



Optimizing passenger experience: A technological preference analysis in Turkish Airports



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ABSTRACT

Aviation-oriented companies are continuously seeking innovative approaches to enhance the passenger experience and operational efficiency within the industry. The objective of this study is to evaluate the categorization of passengers' technological preferences in Turkish airports. The objectives of this study are to enhance the understanding of Aviation Companies in Turkey regarding the technology preferences of passengers and their fundamental needs, as well as to analyze the characteristics of passengers that are directly linked to their technological choices. This study employs purposive sampling with a sample size of 455. Various statistical techniques, such as regression, correlation, and descriptive statistics, are employed to analyze the data. The findings indicate that biometric technology, personal device utilization, customisation and customization, as well as streaming and on-demand entertainment, greatly influence the technological preferences of travelers. Nevertheless, contactless solutions, inflight Wi-Fi, and mobile apps and digital services do not influence the technological preferences of travelers.

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Introduction

The aviation industry's financial performance is closely tied to the technological advancements that shape its landscape. The ongoing advancement of aircraft design, propulsion systems, avionics, and navigation technology has not only improved safety and efficiency, but has also had a substantial influence on the economic side of the industry. The utilization of fuel-efficient engines and developments in aerodynamics lead to decreased operational expenses, allowing airlines to manage their fuel usage and enhance their overall financial viability. Additionally, advancements in navigation and communication systems enable more accurate route mapping, reducing delays and improving the overall dependability of air transportation. By incorporating digital technologies like predictive maintenance and data analytics, operations may be further optimized, resulting in decreased downtime and reduced maintenance costs. The essential connection between technological advancement and financial success highlights the urgent need for the aviation sector to adopt innovation in order to maintain competitiveness, enhance cost efficiency, and secure a strong future (Hacıoglu, 2019b; Hacıoglu & Aksoy, 2021).

Furthermore, the aviation industry's financial performance is significantly influenced by the evolving technological choices of passengers. Contemporary travelers anticipate a smooth incorporation of technology at every stage of their trip, encompassing ticket reservations, in-flight amusement, and post-travel amenities. Airlines that place emphasis on and allocate resources towards user-friendly smartphone applications, online check-in systems, and personalized digital experiences are able to meet the expectations of technologically adept passengers. Not only does this improve consumer pleasure, but it also boosts operational efficiency and leads to cost savings for airlines. Moreover, the presence of onboard Wi-Fi, in-flight entertainment systems, and various connectivity alternatives have become crucial determinants in passengers' selection of airlines. Meeting these technical expectations not only attracts and keeps passengers, but also creates opportunities for other sources of revenue, such as paid Wi-Fi services or shopping

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during flights. Essentially, it is crucial for the aviation sector to adapt to customers' technology preferences in order to maintain customer loyalty, stay competitive in the market, and achieve financial success (Dincer et al., 2016; Dincer et al., 2017; Aksoy et al., 2022; Hacıoglu et al., 2023; Ozel & Hacıoglu, 2021; Hacıoglu & Sevgilioglu, 2019; Hacıoglu, 2019a).

The airport experience is highly appealing to researchers (Jiang & Zhang, 2016). This is because it can significantly influence the competitiveness of airports by affecting costs in many business areas (Chung, 2015), airport utilization (Hong et al., 2020), and the likelihood of recommendations (Halpern & Mwesumo, 2018). It has significant ramifications by influencing the perception of a destination and the likelihood of people returning to it. Nevertheless, due to the fact that travelers are transferred between different service providers at multiple touch-points, the airport experience becomes a laborious and anxiety-inducing ordeal for them (Graham et al. 2019). Due to the inadequate and uncertain levels of service quality, these partnerships can hinder consumers' travel and heighten their irritation (Halpern & Mwesumo, 2018). When making investment decisions, airports often prioritize the passenger experience and consider technology solutions for their potential to enhance it (Brida et al., 2016). Enhancing the passenger experience is the primary motivation for investing in digital technology at airports, as revealed by a survey of 115 airport managers worldwide done by Halpern et al. (2019).

This is achieved through enhancing security and safety measures, generating additional money, and reducing operational costs. In addition, Halpern et al. (2021) discovered that airports allocated a record-breaking amount of US\$11.8 billion towards technology investments in 2019. Furthermore, they had strong intentions to spend in implementing solutions in several passenger-related domains. As per SITA's 2019 research, it is projected that by 2022, 85% of airports will have made investments in biometrics for identity management, 77% in interactive advice, and 67% in artificial intelligence technologies such as virtual agents, chatbots, and predictive analytics. The COVID-19 pandemic's impact on airports is expected to have a substantial effect on investment plans, potentially leading to delays in their implementation. Nevertheless, it is widely considered that these technologies will make a substantial contribution to both current and future airport security protocols. In the aftermath of the COVID-19 pandemic, biometrics, artificial intelligence, and interactive navigation provide touchless and contactless solutions that remain intimately interconnected. The implementation of technology is expected to be crucial for enhancing the financial stability and profitability of airports that may see prolonged reductions in traffic due to COVID-19.

Aviation-focused companies are continuously seeking innovative approaches to enhance the passenger experience and operational efficiency in the industry. An instance of this industry may be seen in the expansion and advancement of virtual technology in relation to airport operations. The implementation of self-service software and other technological advancements in airports has effectively reduced queues and minimized the requirement for manual labor. Consequently, these innovations have facilitated the aviation industry in attaining its objective of cost reduction and revenue growth (Halpern et al., 2021). This study presents a comprehensive classification of passenger types and digital airport technology. The research will also examine the perspectives of customers regarding the new technological era, which encompasses the recent introduction of new technology and self-service technology in Turkey's aviation industry. In addition, the study conducted by Flouris & Oswald (2006) provides a comprehensive overview of the growth and importance of aircraft in international commerce. Currently, it is asserted that commercial aviation is responsible for managing an average of 3 billion individuals and 50 million metric tons of freight transportation. The volume of travelers represents around 44% of the global population. In order to provide a less burdensome experience, passengers at Turkish airports are highly incentivized to undergo expedient and efficient procedures. Nevertheless, the study will encompass the classification of travelers according to their preferred technical techniques. The segmentation of passengers may incorporate the age and purpose of travel of passengers. Business travelers, for example, opt to conduct their pre-trip preparations on the internet in order to conserve time and energy. The passengers regularly perform online check-in, make use of self-service kiosks to print their boarding passes, and employ the airline's online lost-and-found service in case of misplacing any belongings (Flouris & Oswald, 2006). Conversely, older adults typically favor receiving human guidance and assistance with tasks such as check-in, luggage handling, and boarding permits. They may require physical aid in order to feel fully satisfied, as they are not familiar with modern technology innovations and may not have the same level of trust in them. Customer research conducted at the Istanbul airport indicates that travelers experience stress until the boarding process (Flouris & Oswald, 2006). Adolescents may have concerns about their connectivity to online operations, whereas elderly individuals may have concerns about locating the appropriate access point. The findings of this study determined that there is no universally applicable strategy that can effectively address all aspects of air travel. In response to this, the "Youth Lounge" was established at the airport, providing young individuals with the opportunity to engage in recreational activities such as pinball, board games, and online gaming on play stations. This service is available free of charge for a duration of four hours (Halpern et al., 2021). Patrons get the opportunity to enjoy coffee and snacks at reduced rates, indulge in live music, participate in occasional events, and utilize streaming services.

In order to optimize investment decisions, airports must possess a comprehensive understanding of their passengers' preferences and options. Prior studies have evaluated options for individual technologies such as biometrics, self-service check-in, and information services. Meanwhile, other global polls have examined passenger preferences in a comprehensive manner (IATA, 2023). Previous studies have examined the impact of opinions and attitudes on passenger preferences for security procedures at airports. For instance, Beck et al. (2018) specifically investigated how concerns related to privacy, safety, and distrust affect these preferences. The worldwide airport trade association, Airports Council worldwide (ACI), also develops "personas" by considering the average passenger and journey characteristics. These personas are used to enhance customer experience planning with greater precision. The

study primarily examines the utilization of digital technology in airports. However, there is a lack of research that endeavors to classify passengers into groups based on common preferences, characteristics of travelers and trips, and attitudes towards these subjects (Halpern et al. 2021). Moreover, it can identify and emphasize areas that require enhancement and pinpoint any deficiencies that can be addressed to improve the user experience (Kurtuluşoğlu et al., 2016). Monitoring technical systems at airports is a crucial and recurring task that must be carried out whenever new operational requirements arise. This is because the aviation business, being the fastest-growing sector in transportation, demands constant adaptation and vigilance (Kiliç et al., 2021). This report will examine the client's attitudes and responses to the latest technological advancements and the quickly evolving digital technologies used at the airport's landside.

The aim of this study is to assess the classification of passengers' technological preferences in Turkish airports. The aims of this study are to improve the comprehension of aviation companies in Turkey regarding the technological preferences and essential requirements of passengers, and to examine the attributes of passengers that are directly associated with their technological preferences. This study used purposive sampling, selecting participants based on certain criteria, with a sample size of 455. Multiple statistical approaches, including regression, correlation, and descriptive statistics, are used to analyze the data.

This study is structured as follows: after the introduction, the second half consists of a literature review that examines both theoretical and empirical research that elucidate the connection between theory and practice. The third section provides an introduction to the background information regarding the research and methods. Following the analysis and findings of the study, the writers engage in discussions and provide the ramifications. Ultimately, this paper finishes by summarizing the main findings, providing recommendations, suggesting areas for future research, and acknowledging any shortcomings.

Literature Review

This section presents the results of prior research and analyzes the relevant hypotheses concerning the categorization of passengers according to their technological preferences at Turkish airports. The paper identifies a research gap based on these findings, which is further investigated.

Conceptual and Theoretical Background

Aviation industry and technological preferences of passengers

The passenger trip is defined as a sequence of significant phases in air transportation research. IATA (2023) will categorize the passenger journey into ten primary stages, encompassing payment, booking, bag tag, check-in, border control, security, boarding, on-board service, in-flight entertainment, and bag collection. On the other hand, SITA (2018) will categorize the passenger journey into nine primary stages, including check-in, booking, bag tag, passport control, bag drop, dwell time, and other factors. While several phases take place "at airports," others are specifically linked to the airline experience, such as making reservations, receiving on-board service, and enjoying in-flight entertainment.

Some individuals conduct themselves upon arrival, while others conduct themselves upon leaving, which may involve the process of collecting luggage. This study focuses on the main stages of airport departures. The process focuses primarily on the completion of seven key stages, including security screening, personal identification (ID), payment for services and commodities during travel, and restoration of client services. Over the past few years, there has been an integration of new digital technologies at all points of the airport journey, in line with the overall trend of airport digitalization (Zaharia & Pietreanu, 2018). For example, the process of check-in has frequently been managed by employees stationed at a desk. Passengers now have the ability to independently retrieve their boarding pass due to the implementation of digital technology. This was initially made possible through self-service kiosks (Wittmer, 2011), and more recently through the use of mobile devices (Inversini, 2017). The bag tag and bag drop procedures have experienced significant advancements with the widespread implementation of self-service devices. The popularity of digital bag tags is increasing as they offer various features such as continuous baggage assessment throughout the journey, automatic reporting of lost or mishandled baggage, triggering an alarm in case of theft, and sending a notification when the baggage is ready for collection and indicating the belt number. These features have the potential to enhance the experience for passengers. There is a growing trend to relocate the check-in process, including bag drop and bag tag procedures, from the airport terminal to other locations such as airport car parks or downtown areas. This is facilitated by the option for passengers to pay a company to collect their baggage, transport it to the airport, and check it in on their behalf (Halpern et al., 2021).

Furthermore, these solutions not only enable travelers to journey and reach the airport without luggage, but they can also aid in mitigating traffic congestion and reducing waiting periods. Mobile-based boarding permits, which can be scanned at automated gates, are gradually replacing the need for employees to produce physical documentation such as a boarding pass and passport or other identification. Currently, a number of airports are conducting trials using biometric authentication. The implementation of this system has extended to e-gates at passport control, in addition to the usual airport checkpoints such as check-in, luggage drop, security, and the departure gate (Halpern et al., 2021). This system functions by utilizing a passenger's fingerprint, iris, or facial traits as unique IDs (Negri et al., 2019). Pre-registered visitors can enter the terminal at a reduced walking speed provided they provide their biometric data prior to arriving at the airport. Similarly, the interest in biometric technology is increasing due to its ability to scan travelers without necessitating the removal of their belongings for inspection, unlike other advanced technologies such as infrared cameras

(Halpern et al., 2021). Airports are now providing mobile payment alternatives, such as utilizing a mobile application that connects card payments to phone numbers or through an e-wallet. This is in addition to accepting cash, credit, or debit cards for retail and catering transactions, specifically for purchasing goods, food, or beverages during layovers at the airport. Passenger information and communication systems rely significantly on technology (Brida et al., 2016). Previously, clients had the option to directly engage with staff members, either in person at an information counter, while they were moving around the airport, or by telephone communication. Modern airports now provide passengers a range of self-service options, such as touchscreen information kiosks, QR codes for smartphone scanning, video connections, real-time online chat services, and other similar alternatives. Several airports have implemented augmented reality and AI-powered technologies such as robots, chatbots, and holograms. This study considers each of the aforementioned alternatives.

Naturally, this study does not encompass all the technological advancements that airports may utilize to improve the client experience. Prior to entering the terminal, passengers have the option to utilize airport digital platforms, such as websites or social media, to acquire information or pre-purchase airport products or services. In addition, they may employ autonomous shuttles to convey individuals within the airport premises, a concept now being tested at Brussels Airport and Tokyo Haneda Airport. In addition, they might potentially utilize autonomous robotic valets to park their vehicles at the terminal. Additional innovative options include the implementation of ID systems implanted inside the human body, the utilization of drones for the collection and delivery of luggage, the implementation of security scans in airport environments, the acceptance of digital currencies such as Bitcoin, and the establishment of experimental facilities that focus on 3D printed goods or food (Halpern et al., 2021). Nevertheless, the study primarily concentrates on the airport security measures now being evaluated or implemented in Norway, along with numerous other nations. Given the diverse variety of viable options available at airports, it is crucial to make investment choices based on a comprehensive understanding of traveler preferences.

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

Biometric Technology

The rapid advancement of technology in airports worldwide has brought about a new era characterized by enhanced convenience and security. Biometric technology, which utilizes unique physical or behavioral features to authenticate individuals, has revolutionized the aviation industry. Biometrics can be employed by airports to enhance security, expedite passenger operations, and improve the overall travel experience. As stated by Morosan (2012), the initial characteristic is the implementation of biometric identification during the check-in process. Traditionally, travelers were required to provide their passports or other forms of identification at the airport check-in counters to verify their identity. Nevertheless, biometric technology has altered this process. Passengers now have the ability to efficiently scan their fingerprints, iris patterns, or facial features at dedicated kiosks or automated gates. The biometric IDs are cross-referenced with the data stored in government databases, facilitating rapid and accurate identification. By doing this, the need for physical documents is eliminated, and the check-in process is accelerated, reducing queues and enhancing operational efficiency. Another notable aspect pertains to biometric boarding, which has revolutionized the procedures for passengers embarking on aircraft (Morosan, 2012). Biometric authentication has eliminated the necessity for passengers to present their boarding passes or passports in order to board the airline. Facial recognition technology is employed to capture images of passengers' faces, which are subsequently compared to stored data, enabling entry to the boarding gate. This streamlined process enhances security and expedites boarding by restricting unauthorized access and eliminating the need for manual paper documentation (Abomhara et al., 2021).

Additionally, the incorporation of security screening and biometric technology is crucial for enhancing airport security screening protocols. Security checkpoints employ automated biometric technologies to authenticate the identities of travelers through the scanning of their irises, fingerprints, or both. To efficiently and accurately conduct thorough examinations of criminal and watchlist databases, security personnel have the ability to connect these biometric identifiers with the passengers' background information. Biometric-based security screening enhances airport security and mitigates the danger of identity fraud (Ioannou et al., 2020). The implementation of biometric technologies has significantly revolutionized immigration and customs clearance procedures. Several countries have implemented biometric eGates, which enable travelers to independently navigate through immigration checks. The electronic gates, also known as eGates, capture fingerprints or facial pictures and compare them with biometric data stored in immigration databases or passport chips (Labati et al., 2016). Biometrics expedite border control procedures, alleviate congestion, and enhance security by restricting entry and exit to authorized individuals only. In addition, Labati et al. (2016) have also implemented biometric technology in the management of baggage, revolutionizing the handling process. Passengers now have the option to affix their biometric identity devices to their bags to enable easier monitoring and recognition over the entire duration of the journey. Biometric authentication can be employed at baggage drop-off points to substitute physical tags and reduce the likelihood of misplaced or forgotten bags. Biometrics improves the overall travel experience for travelers by enhancing the efficiency and accuracy of baggage handling.

Contactless Solutions

Aerial transportation has historically served as a vital method of transporting individuals from one location to another. Nevertheless, the COVID-19 pandemic introduced a multitude of fresh challenges, such as the need for enhanced cleanliness and safety measures in travel (Zhao et al., 2022). Consequently, airports worldwide promptly adopted contactless technology to minimize physical contact

and guarantee the safety of passengers. The initial feature pertains to touchless Check-In, which effectively eliminates the need for time-consuming queues and many encounters with airport staff that are typically associated with traditional check-in procedures. Hao (2021) states that airports have implemented touchless technology to expedite the check-in process. Passengers have the ability to independently utilize self-service kiosks equipped with barcode or QR code scanners to print their boarding tickets, select their seats, and check in their bags. Travelers have the option to utilize mobile check-in software on their cellphones, which allows them to check in without any physical contact and also helps them save time.

Biometric authentication technology, such as facial recognition and fingerprint scanning, have revolutionized airport security and passenger identification operations. These technologies provide a secure and seamless method of verifying the identity of travelers by eliminating the requirement for tangible papers such as passports and boarding passes. Biometric gates facilitate expedited passage through security checkpoints, resulting in reduced congestion and enhanced operational efficiency (Rahimzhan & Irani, 2020). Furthermore, contemporary security screening methods increasingly incorporate contactless solutions, facilitated by automated systems. Advanced image equipment, such as full-body scanners, enables security personnel to detect prohibited items without the need for physical pat-downs. This technology minimizes direct contact between staff and clients. Automated tray return systems reduce the need for human contact with shared surfaces by allowing passengers to independently return empty security trays (Yasami et al., 2022).

Airports have adopted mobile boarding passes as a replacement for traditional paper tickets in order to enhance the boarding process. With the advent of rapid smartphone access to boarding tickets, the need for paper documentation has significantly decreased, resulting in a streamlined boarding process. Mobile boarding passes facilitate a seamless and touchless process from check-in to boarding by being electronically scanned at many checkpoints, including security, boarding gates, and immigration. Furthermore, contactless solutions have gained appeal as a means to minimize physical contact in retail transactions in airport stores, by promoting touchless payment alternatives. Passengers can engage in secure and convenient purchases without the need to handle physical currency or exchange physical cards, thanks to the availability of contactless credit or debit cards, mobile wallets, and digital payment platforms such as Apple Pay and Google Pay. These technologies not only promote a clean environment but also provide efficient and convenient passenger purchasing. Yasami et al. (2022) assert that chatbots and virtual assistants have become indispensable tools in airports, serving to address travelers' inquiries and deliver up-to-date information. These AI-powered devices can be accessed through kiosks, smartphone apps, and airport websites. The need for in-person interactions with airport personnel is diminished since travelers can obtain information regarding flights, gate modifications, baggage retrieval, and other relevant particulars. Rahimzhan & Irani (2020) stated that the bag handling procedures have been enhanced with the inclusion of self-service, luggage tracking, and contactless options. Mobile applications enable travelers to monitor the status of their checked baggage, thereby avoiding the necessity of visiting customer service desks for updates. In addition, self-service baggage drop-off facilities enable customers to independently weigh, tag, and deposit their luggage, minimizing interactions with airport personnel and ensuring a seamless travel experience. The airline industry swiftly embraced advanced contactless technology in order to prioritize passenger safety and enhance the overall travel experience, as a direct response to the worldwide epidemic (Bilton, 2015). Airports have effectively reduced physical interaction and streamlined several activities, such as contactless check-in, biometric verification, automated security screening, mobile boarding, contactless payments, virtual assistants, and self-service baggage handling.

Inflight Wi-Fi

During a flight Wi-Fi refers to the provision of internet connectivity for passengers during air travel. However, it seems that you mentioned "in airport" in addition to "inflight," suggesting that the airline firm desires consumers to have Wi-Fi connection even while they are in the airport. Hayadi et al. (2021) found that airlines provide Wi-Fi services to passengers on numerous modern planes. Passengers can utilize the onboard Wi-Fi network to connect their devices and access the internet during the flight. Passengers can use themselves of this service to maintain connectivity, browse the internet, access social media platforms, check their emails, and even stream entertainment content. The accessibility and quality of the inflight Wi-Fi service can vary depending on the airline and the specific aircraft being used. Certain airlines offer complimentary Wi-Fi to all passengers, whilst others may impose a fee. Certain aircraft provide a rudimentary internet browsing experience, while others offer faster connections that are suitable for streaming or video conferencing. The velocity and extent may exhibit variability (Hayadi et al., 2021).

Most airports worldwide provide Wi-Fi connection to customers within the terminal buildings. Travelers can often connect to the airport's Wi-Fi network by choosing the network name (SSID) and completing any necessary authentication procedures, such as agreeing to the terms of service or entering a password (Noviantoro & Huang, 2022). While many airports may impose charges for expedited or enhanced services, airport Wi-Fi services are commonly offered without any cost. The quality and speed of the Wi-Fi connection can be influenced by factors such as the airport, the number of users, and the available equipment. It is crucial to consider that the Wi-Fi network may experience increased congestion and reduced speeds during periods of high travel demand. Jiang (2018) emphasizes the need of confirming inflight Wi-Fi services or the availability of Wi-Fi at a specific airport by consulting the airline or airport's official website or contacting their customer service.

Mobile Apps and Digital Services

Airports are swiftly adopting mobile applications and digital services to provide travelers with practical tools and information to enhance their travel experience. The initial application pertains to software programs designed for reserving flights and facilitating the check-in process. Several airlines offer proprietary mobile applications that enable customers to make reservations, complete online check-in, and book flights. These applications commonly provide electronic tickets, information about departure gates, and live updates on flight status. Another use pertains to the field of airport navigation. These aids facilitate the navigation of travelers within terminals, enabling them to locate amenities such as restrooms, retail establishments, and dining establishments, as well as access points for alternative transportation options such as parking facilities, taxi stands, or public transit (Kim et al., 2023). These applications offer cartography and guidance throughout the airport premises. Real-time flight tracking applications offer up-to-date information on flight departures and arrivals, gate details, as well as any potential delays or cancellations. They are especially useful for monitoring following flights or surveilling someone you are collecting from the airport upon their arrival (Kunekar et al., 2023). Furthermore, several airlines and baggage handling companies provide consumers smartphone applications that enable them to monitor the whereabouts of their checked bags. By continuously informing travelers of the precise location of their bags, this could perhaps offer them a sense of tranquility. There are apps that can predict how long it will take to go through security checkpoints. These apps help travelers plan their time efficiently and choose the quickest line for screening (Bilton, 2015).

Furthermore, airport loyalty applications are crucial for passengers as airports may offer rewards and incentives to devoted clients via loyalty programs. These programs can be accessed via their mobile applications, which also provide users with access to lounges, the capability to earn and redeem rewards, and personalized offers. In addition, airport parking applications offer users the capacity to locate and book parking spaces at the airport, provide information on parking charges, and deliver real-time updates on parking availability (Bilton, 2015). Passengers are provided with applications for dining and shopping at airports. Additionally, certain airports have dedicated apps that provide a comprehensive list of dining and retail options available within the terminals. These apps often provide menus, retail directories, and exclusive promotions. International visitors may find these resources to be highly beneficial while engaging in conversations with airport staff, interpreting signs, or socializing with fellow passengers (Schwalder, 2014). The customer service application also facilitates communication between tourists and staff members, enabling them to obtain answers, receive assistance, and resolve any problems that may arise. It is crucial to consider that certain programs and services may be unavailable based on the airport and the airline being utilized. To obtain additional information regarding the applications and digital services offered by a specific airport or airline, it is advisable to directly communicate with them (Schwalder, 2014).

Personal Device Usage

Airports have made adaptations to cater to the requirements of technologically proficient travelers, since the utilization of personal devices has become a crucial aspect of the travel journey. The advent of personal gadgets has drastically transformed the way we navigate airports, allowing us to perform a wide range of tasks such as accessing flight information and engaging in entertainment and productivity. Utilizing personal devices to retrieve flight information and complete check-in procedures is a prevalent use of mobile gadgets in airport settings. Passengers may conveniently monitor the status of their flights, receive immediate notifications about gate modifications or delays, and even acquire electronic boarding passes through their smartphones or tablets. Airlines have developed mobile applications that provide passengers with comprehensive information, streamlining and enhancing the check-in process (Chen & Chen, 2011). Another crucial aspect of utilizing personal devices in airports is the provision of entertainment. Individuals utilizing smartphones, tablets, or e-readers have the ability to fully engage in a variety of entertainment options. Due to the expansion of streaming services and digital media, travelers now have the ability to access and enjoy movies, TV series, games, e-books, and music on their personal devices (Chen & Chen, 2011). As a result, airports have implemented complimentary Wi-Fi or charging stations to cater to passengers with electronic devices and ensure uninterrupted amusement.

Effective communication plays a crucial role in the functioning of personal electronic devices at airports. Travelers have the ability to maintain communication with friends, family, or workplace via phone calls, text messages, or messaging apps. Social media platforms play a crucial role in facilitating the sharing of travel narratives as they enable users to document their experiences and establish connections with fellow travelers (Pradhan et al., 2018). Personal electronics demonstrate exceptional productivity capabilities in airport settings. A significant number of individuals utilize their laptops, tablets, or cellphones while traveling to engage in work-related activities such as catching up on tasks, responding to emails, creating presentations, or participating in virtual meetings. Cloud-based services facilitate the easy retrieval of important documents, allowing business travelers to operate uninterrupted during layovers (Rhee et al., 2018). Personal electronic devices are crucial for conducting research and organizing travel plans. Travelers can utilize their electronic devices to investigate tourist attractions and activities, reserve accommodations, gather information about places, and arrange transportation. Travelers have the ability to obtain a diverse range of information through travel websites, review sites, and mobile apps, which allows them to make informed choices and effectively plan their trips. Paris et al. (2015) found that language translation tools have become essential for travelers at airports. These applications facilitate communication between users and airport staff or fellow travelers, as well as aid in the interpretation of menus and signs, thus helping to overcome language barriers. With a few clicks, travelers may overcome communication barriers and effortlessly navigate unfamiliar locations.

Personalization and Customization

Airports serve as gateways for exploration and excitement in the dynamic modern world. Nevertheless, the encounter at the airport often feels overwhelming and detached, leaving tourists with a sense of insignificance inside a vast transportation network. Personalization and customization have emerged as crucial elements in improving the traveler's experience, addressing this issue (Amer-Yahia et al., 2020). Airports have the potential to enhance the passenger experience and cultivate a more pleasant and relaxed environment by tailoring experiences and services to meet individual needs. Prior to the arrival of passengers, airports initiate the process of customizing their experience. Passengers have the ability to customize their travel experience by selecting specific preferences and services through online platforms and mobile applications. Passengers have the freedom to personalize their travel experience according to their unique requirements. This includes choosing their preferred seating arrangements, pre-ordering food, and arranging for special assistance (Lee & Lehto, 2010). Airports empower individuals to assume control over their travel arrangements by providing these options, fostering an immediate sense of personalization.

Upon arrival at the airport, the traveler's journey is enriched with tailored experiences. State-of-the-art interactive information kiosks equipped with voice assistants and facial recognition technology have the capability to provide personalized guidance and real-time updates. These systems can offer customized flight information, directions to gates, and even suggest nearby attractions based on the user's tastes and interests by analyzing passenger data (Amer-Yahia et al., 2020). This level of customization streamlines the travel procedure and diminishes feelings of unease and bewilderment. Customization extends beyond informative attributes and has the potential to enhance the physical environment of the airport. By strategically designing spaces with flexibility in mind, travelers have the opportunity to personalize the airport according to their individual requirements. For example, the implementation of adaptable seating arrangements that can be easily rearranged or transformed into individual compartments allows passengers to create inviting and functional spaces according to their personal tastes (Shoval & Birenboim, 2021). The inclusion of charging stations, workplaces, and relaxation zones expands the range of customization options and caters to the diverse demands of passengers.

Streaming and On-demand Entertainment

Passengers at airports today have a diverse array of choices to enhance their waiting time with enjoyable and captivating activities, thanks to the transformative impact of streaming and on-demand entertainment on media consumption. The era in which travelers were dependent on a limited selection of television stations or had to carry bulky DVDs is now a thing of the past. Alemi et al. (2018) asserted that the availability of streaming services, along with the growing utilization of Wi-Fi and mobile data, has expanded the range of entertainment choices for travelers in airports. One of the primary advantages of streaming and on-demand entertainment for travelers is the ease it offers. Travelers have the ability to stream a diverse selection of movies, TV episodes, documentaries, and live sporting events on their smartphones, tablets, or laptops, catering to their personal preferences. Streaming services such as Netflix, Amazon Prime Video, and Disney+ have extensive content libraries, allowing travelers to choose from a diverse selection of genres and languages (Vinod, 2011). There is a wide array of options available, ranging from catching up on one's preferred series, discovering a new film, or viewing a documentary. Airports have recognized the demand for streaming and on-demand entertainment and have made significant investments in robust Wi-Fi networks to fulfill this demand and ensure a seamless experience for travelers. With the widespread availability of free Wi-Fi in airports, passengers can conveniently connect their devices and access content without depleting their mobile data allowances. Travelers can maintain connectivity with their preferred streaming platforms and enjoy uninterrupted entertainment while waiting for layovers or experiencing delays (Acheampong et al., 2020).

Airports have been carefully positioning charging stations and power outlets throughout their terminals, in addition to providing Wi-Fi connectivity. These qualities are crucial for travelers who desire to ensure the continuous charging of their electronic devices, enabling uninterrupted streaming of their preferred TV episodes or movies, free from concerns about battery depletion during the show. These elements not only enhance the overall airport experience, but they also provide visitors with the confidence that they can indulge in their preferred media for an extended duration (Suatmadi et al., 2019). Airports have also started implementing technology by installing large digital screens or interactive kiosks that provide travelers customized content. These displays provide a glimpse of the content accessible on streaming services by featuring popular TV episodes, movie trailers, and live events (Suatmadi et al., 2019). This facilitates the promotion of streaming providers while simultaneously aiding travelers in discovering new series and movies. Airports can promote the usage of streaming services' applications among visitors to ensure uninterrupted entertainment during their journey by emphasizing the diverse range of material offered. In response to the increasing popularity, airlines have started incorporating streaming and on-demand programming into their in-flight entertainment systems. Travelers now have the ability to access a wide range of movies and TV series from the aircraft's internal servers or use their own devices to watch them on their personal screens. Travelers benefit from a seamless experience due to the consistent availability of entertainment choices from the airport to the aircraft, enhancing their trip with convenience and enjoyment (Granados et al. 2012).

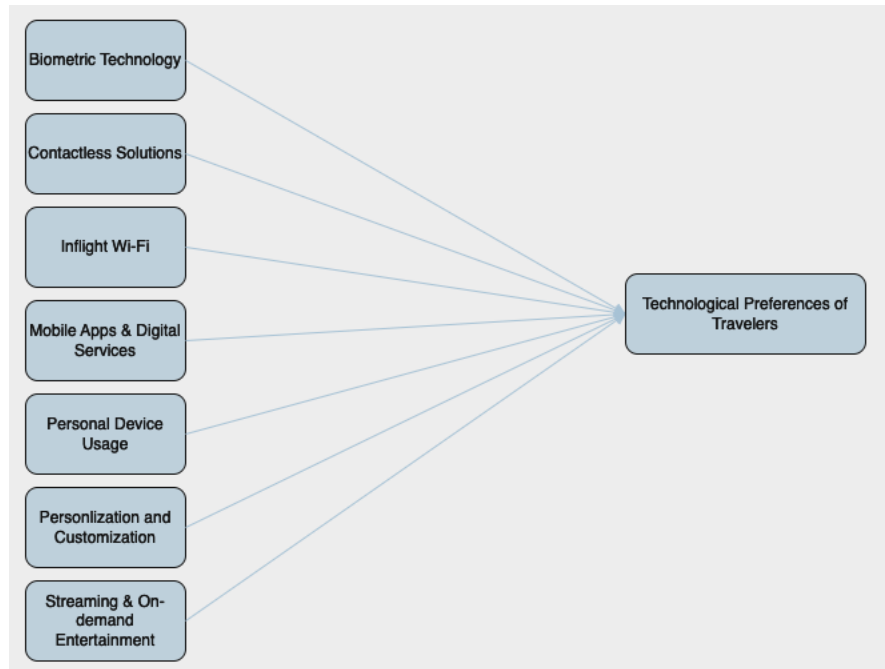


Figure 1: Research Model Source: Author's illustration

The study defines BT as biometric technology, CS as contactless solutions, IW as in-flight Wi-Fi, MADS as mobile apps and digital services, PDU as personal device usage, PC as personalization and customization, and SDE as streaming and on-demand entertainment.

The paper posits the following hypotheses:

- H1: The utilization of biometric technology influences the technical preferences of travelers.
- H2: Contactless solutions have an influence on the technology preferences of travelers.
- H3: The presence of inflight Wi-Fi has an influence on the technological preferences of travelers.
- H4: The technological preferences of travelers are influenced by the presence of mobile apps and digital services.
- H5: The utilization of personal devices has an influence on the technical preferences of travelers.
- H6: Personalization and customization have an influence on the technology preferences of travelers.
- H7: The technology tastes of travelers are influenced by the availability of streaming and on-demand entertainment.

Research and Methodology

Research Methods

The author utilized quantitative research methodology in this study, which involves the analysis of statistical and numerical data and the testing of hypotheses based on the obtained results. Nevertheless, due to the reliance on a questionnaire, this approach is constrained as it omits the perspectives and interpretations of the respondents. Nevertheless, the study employs the quantitative research approach due to its efficacy in evaluating and gathering factual and numerical data. Implementing this approach is additionally supported by the fact that it is a systematic method for illustrating connections and occurrences, and is grounded in authentic, measurable data. The quantitative research approach addresses issues by building linkages between quantifiable criteria that assess predictability and phenomena. The inclusion of reliability and validity aspects in the quantitative research approach is crucial for this study as they enhance the rigor of the dataset.

Data Collection Methods

This study collected data from customers at airports in Turkey, using personal visits as the method of approach. The data collection process utilized a questionnaire that was adapted from a previous study. Collis & Hussey (2003) define a questionnaire as a method of gathering statistical information from a sample by using a set of closed-ended questions. Each question in the instruments is associated with a certain variable. The questionnaire was modified and ultimately completed with the guidance of a supervisor. The

research involved the collection of primary data through personal visits to the respondents. The questionnaire was derived from prior studies that focused on the segmentation of passengers' technology choices.

Sample and Sampling Techniques

There are two distinct types of sampling: probabilistic sampling and non-probabilistic sampling. Probabilistic sampling is employed when every member of the population has an equal likelihood of being selected. Non-probabilistic sampling involves selecting a sample based on subjective evaluations rather than using a random selection process where each member has an equal probability of being chosen (Bell et al., 2022). This study employs non-probabilistic sampling as the participants were not selected randomly. The strategy utilized in this study is purposive sampling. This strategy is utilized because this study depends on the researcher's discretion in determining certain individuals from the population to incorporate in the investigation. The sample was selected using purposive sampling, with respondents picked depending on their level of subject expertise. Prior to distributing the questionnaire, this information was obtained by posing a series of inquiries to the participants. Furthermore, it exclusively focuses on survey respondents who supply remarks representing the entire population (Bell et al., 2022). In addition, this approach also selects study participants based on that objective (Rojas et al., 2017). The data for this study was collected from customers of Turkish airports who are employed in different roles within the corporation and also happen to be airline passengers. The customers, who travel with multiple airlines, were approached by telephone calls and electronic mails.

The research collection instrument was initially distributed to 475 individuals, however 20 of them did not complete the surveys and were subsequently excluded. A total of 455 individuals were included in this investigation. The questionnaire was distributed to the respondents electronically through Survey Monkey, following the provision of their email addresses. Additionally, certain respondents residing in close proximity to the researcher were also given physical copies of the questionnaire.

Validity and Reliability

Validity, as defined by Khalid (2012), refers to the degree to which a research instrument accurately assesses the specific construct it intends to test. The extent to which an instrument accurately measures what it is intended to measure is determined by the instrument's validity (Morgeson et al., 2019). It refers to the extent to which the outcomes are precise. A pilot study was conducted with a sample size of 25 participants to assess the questionnaire's validity and the accuracy of its items. The questionnaire possesses a suitable and well-organized framework. As per Khalid et al. (2012), a pilot study is a small-scale experiment undertaken to assess the feasibility, time, cost, adverse events, and enhance the study design before commencing the full-scale project. Furthermore, doing a pilot study is beneficial for assessing the content and criterion validity of the questionnaire, as well as pinpointing areas that require enhancement. The data gathering tool had some modifications in terms of statement structure, syntax, and wordings.

In addition to assessing the instrument's validity, it is crucial to also evaluate its reliability. Khalid et al. (2012) define dependability as the measure of the instrument's capacity to consistently deliver similar outcomes in multiple trials. This enhances the relevance and precision of the results, facilitating the generalization of the findings to the entire population. The Cronbach's Alpha test is employed to assess the reliability of the items in the instrument. This tool is used to assess the consistency of each variable, and any items lacking reliability values are excluded from the study. For this investigation, items with values over 0.7 are included. If not addressed, they will be dismantled (Morgeson et al., 2019).

Data Analysis

The researcher assessed the dataset collected using SPSS 24 to effectively analyze the study's findings. The researcher employed SPSS 24 software to assess the validity of the items in the instrument. Furthermore, the researcher utilized this program to compute the frequency distribution of respondents for each question and subsequently employed this frequency to visually depict the data. The quantitative data provides a precise representation of how passengers were categorized into groups according to their technology preferences in Turkish airline companies. It also reveals the main topics that were examined to identify the significant factors influencing customers and to conduct an analysis. The author conducted a regression test to assess the hypothesis of the study and a correlation test to establish the relationship between the variables.

Research Ethics

The research initiative incorporated ethical considerations. Ethical standards are taken into account during the process of data acquisition, analysis, and presentation (Saunders et al 2015). Various methods are employed to ensure ethical considerations are upheld. Furthermore, it is guaranteed that all the participants willingly took part in the study and provided explicit consent. Additionally, all consumers were given a concise explanation about the objective, methodologies, and utilization of the research. In addition, the researcher took into account the confidentiality aspect when gathering data from clients of Turkish aviation firms. Measures were taken to ensure that their personal information is protected and not used in the study.

Findings and Discussions

Within this section, the gathered data is examined using various statistical methodologies. Descriptive statistics are utilized to obtain a concise summary of the data, followed by the assessment of reliability. The correlation test is utilized to evaluate the degree of association, while regression is employed to evaluate the influence of independent variables (IVs) on a dependent variable (DV). The

study defines BT as biometric technology, CS as contactless solutions, IW as inflight Wi-Fi, MADS as mobile apps and digital services, PDU as personal device usage, PC as personalization and customization, and SDE as streaming and on-demand entertainment. The outcomes are displayed below:

Descriptive Statistics

In this study, descriptive statistics (DS) are employed to gather the metrics and sample sizes of the research. Data science facilitates the understanding of how sample data behaves (Bryman & Cramer, 2011). The DS exam is crucial as it partitions a substantial quantity of data into manageable portions. The four primary components of DS are the mean, standard deviation (SD), kurtosis, and skewness. The data provided by the respondents represents the average value. The SD number reflects the standard deviation, which quantifies the normal difference between data values and the mean. The standard deviation (SD) measures the extent to which values differ from the mean (Pallant, 2020). The dataset's calculations of kurtosis and skewness also indicate that the dataset follows a normal distribution. The range of kurtosis and skewness is limited to -1 to +1. The DS is calculated using the table below:

Table 1: Descriptive Statistics

	N	Min.	Max.	Mean	Std. Deviation	Skewness	Kurtosis		
	Stat.	Stat.	Stat.	Stat.	Stat.	Stat.	Std. Error	Stat.	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 (listwise)	N 455								

The table above indicates that the value of n is 455, which corresponds to the total sample size of 455. The mean number indicates that the average falls within the range of 3.6 to 3.9, suggesting that the majority of respondents have expressed agreement in their responses. Furthermore, the standard deviation (SD) values of all the variables are less than 1, indicating a reduced level of variability in the dataset. Furthermore, the skewness and kurtosis values lie within the range of -2 to +2, suggesting that the dataset is approximately normally distributed.

Reliability Test

This study employed a reliability test to evaluate the internal consistency of each item. This test is administered to assess the precision of items using the Cronbach's Alpha approach. According to Arkkelin (2014), a Cronbach's α value greater than 0.6 indicates the reliability of the variable items. The results are illustrated below:

Table 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 table above indicates that there are 3 items for each variable, and the dependability values for these items exceed 0.6. This suggests that the data is dependable. When reliability is guaranteed, it indicates that the data is suitable for further study.

Correlation Test

The correlation test is conducted to evaluate the degree of association between variables. Meyers et al. (2013) found that values closer to 1 indicate a strong association. A value closer to 0 indicates a weaker correlation between the variables. It is crucial to ascertain that a positive sign before values indicates a good correlation, whereas a negative sign indicates a negative relationship. According to McCormick & Salcedo (2017), correlation criteria indicate that a link is classified as weak if the value is below 0.3. Furthermore, the correlation is considered moderate when the readings fall within the range of 0.4 to 0.6. A strong association between the variables is considered robust if the correlation coefficient is over 0.7. Below is the correlation test:

Table 3: Correlation Test

		BT	CS	IW	MADS	PDU	PC	SDE	TPT
BT	Pearson Correlation	1	.733**	.641**	.639**	.590**	.740**	.596**	.639**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000
	N	455	455	455	455	455	455	455	455
CS	Pearson Correlation	.733**	1	.795**	.636**	.580**	.635**	.785**	.636**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000
	N	455	455	455	455	455	455	455	455
IW	Pearson Correlation	.641**	.795**	1	.621**	.628**	.687**	.813**	.621**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000
	N	455	455	455	455	455	455	455	455
MADS	Pearson Correlation	.639**	.636**	.621**	1	.713**	.575**	.670**	1.000**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000
	N	455	455	455	455	455	455	455	455
PDU	Pearson Correlation	.590**	.580**	.628**	.713**	1	.700**	.651**	.713**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000
	N	455	455	455	455	455	455	455	455
PC	Pearson Correlation	.740**	.635**	.687**	.575**	.700**	1	.574**	.575**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000
	N	455	455	455	455	455	455	455	455
SDE	Pearson Correlation	.596**	.785**	.813**	.670**	.651**	.574**	1	.670**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000
	N	455	455	455	455	455	455	455	455
TPT	Pearson Correlation	.639**	.636**	.621**	.680**	.713**	.575**	.670**	1
	Sig. (2-tailed)	.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 table above indicates that there is a strong correlation between BT and CS, BT and PC, CS and IW, CS and SDE, IW and SDE, MADS and PDU, PDU and PC, and PDU and TPT. This is evident from the correlation values, all of which above 0.7. In addition, the correlation coefficients for additional connections vary between 0.5 and 0.6, suggesting a moderate level of relationship. It is imperative to bear in mind that all of the correlations are positive, indicating that if one variable increases, the other variable will also increase.

Regression Analysis

Regression analysis utilizes multiple linear regression (MLR) to achieve this objective, relying on the variables and data. The MLR technique is employed due to the presence of several independent variables (IVs) and one dependent variable (DV). The results are displayed below:

Table 4: Regression Analysis

Model Summary				
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

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

a. Dependent Variable: TPT

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

Coefficients^a

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

a. Dependent Variable: TPT

The initial table in the regression analysis pertains to the model summary, where the corrected R-square value is computed. The corrected R-square value is 0.617, indicating that the model has an explanatory power of 61.7%. Furthermore, in regards to the Anova table, the f-value is determined to be 123.12 and the significance value is 0.00, which is greater than the threshold of 0.05. This indicates that the entire model is statistically significant. The coefficient table indicates that the variables BT, PDU, PC, and SDE are statistically significant, implying that they have a substantial influence on TPT. Furthermore, CS, IW, and MADS are inconsequential, indicating that they have no influence on TPT. The negative beta values of PC are observed to have a detrimental effect on TPT, whilst other factors have a beneficial impact on TPT.

Hypotheses Assessment Summary

Table 5: Hypotheses Assessment Summary

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

There is an impact of streaming and on-demand entertainment Retain
on technological preferences of travelers.

Impact of Biometric Technology: The hypothesis suggests that there is an impact, and the decision to retain it implies that there is evidence or belief supporting this idea.

Impact of Contactless Solutions: The hypothesis is rejected, indicating that there might be a lack of evidence or indication that contactless solutions significantly influence travelers' technological preferences.

Impact of Inflight Wi-Fi: Similar to the second hypothesis, this one is rejected, suggesting that there may not be a substantial impact of inflight Wi-Fi on travelers' technological preferences.

Impact of Mobile Apps and Digital Services: This hypothesis is rejected, implying that the research or evidence available does not support the idea that mobile apps and digital services significantly affect travelers' technological preferences.

Impact of Personal Device Usage: The decision to retain this hypothesis suggests that there is evidence or a strong belief that personal device usage does have an impact on travelers' technological preferences.

Impact of Personalization and Customization: This hypothesis is retained, indicating that there is support for the idea that personalization and customization play a role in shaping travelers' technological preferences.

Impact of Streaming and On-Demand Entertainment: Similar to the previous hypotheses, this one is retained, implying that there is evidence or a strong indication that streaming and on-demand entertainment impact travelers' technological preferences.

Discussion

The aforementioned results have validated the hypotheses of this investigation. The initial hypothesis is to the influence of BT on the technology preferences of travelers in Turkish airports. The findings indicate a substantial influence of this technology on passengers. The conclusions of this study are consistent with the research conducted by Yadegaridehkordi et al. (2021), which evaluates the significant impact of BT on several industries, such as tourism and aviation. Turkish airports are swiftly adopting biometric systems such as facial recognition, fingerprint scanning, and iris detection to enhance security, enhance passenger experience, and streamline operational procedures. Yadegaridehkordi et al. (2021) state that biometric technology (BT) offers supplementary security measures, which is a key factor in its adoption in Turkish airports. Conventional methods of verifying identity can be lengthy and susceptible to human error, such as manual checking of documents and boarding passes. Biometric technology offers a more reliable and efficient alternative, enabling rapid and accurate verification of travelers' identities. The implementation of biometrics has significantly reduced the likelihood of identity fraud and unauthorized access, hence enhancing airport security across Turkey. Kurtulmuşoğlu et al. (2016) supported the results of our investigation and stated that BT streamlines passenger processing. Biometric technology has significantly improved the efficiency of passenger clearance procedures at Turkish airports. Travelers report that passports and boarding permits are no longer necessary at each checkpoint. Alternatively, biometric information can be collected and stored in centralized databases to conduct identification checks at various stages (Rezaei et al. 2011). Facial recognition technology can expedite the check-in, security screening, and boarding processes by comparing passengers' facial features to the photographs in their passports. Passengers now experience a more streamlined and pleasurable travel journey due to the seamless incorporation of biometrics, resulting in decreased congestion and waiting times. Furthermore, Graham (2023) discovered that BT is advantageous in augmenting the overall experience of travelers, corroborating the findings of our study. Biometric technologies have enhanced the overall traveler experience in Turkish airports. The simplification of passengers' journeys has been achieved by the elimination of manual processes and reduction of paperwork, resulting in lower stress and enhanced convenience. Biometric technologies enable travelers to expedite their passage through the airport, minimizing reliance on paper papers and in-person interactions with airport personnel. This streamlined method has been well-received by travelers that prioritize efficiency and time optimization, including frequent flyers and technologically adept visitors (Kurtulmuşoğlu et al., 2016).

The second hypothesis pertains to the influence of contactless solutions on the technological choices of travelers. The findings of this study have refuted this hypothesis due to the presence of insignificant p-values. The outcome of this theory diverges from the findings of Karaağaoğlu & Çiçek(2019). The advancement of technology has experienced significant growth in recent years, resulting in evident impacts on several aspects of life. Technology has significantly transformed the manner in which individuals travel. The use of contactless technologies has significantly revolutionized the way people need to travel. Travelers have a smooth and enjoyable experience thanks to contactless solutions that rely on technology such as Bluetooth, Near Field Communication (NFC), and smartphone applications (Graham, 2020).

Zeybek (2018) states that contactless technologies have significantly influenced travelers' technology preferences in the boarding and ticketing zones. Previously, travelers were required to possess physical tickets, which were susceptible to damage or misplacement. Thanks to contactless technologies such as mobile boarding passes, travelers may now securely store their tickets and boarding permits on their iPhones. Consequently, the check-in and boarding processes are accelerated, rendering paper tickets obsolete. Due to their convenience and effectiveness, travelers are more inclined to choose contactless alternatives. Furthermore, the

outcome of this hypothesis diverges from the discoveries made by Gemici & Alpan (2015), who found that contactless payment systems have also altered the way consumers engage in business while driving. In previous times, individuals had to transport physical currency or tangible credit cards, both of which were susceptible to being stolen or misplaced. Travelers may now conveniently and securely make purchases by simply tapping or waving their devices, due to contactless payment solutions such as mobile wallets and wearables. The convenience of modern technology has led to a shift in the preferences of travelers, with many increasingly showing a preference for contactless payment options instead of traditional cash or card-based transactions.

In addition, contactless technology has changed the way people perceive other places. Travelers can utilize smartphone applications and mapping services to obtain up-to-date information regarding different transportation options, nearby points of interest, and local suggestions. The immersive and interactive nature of augmented reality (AR) technology has the potential to enhance the experience of touring. Contemporary travelers, who rely increasingly on technology to enhance their travel experiences and make informed choices, are increasingly in need of these contactless solutions (Kilic et al. 2021). In addition to the journey itself, contactless technologies influence the technology preferences of travelers. Furthermore, it has influenced the manner in which passengers arrange their journeys and secure accommodations. Travelers seeking information and making plans are increasingly relying on internet travel agencies, hotel reservation platforms, and travel blogs. Many travelers prefer these platforms because to their user-friendly interface, extensive selection, and competitive pricing (Harantová et al., 2023). The integration of contactless payment methods into these platforms has further streamlined the booking procedure, enhancing both its efficiency and security.

The study findings indicate that inflight Wi-Fi has little influence on the technological preferences of travelers. The findings of Harantová et al. (2023) contradict this notion, as they demonstrate that in-flight Wi-Fi has significantly transformed the way individuals travel and impacted their technology preferences. Passengers can now maintain continuous engagement, productivity, and connectivity during their flight by accessing the internet while airborne. The seamless integration of technology has significantly transformed people's perception and interaction with various devices and services. Aksoy & Ozbuk (2017) found that in-flight Wi-Fi had a clear impact on the rise in the use of personal electronic devices. With the availability of internet connectivity, visitors may now utilize their smartphones, tablets, and computers to maintain communication with acquaintances, relatives, and colleagues. Traditional in-flight entertainment systems are being substituted with the direct streaming of movies, TV shows, and music to passengers' own devices. Airlines are responding to this shift by allocating resources to enhance Wi-Fi infrastructure and providing passengers with in-flight entertainment applications, thus catering to the evolving technological tastes of travelers. The availability of in-flight Wi-Fi also influences the preferences of business passengers. Professionals can now maintain connectivity and productivity throughout long trips, thanks to internet access available at an altitude of 35,000 feet (Kuyucu, 2014). Airlines face increased demands to provide reliable and fast Wi-Fi connections because to the growing emphasis placed by business travelers on connectivity and efficiency. Airlines are now investing in advanced Wi-Fi technology, specifically satellite-based systems, to cater to this particular market segment.

The findings of this study indicate that mobile apps and digital services have no discernible influence on the technological preferences of travelers, as evidenced by the lack of statistically significant p-values. The findings of this hypothesis differ from Yavuz et al. (2020), who observed a substantial impact of digital services and mobile apps on passengers' technology preferences in recent times. The rapid advancement of technology and the widespread adoption of smartphones have provided travelers with a diverse range of digital tools and services, enhancing their travel experience. The advent of mobile apps and digital services has revolutionized the travel industry, empowering individuals to do a wide range of tasks such as booking accommodations and flights, as well as navigating unfamiliar urban areas. One of the most evident impacts of mobile apps and digital services is the convenience they offer to passengers. Modern travelers have the convenience of booking flights, hotel rooms, and automobile rentals directly from their smartphones, eliminating the necessity for lengthy phone conversations or visits to travel agencies (Egresi, 2017). Travelers can now save time and effort due to the increased efficiency and productivity of the entire travel preparation process, resulting in greater convenience.

Furthermore, smartphone applications have evolved into an essential tool for navigating unfamiliar places. Gone are the days of lugging around physical maps or fumbling through talks with locals in a foreign tongue. The advent of GPS and map software has enabled travelers to efficiently traverse cities, locate points of interest, and discover hidden attractions that are not commonly visited. These applications provide up-to-date information, making it easier for travelers to explore new places and improve their travel experiences (Kuyucu, 2014). The advent of mobile apps and digital services has greatly influenced the way travelers obtain and utilize information, as well as enhancing ease and navigation. Historically, travelers primarily relied on guidebooks and travel bureaus for obtaining information (Çabuk et al., 2019). Thanks to the expansion of travel-related applications and websites, travelers today have convenient access to a wide range of information. These online tools provide visitors with informative content and firsthand narratives of other travelers' experiences, encompassing online reviews, travel blogs, and user-generated content. As knowledge becomes more accessible to everyone, visitors now have the ability to make better-informed decisions and customize their travel plans (Florido-Benítez & Del Alcázar, 2014).

The proliferation of mobile apps and digital services has significantly contributed to the growth of the sharing economy in the tourism industry. Platforms such as Airbnb and Uber have caused significant disruption in established sectors by offering alternative options for accommodation and transportation. Modern travelers are presented with a diverse range of accommodation choices, including

private residences and apartments, which provide a distinct and authentic experience. Ridesharing services have facilitated the transportation of visitors by simplifying and making it more cost-effective, similar to their reduction in reliance on traditional taxis or public transit (Florida-Benítez & Del Alcázar, 2014). The findings of (Çabuk et al. 2019) do not support our hypothesis that the way visitors document and share their trip experiences has changed due to mobile apps and internet services. With the introduction of smartphones, travelers are no longer burdened with the necessity to carry bulky cameras in order to document their journeys, as these devices now boast top-notch camera capabilities. Travelers may effortlessly disseminate their photographs and videos with acquaintances, relatives, and a broader public via social media platforms and photo-sharing applications. Consequently, the rise of "digital influencers" has led to increased popularity, with individuals now selecting their vacation destinations and activities based on the firsthand experiences shared by others (Çabuk et al., 2019).

The hypothesis regarding the influence of personal device usage on the technology preferences of travelers is upheld. This discrepancy arises from a notable p-value and the incongruity of the outcomes with the research conducted by Kim et al. (2020), who observed the pervasive integration of personal electronics into all facets of our lives in this era of advanced technology. These devices, encompassing smartphones, tablets, and computers, have fundamentally transformed our modes of communication, corporate operations, and leisure activities. Moreover, they have significantly influenced our technological preferences while traveling. Kim et al. (2020) discovered that modern travelers have access to a vast amount of information and services through their personal electronic devices. Travelers may conveniently organize their trips, book accommodations, and find points of interest due to the accessibility of travel apps, online booking platforms, and navigation tools. As a consequence of this convenience, their technological inclinations have shifted, prioritizing devices that offer seamless connectivity, dependable internet access, and intuitive interfaces. Moreover, personal electronics have brought about a transformation in the manner in which tourists document and disseminate their experiences. In the past, individuals utilized cameras and camcorders to save their travel memories. Nevertheless, with the advent of social media and advanced smartphone cameras, tourists today prefer using their personal gadgets to acquire high-quality photographs and movies, which they can promptly share with their close acquaintances (Kim et al., 2020). This modification has resulted in a higher demand for devices with exceptional photography skills and efficient sharing functionalities. The advent of personal gadgets has revolutionized travelers' encounters with in-flight entertainment. The era of limited movie options on a communal screen has become a thing of the past. In the present era, individuals have the ability to enjoy their preferred television programs, films, or music on their personal electronic devices while air travel. Consequently, customers currently have a preference for devices that possess larger screens, extended battery life, and enhanced multimedia capabilities (Kim et al., 2020).

The influence of personalization and customization on the technological preferences of travelers remains significant. This hypothesis is consistent with the findings of Tümer et al. (2019), which indicate that the travel industry is not immune to the widespread trends of personalization and customization observed in various sectors. Modern travelers now have access to a diverse range of personalized and bespoke services that are specifically designed to meet their individual preferences and requirements, all thanks to advancements in technology. This transformation has had a substantial impact on the technological preferences of travelers, altering the way in which individuals plan, book, and experience their vacations. In their quantitative analysis, Tümer et al. (2019) discovered that personalization has fundamentally transformed the way passengers search for and book their trip. With the abundance of online travel platforms and aggregators, users now have the ability to tailor their search parameters in order to find the most relevant results. To effectively find the perfect accommodation, transportation, and activities that align with their own preferences, individuals can choose their destination, vacation dates, budget, and desired amenities. Modern travelers today have a preference for websites and smartphone apps that are easy to use and offer customizable search options and personalized suggestions. This has led to a greater dependence on technology in the travel industry.

The emergence of on-demand and streaming entertainment has profoundly altered tourists' preferences for utilizing technology, a notion that our hypothesis also corroborates. In today's rapidly advancing digital era, travelers no longer solely depend on traditional forms of entertainment to keep themselves occupied throughout their journeys. Conversely, people have altered their preferences for technology by enthusiastically adopting the convenience and flexibility provided by streaming platforms and on-demand services. The advent of streaming platforms such as Netflix, Amazon Prime Video, and Hulu has fundamentally transformed the way individuals consume entertainment during their travels. Thanks to the availability of an extensive collection of films, television programs, and documentaries, travelers now have the ability to enjoy their favorite entertainment at any time and in any location (Banerji et al. 2023).

Conclusions

The implementation of biometric technology in Turkish airports has greatly influenced the technical preferences of travelers. Biometrics is increasingly adopted due to enhanced security measures, streamlined passenger processing, and enhanced traveler satisfaction. The preferences of travelers have shifted towards automated operations due to the convenience, efficiency, and time-saving benefits offered by biometric technologies. In order to maintain passengers' faith and confidence, it is imperative to resolve any issues regarding privacy and data security. Advancements in technology are expected to increasingly influence the future of travel experiences in Turkish airports and other locations, with biometric technologies playing a significant role.

Furthermore, the advent of contactless technology has greatly influenced the technical preferences of travelers. These technologies have transformed the way travelers manage several parts of their journeys, including ticket booking, payment, accommodation, and

navigation, due to their user-friendly nature, expediency, and enhanced safety. The significance of contactless solutions is expected to grow as technology advances and shapes the habits and expectations of modern travelers, ultimately revolutionizing the travel industry as a whole. Ultimately, the choices of technology made by travelers have been significantly shaped by the accessibility of WiFi services during flights. The integration of Wi-Fi aboard airplanes has fundamentally transformed the way individuals utilize technology during flights, impacting various aspects such as entertainment preferences, a growing dependence on personal devices, online travel arrangements, and the emergence of remote employment. With the progression of technology, there is expected to be an increased need for reliable and consistent in-flight connectivity, hence promoting additional advancements and financial backing.

The preferences of travelers regarding technology have been greatly influenced by mobile applications and digital services. These technologies have completely transformed the way people plan, enjoy, and communicate about their trips due to their convenience, navigational assistance, wealth of information, and various possibilities. With the advancement of technology, we may expect numerous other innovations that will enhance the travel experience and shape the preferences of future travelers. Furthermore, the preferences of the visitors for convenient connectivity and availability of local amenities have been influenced by personal electronic devices. Travelers can efficiently and conveniently locate nearby restaurants, attractions, and transportation options due to the accessibility of travel-related applications and platforms. Consequently, individuals currently prefer devices that come with integrated GPS, reliable Wi-Fi, and the ability to utilize location-based services. Ultimately, personalization and customization have radically transformed consumers' technology preferences while transforming the tourism industry. Technology has become an essential element for contemporary travelers, offering individualized search and booking experiences, tailored itineraries, unique accommodation choices, and mobile applications. Anticipating advancements in personalization and customization is crucial as the travel industry evolves to meet the growing demands of tourists seeking distinctive and unforgettable experiences. The ubiquity of streaming and on-demand entertainment has significantly influenced passengers' preferences in utilizing technology. The attention has shifted towards portable devices that enable seamless content consumption, thanks to the convenience, versatility, and customized experience offered by streaming services. Furthermore, the need for reliable internet access has become a significant factor in passengers' decision-making process. It will be fascinating to witness how the progression of technology will shape future traveler choices and experiences, particularly in relation to streaming and on-demand entertainment.

Segmenting customers' technology preferences at Turkish airports is crucial for enhancing the overall airport experience and optimizing service efficiency. Airport administrations and airlines may tailor their offerings by comprehensively knowing the diverse needs and expectations of passengers, ensuring that technological solutions align with client preferences. Airports may enhance their operations and improve customer satisfaction by providing personalized services and implementing intelligent segmentation techniques to enhance efficiency. Airports can make educated decisions regarding the incorporation of technology by doing research on the technological preferences of travelers and identifying pertinent trends and patterns. If a significant proportion of travelers choose for self-check-in kiosks, airports may choose to invest in developing and expanding these technologies to reduce queues and enhance the check-in process. Airports may develop user-friendly smartphone applications to streamline the boarding procedure, taking into account the increasing demand for digital boarding permits. Maximizing airport infrastructure requires the division of technological preferences among travelers. To prioritize technology-driven services, airports can assess which market segments should be given priority. To facilitate a seamless procedure, those who often utilize self-service bag drop machines may require dedicated areas and supplementary support. Consequently, this technique based on segmentation leads to efficient allocation of resources, resulting in reduced traffic and improved operational efficiency.

The initial suggestion is grounded on surveys and feedback, proposing that the airlines and airport personnel in Turkey should inquire about consumers' technological preferences either via surveys or feedback forms. It is vital to inquire about their utilization of smartphone applications, self-check-in kiosks, digital boarding cards, biometric verification, in-flight entertainment systems, and other technological advancements. Analyze the responses in order to identify patterns and preferences among different groups of passengers (Muhumed, 2020). Furthermore, categorize the passenger population into several segments based on demographic variables such as age, gender, nationality, and profession. Technology adoption and preferences exhibit significant variations across different age groups and demographic segments. An additional suggestion is to categorize passengers into distinct groups based on their trip purposes, such as corporate travelers, holidaymakers, families, or frequent travelers. Leisure travelers may prioritize entertainment options, but business travelers may have a greater inclination towards technologies that enhance productivity. Furthermore, it is suggested to distinguish between passengers who possess advanced technology skills and those who are less proficient in this area, based on their level of technological awareness (Kuljanin & Kalić, 2015). While certain visitors may be quick to adopt and embrace new technologies, others may prefer more traditional methods. Furthermore, loyalty programs play a crucial role in segmenting travelers and analyzing data obtained from loyalty programs and frequent flyer memberships. These programs regularly track passenger preferences, providing valuable information. Illustrative instances encompass the choice of a favored seat, luxuries available during the travel, or the utilization of a mobile application. Furthermore, the use of applications is crucial for gaining a deeper comprehension of traveler behavior and preferences. These applications allow for the analysis of data obtained from mobile apps provided by airports, airlines, or other travel-related enterprises (Banerji et al., 2023). Track the frequency of usage for features such as mobile check-in, real-time flight updates, access to airport lounges, and luggage tracking. Social media monitoring is crucial for monitoring any mentions, hashtags, or comments related to airport technology. To identify patterns and trends, analyze the emotions and preferences expressed by travelers.

Although this study is completed in a comprehensive manner, there are still a few areas that can be evaluated by future researchers. This study is conducted using quantitative methods and has a significant sample size. However, in the future, it is recommended to undertake a mixed-method study to address this problem by using subjective measurements and gathering personal viewpoints of respondents through interviews. This study focuses on Turkish airports, but in the future, a comparison study might be undertaken to analyze Turkish airports alongside other airports. This would allow for a more accurate identification of weaknesses and potential areas for improvement.

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