight Wi-Fi also has an impact on business travelers' preferences. Thanks to internet access at 35,000 feet, professionals can now stay connected to their work and productive even on extended flights (Kuyucu, 2014). Airlines are under more pressure to offer dependable and quick Wi-Fi connections as business travelers now place

higher importance on connectivity and productivity. Airlines have started investing in cutting-edge Wi-Fi technology, particularly satellite-based systems, to cater to this market niche.

Additionally, in-flight Wi-Fi has enabled remote workers and digital nomadism to flourish. If people can use the internet while traveling, they can utilize their trip time and work remotely. Airlines that offer consistent and trustworthy Wi-Fi connections are becoming more popular since digital nomads must maintain their productivity and business duties while traveling (Oktal& Oktal, 2012). Airlines are spending money to improve their in-flight Wi-Fi capabilities and designate particular seating areas and workstations to satisfy this growing habit. This hypothesis's results align with the findings of Yavuz et al. (2020), in which, despite network advancements, travelers may still encounter issues including limited capacity, high costs, and erratic speeds. Additionally, some people could be reluctant to utilize in-flight Wi-Fi because they are concerned about privacy and data security, especially while reading sensitive material.

The results of this study suggest that there is no impact of mobile apps and digital services on the technological preferences of travelers because of insignificant p-values. This hypothesis's results deviate from Yavuz et al. (2020), in which digital services and mobile apps have significantly influenced passengers' technological preferences in recent years. Travelers now have access to various digital tools and services that improve their travel experience thanks to the quick evolution of technology and the widespread use of smartphones. Mobile apps and digital services have completely changed how people travel, enabling them to do anything from reserve hotels and flights to find their way around foreign cities. The convenience that mobile apps and digital services provide passengers is one of their most obvious effects. Travelers can now book flights, hotel rooms, and even vehicle rentals with just a few touches on their smartphones, doing away with the need for extended phone calls or trips to travel agencies (Egresi, 2017). Travelers can now save time and effort because of how much easier and more productive the entire travel preparation process is thanks to this convenience.

Mobile apps have also become a crucial resource for navigating unfamiliar locations. The days of carrying paper maps around or stumbling through conversations with locals in a foreign language are long gone. Travelers can now navigate cities, find sites of interest, and even find off-the-beaten-path attractions thanks to the development of GPS and map applications. These apps offer real-time information, facilitating tourists' exploration of new locations and enhancing travel experiences (Kuyucu, 2014). Mobile apps and digital services have significantly impacted how travelers acquire and consume information, convenience, and navigation. Travelers' main information sources in the past were guidebooks and travel bureaus (Çabuk et al. 2019). Travelers now have access to various information at their fingertips, thanks to the growth of travel-related applications and websites. These internet resources offer visitors insightful information and personal accounts of other travelers' experiences, from online reviews and suggestions to travel blogs and user-generated content. Due to the democratization of knowledge, tourists may make more informed choices and personalize their itineraries (Florido-Benítez & Del Alcázar, 2014).

Expanding the sharing economy in the travel sector is another major effect of mobile apps and digital services. Platforms like Airbnb and Uber have disrupted established sectors by providing alternate lodging and transportation choices. Travelers now have various lodging options, including private houses and apartments, which can offer a more unique and genuine experience. Similar to how they have reduced their dependency on conventional taxis or public transit, ridesharing services have made it simpler and more economical for tourists to get around (Florido-Benítez & Del Alcázar, 2014). The results of our hypothesis are not acknowledged with the findings of (Çabuk et al. 2019); the way tourists document and share their travel experiences has changed due to mobile apps and internet services. Travelers no longer need to bring heavy cameras to capture their adventures because smartphones now come with high-quality cameras. Travelers may easily share their images and videos with friends, family, and a larger audience through social media platforms and photo-sharing apps. As a result, "digital influencers" have become more popular, and people are choosing their vacation places and activities based on the experiences of others (Çabuk et al. 2019).

The hypothesis of the impact of personal device usage on the technological preferences of travelers is retained. This is because of a significant p-value, and the results are not aligned with the findings, in which the era of cutting-edge technology and personal electronics have ingrained themselves into every aspect of our lives. These gadgets, which range from smartphones to tablets to computers, have altered the way we interact with one another, conduct business, and pass the time. Additionally, they have greatly impacted how we prefer to use technology when traveling. Kim et al. (2020) identified that travelers now have a wealth of information and services at their fingertips thanks to personal gadgets. Travelers may easily plan their vacations, reserve hotels, and locate attractions thanks to the availability of travel applications, online booking platforms, and navigational aids. Due to this ease, their technical preferences have changed; they now value gadgets with smooth connectivity, reliable internet access, and user-friendly interfaces.

Additionally, the way travelers record and share their experiences has changed due to personal electronics. To save their journey memories in the past, people used cameras and camcorders. However, since the development of social media and high-resolution smartphone cameras, tourists now favor using their devices to capture images and videos and instantaneously share them with loved ones (Kim et al., 2020). This change has increased demand for gadgets with excellent photography capabilities and effective sharing features. Personal gadgets have transformed travelers' experiences with in-flight entertainment. The days of only having a few movies to watch on a shared screen are long gone. Nowadays, people can watch their favorite TV series or movies or listen to their favorite music on their gadgets while flying. As a result, consumers now favor electronics with bigger screens, more battery life, and better multimedia features (Kim et al., 2020). Shoval & Barenboim (2021) found that personal devices have also made it possible for travelers to keep in touch with their loved ones while on the trip. Thanks to social networking platforms, messaging apps, and video chatting services, people can readily contact their friends and family, regardless of physical location. Due to this connectivity, people now favor gadgets with easy communication app integration, high-quality video calling capabilities, and long battery life. Personal electronics have also promoted the growth of the culture of the digital nomad. Contemporary tourists often utilize their devices for remote work while exploring new destinations. This has increased demand for mobile work-

supporting devices with strong processing capabilities, effective multitasking features, and long battery life. As a result, lighter laptops, tablets with detachable keyboards, and portable power banks are becoming more popular.

The impact of personalization and customization on the technological preferences of travelers is retained, and the results of this hypothesis are aligned with the outcomes of Tümer et al. (2019), in which it is assessed that the travel industry is no exception to the tremendous trends of personalization and customization that have recently developed in many industries. Technological improvements allow travelers to access customized services catered to their unique needs and tastes. Travelers' technology preferences have been significantly impacted by this change, which has changed how people plan, reserve, and enjoy their vacations. In their quantitative study, Tümer et al. (2019) found that personalization has completely changed how passengers search for and reserve travel. Because there are so many online travel platforms and aggregators, users may customize their search parameters to discover the most pertinent results. They can define their destination, vacation dates, budget, and desired facilities to locate the ideal lodging, transportation, and activities that suit their interests. Travelers now prefer user-friendly websites and smartphone applications that provide configurable search filters and tailored recommendations, increasing our reliance on technology.

Additionally, Amer-Yahia et al. (2020) conducted a qualitative study and assessed that the rise of customization has changed the nature of the travel experience. Travelers now need distinctive and customized experiences rather than generic, one-size-fits-all itineraries. The ability of travelers to create their itineraries and pick activities according to their interests has been made possible thanks in large part to technology. For instance, smartphone apps and online platforms let visitors find nearby landmarks, eateries, and activities that suit their tastes, making for a more personalized and memorable travel experience. Due to this customization-driven strategy, there is a demand for personalization-friendly technical solutions, such as itinerary planning apps, virtual tour guides, and real-time translation tools. Amer-Yahia et al. (2020) found that travelers' choices for lodging have also been influenced by personalization and modification. Travelers can now choose to stay in distinctive and customized accommodations that represent their likes and preferences, thanks to the growth of

home-sharing sites like Airbnb. These platforms provide various possibilities to fit individual interests and budgets, from charming cottages to contemporary apartments. These systems enable hosts to customize the visitor experience by offering suggestions and local knowledge, resulting in a more engaging and genuine travel encounter. Travelers are increasingly looking for properties with smart home features, voice-controlled assistants, and other technological comforts due to the popularity of such platforms, which has increased demand for lodgings with technology features (Suatmadi et al. 2019). The rising reliance on mobile devices and applications considerably impacts travelers' technology choices due to personalization and customization. Nowadays, travelers use their smartphones and tablets for various things when traveling. Thanks to mobile apps, travelers can instantly access customized trip information, such as airline information, hotel reservations, and local maps. These apps also provide features like mobile check-ins, digital boarding cards, and real-time travel updates, which streamline and facilitate the travel process (Suatmadi et al. 2019). Travelers want customized and up-to-date information at their fingertips, which has resulted in a boom in demand for travel-related smartphone apps.

The rise of on-demand and streaming entertainment has significantly changed how tourists want to use technology, and our hypothesis supports this. Travelers no longer exclusively rely on conventional entertainment to keep themselves engaged throughout their journeys in today's fast-paced digital age. Instead, individuals have changed their technological tastes by embracing the comfort and adaptability that streaming platforms and on-demand services offer. The emergence of streaming services like Netflix, Amazon Prime Video, and Hulu has completely changed how people enjoy entertainment while traveling. Travelers may now watch their preferred entertainment whenever and wherever they choose, thanks to access to a huge library of movies, TV shows, and documentaries (Banerji et al., 2023). Their reliance on customary in-flight or hotel entertainment systems has greatly decreased. On their smartphones, tablets, or computers, travelers may stream their favorite shows or movies, allowing them to tailor their entertainment and select content that suits their interests. According to Atalik & Ozdemir (2015), this shift toward streaming has also directly impacted the devices that passengers bring with them. Portable DVD players and MP3 players used to be common travel companions. However, the popularity of streaming platforms has diminished the usefulness of these gadgets. Instead, tourists

now place a higher value on laptops, tablets, or smartphones that enable uninterrupted streaming. These gadgets are now multipurpose tools that may be used for communication, navigation, accessing travel-related information, and providing entertainment (Kuljanin& Kalić, 2015).

Additionally, the popularity of streaming has changed how much internet connectivity is expected of tourists. Because people depend on streaming services to get their preferred television series and films, high-speed internet connectivity is now a requirement for many tourists. This has increased the need for dependable Wi-Fi networks in hotels, airports, and other places associated with travel. Strong internet connections enable travelers to stay connected and stream material during their journey; thus, they frequently base their decisions on lodging and mode of transportation (Kuljanin& Kalić, 2015). Along with streaming services, on-demand entertainment choices have grown significantly among travelers. Examples include podcasts and audiobooks. These channels offer a practical means of passing the time during protracted flights or car excursions. Travelers can enjoy podcasts or audiobooks without requiring a continual internet connection by downloading them in advance to their devices. The heightened demand for portable electronics featuring substantial storage capacities and extended battery life is noted by Kuljanin and Kalić (2015).

The effects of on-demand and streaming entertainment go beyond the available device options. Additionally, it has affected the nature of travel itself. Travelers may now design their entertainment schedule and customize it to their preferences, thanks to the accessibility of personalized content. This empowerment has improved travelers' overall enjoyment by transforming boring journey times into chances for leisure, learning, or relaxation (Kuljanin & Kalić, 2015). However, the growing reliance on streaming services and on-demand entertainment has led to worries about the digital divide, which is important to note. It is difficult for some visitors to use these technological improvements because not everyone can access high-speed internet or the required equipment. This problem emphasizes the significance of closing the digital divide and guaranteeing fair access to technology for all passengers.

CHAPTER V

RECOMMENDATIONS AND CONCLUSIONS

5.1. Recommendations

The first recommendation is based on surveys and feedback, and the airlines and airport staff members of Turkey must ask passengers about their technical preferences through surveys or feedback forms. It is essential to ask them how they use smartphone apps, self-check-in kiosks, digital boarding cards, biometric authentication, in-flight entertainment systems, and other technologies. Determine patterns and preferences among various passenger groups by analyzing the responses (Muhumed, 2020). Moreover, it divides the passenger population into segments according to demographic factors, including age, gender, country, and occupation. The adoption and preferences for technology vary widely among age groups and demographics. Another recommendation is to segment passengers into groups according to why they are traveling, such as business travelers, vacationers, families, or frequent flyers. While leisure travelers may be more interested in entertainment alternatives, business travelers may have a stronger preference for technologies that increase efficiency.

Moreover, another recommendation is to identify tech-savvy passengers and those who are less at ease with it based on their technological awareness (Kuljanin & Kalić, 2015). While some travelers might be early adopters and embrace new technologies, others might favor more conventional approaches. Moreover, loyalty programs are also very important to segment travelers and analyze data from loyalty programs and frequent flyer memberships. These programs frequently monitor passenger preferences, which can offer helpful information. Examples include preferred seat selection, in-flight amenities, or mobile app usage.

Additionally, applications are important to understand traveler behavior and preferences better and analyze data from mobile apps offered by airports, airlines, or

other travel-related businesses(Banerji et al., 2023). Monitor how often options like mobile check-in, live flight updates, lounge access, and luggage tracking are used. Social media tracking is also important to keep an eye out on social media for mentions, hashtags, or remarks about airport technology. To spot patterns and trends, analyze the moods and preferences given by travelers.

5.2. Conclusion

Adopting biometric technology in Turkish airports has significantly altered travelers' technological preferences. Many people now favor biometrics as a preferred option because of the increased security precautions, simplified passenger processing, and improved traveler experience. Travelers' preferences for automated processes over manual checks have changed due to the ease, effectiveness, and time savings provided by biometric technologies. Addressing privacy and data security concerns is crucial to maintaining passengers' trust and confidence. As technology advances, the future of travel experiences in Turkish airports and elsewhere will likely be more shaped by biometric technologies.

Moreover, the development of contactless technology has significantly altered travelers' technological choices. These technologies have revolutionized how passengers handle various aspects of their journeys, from booking and paying for tickets to lodging and navigating, thanks to their simplicity, convenience, and increased safety. Contactless solutions are anticipated to become increasingly significant as technology develops and influences the preferences and expectations of contemporary travelers, ultimately transforming the travel industry as a whole. In conclusion, travelers' technology preferences have been greatly influenced by the availability of in-flight WiFi. The inclusion of Wi-Fi in airplanes has altered how people use technology while flying, affecting everything from entertainment choices to an increasing reliance on personal gadgets, online travel planning, and the rise of remote work. As technology advances, there will likely be greater demand for stable and dependable in-flight connectivity, encouraging further development and financial investment.

Mobile apps and digital services have significantly impacted travelers' technology tastes. These technologies have revolutionized how individuals organize, experience, and share their travels thanks to their convenience, navigational aids, informational resources, and opportunities. As technology develops, we may anticipate many more innovations to improve the travel experience and influence future travelers' tastes. Additionally, the visitors' demands for easy connectivity and access to local services have been molded by personal gadgets. Travelers can identify nearby eateries, sights, and transit alternatives quickly and conveniently, thanks to the availability of travel-related apps and platforms. As a result, people now favor gadgets with built-in GPS, dependable Wi-Fi, and support for location-based services.

In conclusion, personalization and customization have fundamentally altered consumers' technological choices while revolutionizing the travel business. Technology has become a crucial component of the journey of the modern traveler with personalized search and booking experiences, customized itineraries, distinctive lodging options, and mobile apps. There should be more anticipation of improvements in personalization and customization as the travel industry develops in response to the expanding expectations of tourists wanting unique and memorable experiences. The popularity of streaming and on-demand entertainment has dramatically impacted how passengers like to use technology. Focus has switched to portable devices that facilitate smooth content consumption due to the convenience, adaptability, and personalized experience streaming services provide. Additionally, the requirement for dependable internet connectivity has evolved into a significant aspect of passengers' choice-making. Observing how streaming and on-demand entertainment further sculpt future traveler preferences and experiences as technology advances will be intriguing.

Finally, segmenting passengers' technological preferences at Turkish airports is essential for improving the airport experience and streamlining service. Airport administrations and airlines can customize their products by thoroughly understanding passengers' various demands and expectations, assuring that technological solutions are compatible with customer preferences. Airports may offer individualized services, increase efficiency, and increase customer happiness through intelligent segmentation. Airports can make well-informed decisions about technology integration by researching travelers' technological preferences and identifying relevant trends and

patterns. For instance, if a sizable percentage of travelers choose self-check-in kiosks, airports may invest in enhancing and expanding these systems to reduce lines and improve the check-in procedure. This is similar to how airports may create user-friendly mobile applications that simplify boarding by being aware of the rising need for digital boarding permits.

The segmentation of technological preferences among travelers is also essential for maximizing airport infrastructure. Airports can prioritize technology-driven services by determining which market segments should receive them first. For instance, travelers who frequently utilize self-service bag drop devices may need designated places and additional assistance to ensure a smooth process. As a result, this segmentation-driven strategy results in effective resource allocation, which lowers traffic and boosts overall operational efficiency.

Additionally, segmentation that works well enables airports to provide specialized services and niche marketing campaigns. Airports can give specialized information and suggestions through digital channels by classifying travelers according to their technology preferences. The passenger experience is improved by this tailored approach, which also offers the potential for upselling, cross-selling, and cultivating long-term client relationships. Segmenting the technology preferences of passengers may encourage innovation and cooperation between airports, airlines, and technology suppliers. Airports can detect gaps and new trends by studying preference data, enabling collaborations with tech firms to create creative solutions. Incorporating cutting-edge technologies like biometric identification systems, sophisticated security screening procedures, and augmented reality way-finding tools could result from these collaborations, further boosting the passenger experience. The segmentation of passengers' technology preferences is a process that involves regular monitoring and adaptation; thus, it is crucial to understand this. Passenger preferences may alter as technological trends shift quickly. To guarantee that their offers remain relevant and aligned with travelers' expectations, airports must keep up with recent developments and regularly review their segmentation tactics.

To enhance the entire airport experience, it is crucial to segment passengers' technological preferences at Turkish airports. Airports may offer individualized

services, optimize resource allocation, stimulate innovation, and improve customer satisfaction by recognizing and accommodating the varied demands of travelers. Properly segmenting customers' technological preferences will be a crucial differentiator for Turkish airports, positioning them as leaders in providing great passenger experiences as technology continues to play an increasingly significant role in the aviation industry.

5.3. Future Research Areas

Though this study is conducted very comprehensively, few areas can be assessed by future researchers. This study is conducted quantitatively with sufficient sample size; however, in the future, a mixed-method study should address this topic through subjective measures and by taking the respondents' views personally through interviews. This study is conducted considering Turkish airports. However, in the future, a comparative study can compare Turkish airports with other airports to identify loopholes and opportunities more precisely.

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APPENDIXES

APPENDIX A

Dear Sir/Madam:

This questionnaire is designed only for academic purposes allowed by the supervisor. All information gathered will be kept highly confidential and will not be used for any purpose except this academic research. Your cooperation in this regard will be highly appreciated; all the information provided by the respondents will be password-protected and remain in safe custody.

DEMOGRAPHIC QUESTIONS

Please tick the appropriate box.

1. What is your gender?

- Male
- Female

2. What is your age?

- 18-25
- 26-35
- 36-45
- 46-55
- Over 55

3. What is your occupation?

- Employed
- Unemployed
- Self-employed
- Student

4. What is your education level?

- Primary school
- High school
- Bachelors
- Masters

5. How frequently do you travel?

- Regularly

- Often
- Sometimes

Respond to each question using a satisfaction scale of 1 to 5, where:

1= Strongly Disagree

2= Disagree

3= Neutral

4= Agree

5= Strongly Agree

Biometric Technology	1	2	3	4	5
To what extent do you believe that biometric technology improves security and authentication processes?					
To what extent do you believe that privacy and data protection measures are ensured in biometric systems?					
To what extent do you believe that the use of biometric technology can enhance convenience and efficiency in various applications?					

Contactless Solutions	1	2	3	4	5
How satisfied are you with the availability of contactless check-in options at your travel accommodations?					
To what extent do you believe contactless payment methods enhance the overall travel experience?					
How comfortable are you with using contactless solutions for security checks at airports or other transportation hubs?					

Inflight Wi-Fi	1	2	3	4	5
How satisfied were you with the reliability of the in-flight Wi-Fi connection during your recent travel experience?					
How would you rate the speed and responsiveness of the in-flight Wi-Fi service you used?					
How important is the availability of in-flight Wi-Fi when choosing an airline for your future travel?					

Mobile Apps and Digital Services	1	2	3	4	5
How satisfied are you with the user interface and overall design of the mobile app or digital service for travelers?					
How easy was it for you to navigate and find the desired features or information within the mobile app or digital service for travelers?					
How satisfied are you with the responsiveness and performance of the mobile app or digital service for travelers?					

Personal Device Usage	1	2	3	4	5
How dependent are you on your personal device for navigation and finding directions while traveling?					
How often do you use your personal device for capturing photos or videos during your travel experiences?					
How satisfied are you with the battery life and overall performance of your personal device during your travel experiences?					

Personalization and Customization	1	2	3	4	5
How important is it for you to have personalized travel experiences tailored to your specific interests and preferences?					
To what extent do you value travel platforms or apps that allow you to customize your itinerary and make personalized adjustments along the way?					
To what extent do you believe that personalized recommendations and suggestions for activities, attractions, and dining options enhance your travel experience?					

Streaming and on-demand entertainment	1	2	3	4	5
How important is access to streaming services and on-demand entertainment while traveling?					
How satisfied are you with the variety of streaming content and on-demand entertainment options available for travelers?					

To what extent do you rely on streaming services and on-demand entertainment for your travel entertainment needs?					
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Technological Preferences of Travelers.	1	2	3	4	5
How important is it for you to have access to high-speed internet while traveling?					
How comfortable are you with using self-service kiosks or mobile boarding passes for airline travel?					
How likely are you to use wearable devices (e.g., smartwatches, fitness trackers) for travel-related purposes, such as navigation or activity tracking?					

CURRICULUM VITAE

Personal Information:

Muhammad Humza

E-mail (1):

E-mail (2):

Education:

2016 – 2020 BS in Aviation Management, Superior Group of College

2020 – 2023 MSc in Air Transportation, Ibn Haldun University

Work Experience:

2020 – 2021 Digital Destiny Pvt Ltd (HR Executive)

2021 – Present Fortrade LTD (Financial Service Advisor)