

DIGITAL TRANSFORMATION IN CABIN CREW DEPARTMENT: A COMPARATIVE QUALITATIVE RESEARCH IN FSC AND LCC AIRLINES

Transformação Digital na Cabine da Tripulação: Uma Pesquisa Qualitativa Comparativa nas Companhias Aéreas FSC e LCC

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ABSTRACT

Digital transformation has become a critical activity for competitiveness in many sectors, including the airline industry, a key segment of the tourism transportation sector. Digital technologies continue to improve airlines' working methods daily, and cabin crews are also affected by this transformation. This study investigates digital transformation activities carried out in the cabin crew departments of airlines that adopt different strategies and examines their impact on operational processes. The research was conducted using qualitative methods in two airline companies operating in Turkey: one being the flag carrier Full-Service Carrier (FSC) and the other a Low-Cost Carrier (LCC). Semi-structured interviews were conducted with participants face-to-face and via video conference, using the deliberate sampling method. The obtained codes were grouped under themes, and the data was analyzed. The findings reveal that digital transformation in FSC and LCC airlines is achieved through various applications with similar features, and that both types of airlines improve their operational processes through digital transformation.

KEYWORDS

Tourism Transportation; Digitalization; Digital Transformation; Airlines; Competitive Strategies.

RESUMO

A transformação digital tornou-se crítica para a competitividade em muitos setores, incluindo a indústria aérea, um segmento chave para o setor de transporte turístico. Diariamente, as tecnologias digitais melhoraram os métodos de trabalho das companhias aéreas, afetando também as tripulações de cabine. Este estudo investiga as transformações digitais realizadas pela tripulação de cabine das companhias aéreas, que adotam diferentes estratégias, e examina seu impacto nos processos operacionais. A pesquisa foi conduzida usando métodos qualitativos, em duas companhias aéreas que operam na Turquia: a companhia aérea nacional Full-Service Carrier (FSC) e a Low-Cost Carrier (LCC). Foram conduzidas entrevistas semi-estruturadas com os participantes, presencialmente e por videoconferência, utilizando-se o método de amostragem deliberada. Os códigos obtidos foram agrupados em temas e os dados foram

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analisados. Os resultados revelam que a transformação digital nas companhias aéreas FSC e LCC é alcançado por meio de várias aplicações com características semelhantes, e que ambos os tipos de companhias aéreas melhoram seus processos operacionais através da transformação digital.

PALAVRAS-CHAVE

Transporte Turístico; Digitalização; Transformação Digital; Companhias Aéreas; Estratégias Competitivas.

INTRODUCTION

The aviation industry strives for further digitalization in line with worldwide trends. In the last few decades, various digital technologies have been extensively incorporated into different business lines, such as airlines, airports, air traffic control, and aircraft maintenance (Shiwakoti et al., 2022). Airlines have witnessed significant changes in recent years due to digital transformation, and digital technologies have influenced all aspects of the industry, from flight reservations to in-flight experiences.

For example, Air Asia's facial recognition technology for check-in (Airasia, 2023) and Emirates' food ordering device for business class (Flynn, 2017) demonstrate the digital transformation activities that airlines are implementing to improve the customer experience. Similarly, Lufthansa's use of virtual reality glasses as part of its digital transformation initiative has significantly improved the customer experience, increasing the upgrade rate from economy class to business class at check-in (Airlinetrends, 2017). On the other hand, the Star Alliance mobile application has created a common database for passengers to book flights and access digital boarding passes. This data is shared among all alliance members, allowing airlines to improve their marketing and revenue opportunities. Finally, Air New Zealand's augmented reality technology has significantly enhanced interactions between cabin crew and passengers by providing personalized information (Mazis, 2020).

The goal of digital transformation is to increase operational efficiency and financial performance while providing a seamless customer experience (Brown, 2022). In this context, digital transformation in airlines started in marketing and sales channels and continued with in-flight applications that increased passenger satisfaction over time (Turkish Airlines, 2021). Digital transformation efforts have recently been accelerated to facilitate many duties and responsibilities of cabin crews, especially those not observed by passengers (Pegasus, 2018).

With this digital transformation, airlines aim to provide passengers with a higher perceived quality service and devote their cabin crew's background duty times to dealing with passengers (SITA, 2023).

In line with this goal, many mobile apps have been developed to enable cabin crews to access information about the flight and passengers. On the other hand, the documents that will help to find solutions to the problems encountered during the flight or need to be filled by the organizational or legal requirements are loaded on the tablets distributed to the cabin crew (İnova, 2022). Again, through mobile apps, cabin crews were enabled to communicate before and after their flight duty, thereby increasing efficiency in operational processes. On the other hand, the duties and responsibilities of cabin crew may vary depending on the airline's adoption of different competitive strategies. Therefore, digital transformation activities for the cabin crew department are carried out through various mobile applications and corporate web pages developed by analysing the jobs determined within the scope of these strategies.

The background work performed by cabin crews, who represent the visible face of airline companies generating significant income in tourism transportation, critically affects the profitability and sustainability of airlines. If cabin crews, the primary determinants of the service offered, can largely transfer their background tasks to digital platforms, the time available for passenger communication will increase. This shift could provide a competitive advantage by enhancing service quality. Furthermore, the digitalization of cabin crews, who constitute most airline employees, will contribute to environmental sustainability. The existing literature lacks sufficient research on the digitalization of cabin crews. It is anticipated that this research will provide valuable insights for industry stakeholders.

CONCEPTUAL FRAMEWORK

Cabin Crew - The cabin crew is responsible for implementing the necessary safety and security measures and passenger comfort in the aircraft carrying passengers. In addition, cabin crew members generally serve in different positions as cabin attendants, cabin chiefs, cabin control chiefs, instructor cabin chiefs, and executive cabin chiefs i.e. (Akpınar & Erdağ, 2018). Cabin crews fulfil their responsibilities by conducting effective teamwork throughout the flight operation. The duties and responsibilities of each cabin crew member have been determined in the work instructions prepared according to the civil aviation authorities' instructions and the

airline's business model. In general, the duties performed by cabin crews during flight duty are as follows in Figure 1.

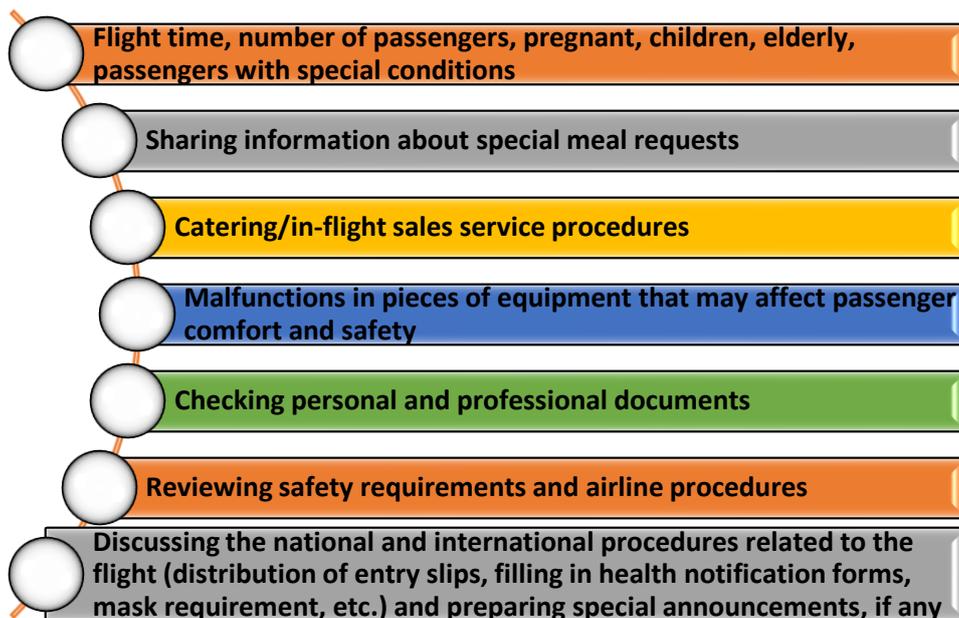
Figure 1. Cabin Crew Responsibilities



Source: Shehada, M. (2014).

On the other hand, most of the duties performed by cabin crew in flight operations consist of activities that passengers cannot observe directly. According to the aircraft type, cabin crew members on duty at least 1 hour before the flight duty make a briefing on such matters shown in Figure 2.

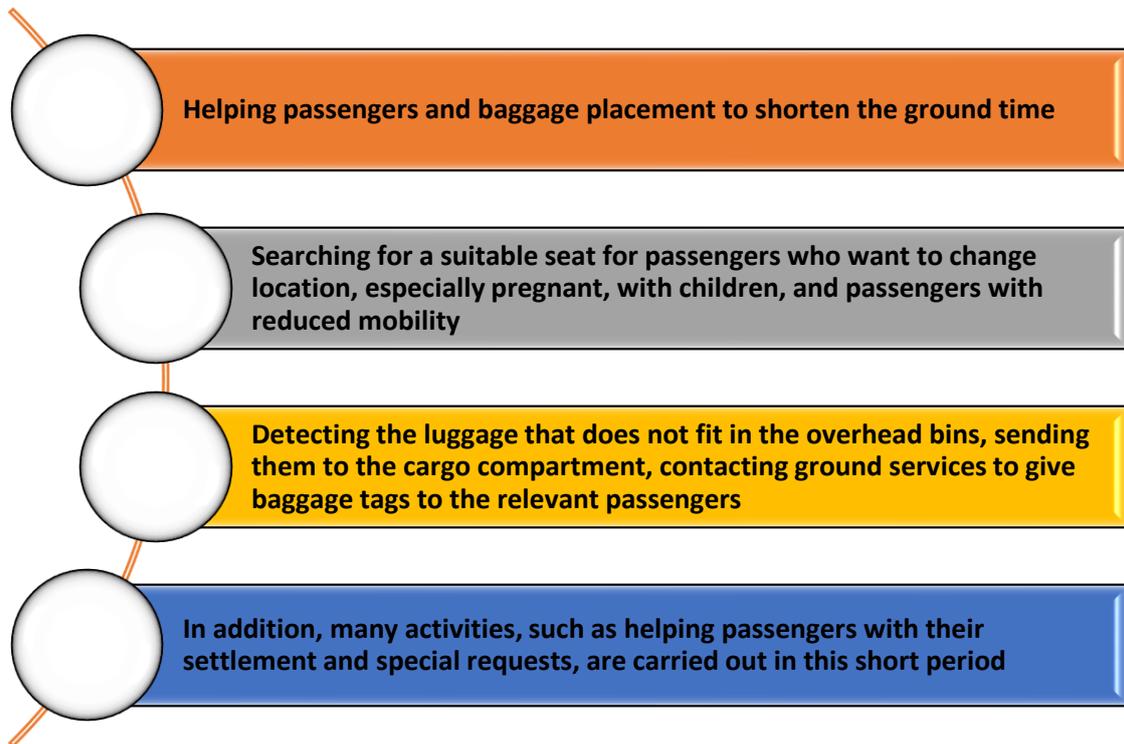
Figure 2. Cabin Crew Briefing Topics



Source: Gürbüz, T. İ. (2022).

After the briefing, safety equipment, cabin cleaning, and catering items are checked, and boarding is started by coordinating with ground services. Boarding has an essential place among the phases in which cabin crews take an active role.

Figure 3. Cabin Crew Duties During the Boarding Phase



Source: United (2023).

During the cruise phase, catering/in-flight sales service is provided, and safety-related activities are repeated at frequent intervals, trying to complete the flight comfortably and safely. In addition, if there are unruly passenger situations or, a passenger whose health condition deteriorates, or in case of birth/death on the flight, necessary interventions are made, and forms arising from legal obligations are filled.

After landing, the passengers are disembarked, and a check is made to ensure no forgotten item in the cabin or that no foreign object threatens safety. When a forgotten item or dangerous substance is detected, the relevant forms are prepared and coordinated with ground services (Bükeç & Başdemir, 2022).

Although cabin crew duties and responsibilities are similar for each airline, some differences can be observed according to the adopted business model. Airlines have chosen passenger

segmentation to reduce the effect of increasing competition over time and developed various business models compatible with Porter's competitive strategies. The adopted competitive strategy has led to the emergence of full-service (FSC) airlines in line with the differentiation and low-cost (LCC) airlines in line with the cost leadership strategy (Schmitt & Goxllnick, 2016).

FSCs go into distinctions such as first-class, business, and economy class in line with Porter's differentiation strategy. They strive to provide a competitive advantage by giving their passengers the highest possible level of service (Bieger & Agosti, 2005). LCCs generally carry out cost-reducing activities in all expense items with a uniform fleet of aircraft, economy class cabins, and in-flight catering services and comply with Porter's cost leadership strategy (Rouby, 2018).

Cabin crew composition varies according to the strategy adopted by the airline. For example, LCCs generally operating narrow-body aircraft have fewer cabin crews than FSCs. While the minimum number of cabin crew required in narrow-body aircraft can vary between 2 and 4, at least one of which is a cabin chief, this number can go up to 22 cabin attendants in wide-body aircraft. FSCs mostly plan more than the minimum number of cabin attendants for their flight duties to keep the perceived service quality of business and first-class passengers high (Shaw, 2007).

The differentiation of the number of cabin crew according to the business model causes the duties and responsibilities in the work instructions to vary. The cost leadership strategy aims to simplify work with fewer people quickly and effectively rapidly. It means cabin crew members of LCCs share more roles and responsibilities than FSCs. In addition, the number of people working in departments such as ground handling, passenger services, baggage handling, and aircraft security in FSCs is higher than in LCCs, making it easier for cabin crews in FSCs to share their duties and responsibilities with them. However, LCCs offer in-flight sales, while FSCs offer complimentary catering. In addition, cabin crews in LCCs have many additional duties that cause intense paperwork, such as issuing shopping invoices, opening and closing stocks, determining cancellations and refunds, and closing accounts due to sales transactions (Condor, 2020).

All these activities, which are included in the job descriptions of cabin crew, directly or indirectly affect passenger satisfaction and determine the perceived service quality (Kazançoğlu, 2011: 138). Considering that the service quality perceived by the passenger impacts profitability and sustainability by increasing the rate of re-preference of the airline, the importance of increasing the efficiency of the activities carried out by the cabin crew, which is the visible face of the

airlines, is better understood. For this reason, many cabin crew activities, which are not directly observed by the passengers and occupied an essential place in the past, are now being tried to be carried out much faster and more effectively through digital transformation.

For example, Airbus is developing an IoT platform for the cabin known as Airbus Connected Experience. It seeks to establish real-time connectivity between many cabin components, including galleys, trolleys, seats, and overhead bins. By receiving notification from the galley, it will be possible to obtain the information on which trolley the specially ordered meals are, view the appropriate overhead bins, and order drinks from intelligent seats. Thus, cabin crews will provide passengers with a more personalized travel experience by accessing an integrated platform that keeps real-time data in one place throughout the flight (Airbus, 2019).

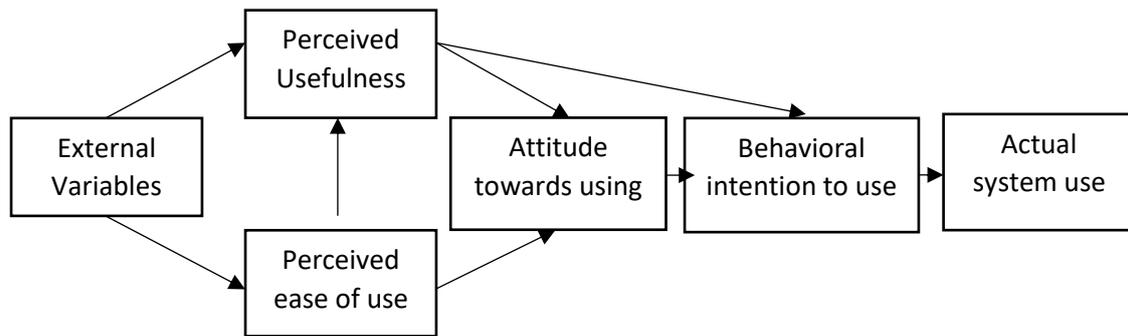
Leveraging digital transformation in cabin crew workflows and finding intelligent solutions that integrate with airlines' existing IT systems are operational areas that were often overlooked or neglected until recent years. Digital tools help cabin crew receive up-to-date flight and passenger information and increase their awareness, helping them provide dynamic service. In this way, passengers' satisfaction with their travel experience is improved, further contributing to the profitability and sustainability of the airline (Kucerova, 2023). In this context, touching on the technology acceptance model (TAM) will contribute to explaining the process of digital transformation by cabin crew departments.

Technology Acceptance Model - The Technology Acceptance Model (TAM) was created by Davis in 1986. TAM was designed with two primary goals: first, to enhance our understanding of the processes involved in user acceptance, offering new theoretical perspectives on the effective design and implementation of information systems; and second, to establish a theoretical foundation for a practical "user acceptance testing" methodology that allows system designers and implementers to assess proposed new systems before they are deployed (Davis, 1986: 2). According to TAM, an individual's behavioural intention to adopt a specific technology is influenced by their attitude towards using that technology (Zeren, 2014: 171).

Perceived usefulness refers to the user's belief that a system will enhance their job performance, while perceived ease of use denotes the extent to which the user believes the system is effortless to use (Davis et al., 1989). User acceptance of information and communication technology (ICT) is examined by considering both social influence and cognitive instrumental processes. Factors such as subjective norm, image, and voluntariness reflect individuals'

perceptions of system usage. On the other hand, job relevance, output quality, and result demonstrability represent the extent to which the system aids in performing job tasks. TAM model is shown in Figure 3.

Figure 3. Technology Acceptance MODEL (TAM)



Source: Davis, D. (1989).

From a historical perspective, the tourism sector has been recognized as one of the early adopters of new technologies and serves as a prime example of an industry significantly reshaped by technological advancements (Paajarvi, 2004). The integration of information technology into tourism commenced during the early stages of computer development and has progressively intensified (Bader et al., 2012). Most technology adoption studies employ the traditional Technology Acceptance Model (TAM) as the foundational theory to assess user acceptance (Davis et al., 1989). Numerous studies have explored TAM's application in understanding tourists' motivations and perceptions (Li & Chen, 2019). Given the extensive use of various emerging technologies to promote tourism, TAM serves as a theoretical basis for determining the acceptance or rejection of specific technologies.

Airline enterprises derive substantial advantages from contemporary technologies. As a pivotal constituent of the transportation domain within the tourism sector, airline corporations are ardently endeavouring to augment operational efficiency by integrating digitalization across a broad spectrum of functions. Given that cabin crews assume substantial responsibilities in the execution of airline operations, the digitalization of cabin crew operations profoundly influences the rate of technological adoption within the airline industry. Nevertheless, the voluntary engagement of cabin crews in the digitalization of tasks, which have hitherto been conducted consistently under stringent regulatory frameworks for an extended duration, is imperative for the efficacious realization of digitalization initiatives. Within this framework, cabin crews are

being apprised of the utilization of digital applications and their consequential contribution to the economic viability and enduring sustainability of the enterprise through informational sessions, case analyses, and instructional modules.

DIGITAL TRANSFORMATION IN THE CABIN CREW DEPARTMENT

Advances in information technology enable airlines to extract enormous amounts of data from aircraft systems, airport operations, and other stakeholders. As a result, the airline industry is unlocking numerous potentials, such as providing customized services to passengers by leveraging algorithms that transform this data into usable information (Hermes, 2020). However, as the impact of the digital transformation implemented to improve the quality of travel experience, improve performance and scalability, and maintain competitiveness in the market, on the profitability of the airline increased (PROS, 2019), the time and financial resources allocated to this issue continues to grow day by day (Heiets et al., 2022).

Airlines, which initially tried to increase their market share by going digital in sales and marketing channels, are now trying to improve all operational processes under the digital transformation (Meydan, 2023). IATA (International Airline Transport Association) defines digital transformation as creating value again using digital assets that change traditional methods. However, the definitions of digitalization and digital transformation are often used interchangeably. However, digitalization refers to converting an analogy or manual process to digital through a method such as RPA (Robotic Process Automation) technology. In contrast, digital transformation encompasses not only the integration of new technologies but also the redesign of business applications (Hermes, 2020). So, it is possible to define digital transformation in the airline industry as a systematic approach to change operational procedures and decision-making mechanisms, especially those that directly affect customer experience, by utilizing digital technologies and optimizing internal processes accordingly (Kıyıklık et al., 2022).

In this context, digital transformation in airlines is aligned with Porter's value chain analysis (Schallmo, 2016). Value chain analysis identifies activities that add value to customers and eliminates activities that do not contribute to operational processes (Savcı & Haftacı, 2017). Porter examines value-adding activities in two groups: primary activities and support activities. He defines activities that directly add value to customers as primary activities, while activities that indirectly add value are defined as support activities. Primary activities include inbound logistics, operations, outbound logistics, marketing and sales, and service. Support activities

include procurement, human resource management, firm infrastructure, and technology (Porter, 1985).

Digital transformation activities are among the few that have a two-way contribution to the value chain. Therefore, digital transformation may be evaluated as a value-adding activity directly to the passenger in the primary activities of marketing, sales, and post-sales service, as well as in technology development, which is an indirect support activity that the passenger cannot directly observe (Sert, 2020).

Airlines have successfully integrated digitalization into their reservation, marketing, sales, and post-sales activities, achieving significant efficiency gains in speed, cost, and quality (Işıl, 2021). These activities represent digital transformation's contribution to the value chain's primary activities. On the other hand, digital transformation efforts for problems affecting the operational process, such as check-in, baggage, and connecting flight problems, which are automatically corrected without being noticed by the passengers, have gained importance recently. Thus, digital transformation has started to take place among the support activities of the value chain by being applied to the activities carried out in the background.

In addition, digital transformation is also being achieved in the cabin crew department to increase the gains obtained from all recent operational processes. Due to the costs and the time incurred by airlines spent fulfilling legal and institutional requirements, such as filling out numerous documents, recording cabin malfunctions, calculating the amount of potable and wastewater to be loaded onto the aircraft, and reporting to the ground staff, digital transformation has become inevitable in the cabin crew department (Innova, 2015).

However, in airlines that adopt different strategies, digital transformation activities vary due to the differentiation of cabin crew duties and responsibilities. For example, Turkish Airlines (THY), which continues its operations as the flag carrier FSC in Turkey, started its digital transformation efforts in 2014 by distributing tablets to cabin chiefs (Şimşek, 2018). The MOCA application installed on these tablets has many functional features, such as the number of infant and child passengers onboard, identifying any doctors among the passengers, calculating the amount of water to be loaded, tracking empty seats, observing passenger manifest, recording cabin malfunctions, and access to all necessary documents required by the cabin crew department. This digital transformation activity, which saves time, has reduced the burden and cost of operational processes and increased the quality-of-service cabin crews offer passengers (Innova, 2015).

In addition, THY, which set out with the motto of a 'paperless cabin,' switched to the electronic document management system to minimize paper use in the cabin and transferred many correspondences to the electronic environment via its corporate web page. Furthermore, as part of the digital transformation initiative, applications such as Check-in, Documents, and Cress Notice have been developed, which can be downloaded from the TKStore app using a corporate e-mail address and password. With these applications, cabin crews can use technology effectively while fulfilling their duties and responsibilities (Turkish Airlines, 2017). Check-in is a mobile app developed for cabin crews to allow them to notify that they are at the start of duty. In addition, the Check-in app provides information about other cabin crew members taking part in the flight duty and whether they started the assignment. It is also available to access detailed information about the airport, announcements, flight times, and the number of passengers from this application. The Documents app enables cabin crews to access documents, memorandums, and bulletins. With the notification-sending feature, the in-house information of cabin crews is kept up to date. The Cress Notice app, which allows cabin crews to message among themselves, becomes active sometime before the start of duty and remains open 24 hours after the end.

The application most effectively used by cabin crews at THY is Roster. With the Roster app, which is preferred by more than 400 airlines worldwide (Şimşek, 2018), duty change notifications can be sent to cabin crews. Also, sharing flight programs and observing monthly and annual flight limit statistics, airport information, flight times, flight numbers, aircraft types, and the contact information of station officers and consular authorities to be contacted is available. In addition, the Roster app provides hotel, health, and safety information, pronunciation of airport names, greetings in the local language, entry, and exit customs documents, announcements, operation and safety requirements, technical and regulatory requirements, product and service requirements, and cosmic radiation calculation.

Along with these, THY has a total of 26 mobile apps. Apart from those described above, cabin crews frequently use the mobile apps UP, BID, Cress Web, Healthy, MyPass, and IBS. The UP makes it possible to view the number of passengers booking and corporate discount agreements and send birthday and various greetings messages to each other from all departments. Monthly off days and annual leave requests can be made with the BID app, while one domestic and international layover request can be made for the next month via Cress Web. The HEALTHY app allows viewing of hospital visits, examination dates contents, past sickness reports, and prohibited drugs and foods for cabin crews by accessing the personal health file. In addition,

sickness report notifications are made on this application, and information about private health insurance can be accessed. The MyPass application allows cabin crews to book flights using free (PASS) and discounted tickets (CED) issued by THY. Finally, with the IBS (Station Information System) application, the contact numbers of the station officers, layover forms, information on health issues, operational performance data, the contact information of the handling companies and airport authorities, and available ground services at the airports can be accessed.

In addition to mobile apps, THY actively uses its corporate website. Cabin crews can access information about the presidency and published videos on the corporate web page. In addition, the cabin crew can view information on frequently asked questions using the guide. By logging into the e-form center via the web page, it is possible to notify the Cabin Services Presidency on various issues such as visa applications, excuse leave notifications, wage deduction objections, pregnancy information, cabin cleaning, and planning problems. Through Creweb, another corporate website, personal information and corporate qualifications can be viewed, updates can be made in case of changing data on the cabin crew, visa requests can be made, and information on fees can be accessed.

Another example of the digital transformation of the cabin crew department is Pegasus Airlines, which operates as the largest LSC in Turkey. Mobile apps prepared for the cabin crew of Pegasus Airlines can be downloaded from the corporate website using the corporate e-mail address and password.

The SMARTCABIN app on tablets distributed by Pegasus Airlines ensures efficiency in matters related to in-flight sales, such as the PERPAX calculation (targeted sales amount per passenger), which enables cabin crews to earn more revenue and necessary information about pre-order meals. In addition, with the SmartCabin app, cabin crews can access detailed information about passengers with special conditions, their seat numbers, flight times, in-flight catering loading types, passengers purchasing seats, and the destination. Also, documents on the tablet facilitate the cabin crew's duties, which are uploaded, such as in-flight announcement voice recordings, cabin crew manual, chief cabin guide, aircraft types of differences guide, and SOP (standard operational procedures) quick reference manual available.

On the other hand, the IQSMS app has been developed so cabin crews can report to their departments. For example, with IQSMS, cabin crews can provide feedback on catering, cleaning, and crew shuttle problems, feedback on crew planning and flight issues, problems encountered in layover hotels, informing passengers who are sick on the flight, and reporting on safety and

security.

In addition, the PIN app developed for Pegasus Airlines, as a SharePoint mobile intranet application, is vital in increasing productivity. PIN app, which all Pegasus Airlines employees can use, has separate sections defined for different departments according to authorization protocols (BThaber, 2019).

The PIN app enables cabin crew members to carry out various activities such as employee discounted ticket transactions, requesting off days and annual leave (crew bidding), accessing the current document list, getting information on corporate discount agreements, applying for visa forms, checking flight information, viewing assigned training and safety certificates, and monitoring monthly employee turnovers (entry and exit). In addition, the app provides access to the seniority list, members of coaching groups, frequently asked questions, shuttle routes, hotel information, and the FTL (Flight Time Limitations) document. At the same time, cabin crews can access all the documents from the QDMS app and send read receipts to the company.

Finally, with the SmartOps app, cabin crews can view monthly flight schedules, enter sickness reports, order food for their flights, view flight and FTL statistics, and follow their colleagues' flight schedules. In addition, the SmartOps application includes the cabin crew's personal performance, certificate, passport, visa, and language information.

In addition to the previously mentioned mobile apps, Pegasus Airlines' cabin crew are also notified through text messages sent to their mobile phones and e-mails sent to their corporate e-mail addresses. Information about flight-duty changes and the planned crew shuttle notifications are sent as text messages. When cabin crew members receive a duty change notification, they can access new duty information from the SmartOps app. Also, notices regarding newly published documents are sent via e-mail. Table 1 shows the digital apps and corporate web pages used in FSCs and LCCs in Turkey.

Table 1. Digital Apps and Corporate Websites Frequently Used in FSCs and LCCs

| FSC | LCC |
|--|--|
| <p>Tkstore To download apps to mobile devices.</p> | <p>Corporate Web Site To download apps to mobile devices.</p> |
| <p>Roster Duty changes, flight statistics, airport information, flight schedule sharing, cosmic radiation calculation, cabin crew names, flight times, flight numbers, aircraft types, station and consulate contact information, hotel, health and safety information, airport name pronunciation,</p> | <p>Smartops Monthly flight schedules of cabin crew, medical report entry, crew meal pre-orders, monthly flight statistics, annual FTL averages, flight schedule sharing, personal</p> |

| | |
|---|--|
| local language greeting, entry and exit customs documents, announcements, operational, security, technical, regulatory, product, and service requirements. | performance, certificate, passport, visa, and language information. |
| Healthy Documents related to in-house health screenings, viewing the past sickness reports received. | |
| Documents Accessing published documents, announcements, information notes, and bulletins and sending read receipts to the company. | Qdms Access to documents and sending read receipts. |
| Crewweb Page Cabin crew payrolls, personal information, exam results, accrued flight fees, visa requests, and access to information. | Corporate E-mail Reaching to employee payrolls. |
| Moca The number of infant, child, and adult passengers, doctor on board information, amount of water loaded, empty seats, passenger manifest, cabin maintenance logbook, and cabin crews department notification forms. | Smartcabin Passenger counts, PERPAX calculation, pre-orders, passengers with special conditions, seat numbers, flight times, catering loading types, passengers who bought paid seats, airport information, announcement sound recordings, cabin crew manual, cabin chief guide, aircraft types differences guide, SOP quick reference manual. |
| Myypass PASS and CED (Discounted) ticket purchase. | Pin Crew ticket transactions, current documents, corporate discounts, visa requests, flight information, off days and annual leave requests, assigned training, monthly employee turnovers, seniority list, coaching groups, frequently asked questions, shuttle routes, hotel information, and FTL document. |
| Ibs Contact numbers of station officers, layover forms, health conditions in the region, operational performance data, the contact information of the handling company and airport authorities, aircraft registration numbers with landing permission, and airport ground services. | |
| Bid Submission of a request for off days and annual leave. | |
| Up Passenger counts, corporate discounts, birthday, and greeting messages. | |
| Cabin Crew Department Website e-forms, such as objection to wage cuts, crew planning correspondence, excuse leave requests, administrative directorate correspondence, and so on, and frequently asked questions. | Iqsms Catering, cleaning, crew shuttle, hotel, sick passenger, crew planning, safety, and security feedback. |
| Cress Notice Instant messaging between assigned crew members. | |
| Cress Web Layover duty requests for the next month. | |
| Check-in Allows cabin crew to notify that they are at the start of duty. | |

RESEARCH PURPOSE, IMPORTANCE, AND METHOD

The digital transformation in the activities of cabin crews increases passenger satisfaction and the airline's operational performance, making significant contributions to profitability and sustainability. However, while there are many studies on digital transformation in the airline industry in the literature, this is the only research that has been found comparing the digital transformation efforts in the cabin crew departments of airlines in the FSC and LCC business models. Thus, this study aims to contribute to the literature and relevant stakeholders in the sector by revealing the digital transformation activities of the cabin crew departments of FSC and LCC airlines.

The research was carried out using qualitative methods in two airlines operating in Turkey, one of which is the flag carrier FSC, and the other is LCC. Qualitative research, especially with the deliberate sampling method, allows one to obtain in-depth and large amounts of information about the subject from a few participants (Curtis et al., 2000). Therefore, in the study, semi-structured interviews were conducted face-to-face and via video conference with 20 participants, ten from each airline, with at least ten years of experience working in various positions, using the purposive sampling method. Cabin crews are individuals who are often challenging to reach due to their demanding flight schedules. To mitigate these constraints related to time and accessibility, 10 participants from each airline have been selected. It was preferred that the participants have worked at the same airline for at least ten years to compare the current digital transformation activities with the past situation. The questions asked to the participants in the study were inspired by the questions in the technology acceptance model scale (Davis, 1989) and are given in Annex-A. The sections of the TAM model questionnaire were utilized in the qualitative research to reveal participants' tacit knowledge, thereby facilitating a comprehensive understanding.

The two airline companies examined in the research are the primary operators that dominate the Turkish aviation sector. They compete in both the domestic market and within regions encompassing countries within a four-hour flight radius, such as Europe, Asia, the Middle East, the Arabian Peninsula, and North Africa. The competitive dynamics between these two airlines also drive them to enhance their practices by benchmarking each other. Despite adopting two distinct strategies, similar practices are shaped and utilized based on their respective strategic models. The full-service carrier (FSC) airline company is esteemed as the premier airline in Europe, while the low-cost carrier (LCC) airline company is renowned for its innovative practices

in the industry. Consequently, these two airlines have been jointly examined. Their examination is pivotal due to their practices, which can serve as benchmarks for other airline companies operating in the regions where they wield considerable influence.

Information was given on the research subject during the interviews with cabin crew members, and the interviews were held in Turkish, which is the native language. It was stated that a code to be assigned for them would be used instead of the names of the participants due to their request. With this information, it was tried to prevent the research from creating hesitation for the participants. Codes ranging from F1 to F10 for FSC airline participants and L1 to L10 for LCC airline participants were defined. Interviews were held between 15.10.2023 and 19.10.2023 in a place where cabin crew members felt comfortable and did not cause external factors to disrupt communication. During the interviews, care was taken not to ask questions in a way that would guide the participants. All interviews were recorded as audio with the participants' consent and transcribed into written format. The data obtained from the interviews were manually coded by the authors of the research separately and then compared to reach final codes. The obtained codes were subsequently consolidated under themes through the authors' efforts, and data analysis was conducted. While creating codes and themes, the literature review was utilized; however, due to the limited availability of scientific studies in the literature, corporate websites and documents were also consulted.

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FINDINGS

Codes were assigned to the data obtained by the semi-structured interview technique by making content analysis, and themes were formed by determining their relationships. Finally, after editing, the codes and themes were evaluated and interpreted (Özdemir, 2010: 332). Participants consisted of 7 men and 13 women, aged between 31 and 42. They all work as cabin chiefs, and their experience in the same airline varies between 10 and 16 years.

As a result of the interviews, nine codes and three themes were determined for FSC airline, and eight codes and three themes for LCC airline. The codes that were united under the theme of "passenger experience" defined in the FSC airline were "speed," "convenience," and "problem-solving." F4 said, *"We can respond to the demands of passengers much faster than before. For example, during boarding, we often encounter what we call the problem of family reunification. We must find a quick solution to this situation. We used to search for free seats on the passenger*

manifest or wait until the boarding was complete. Now we can see the free seats instantly from the tablet and help the passengers."

The codes that unite under another theme, 'accessibility' are 'apps', 'e-forms', 'feedback', and 'diversity'. F7 said: *"We are responsible for knowing many professional manuals and documents. Moreover, the procedures and rules of the countries we fly to change constantly. We used to carry manuals, SPO, and current announcements with us, as it was tough to keep this much information in mind. Now we can access the information we want from mobile phone apps or tablets."* In addition, F2 said, *"When we had a problem in flight, we would either go to the cabin crew department and tell them or write a petition and make a co-mail. We can now reach our presidency via e-forms; this has also increased the frequency of our feedback on issues that need improvement."*

On the other hand, F5 said: *"Mobile apps are handy, but we have many apps. Sometimes, we have issues deciding where to find which information. So, it will be beneficial if simplified and fewer applications are made."*

The final theme determined in FSC airline is 'safety', which consists of 'crew health' and 'crew safety' codes. F3 said: *"As a flag carrier, we fly to most destinations worldwide. Unfortunately, we sometimes encounter diseases previously unheard of in Turkey. Mobile apps help us a lot in this regard. For example, if we are flying to a place where malaria is common, more than one mobile app warns us to get a malaria kit from the health unit. In addition, we can view the measures that will reduce our risk of contracting the disease through the app"*. In addition, F1 said, *"There may sometimes be political upheavals and acts of terrorism in the countries we visit, or crimes such as theft and extortion against foreigners are common. Therefore, we examine the safety and security requirements of the app before the flight. In case of such threats, we read the information notes about not leaving the hotel or where to go"*.

The first theme identified in LCC Airline is 'communication'. The codes under the theme are 'digital information sharing', 'crew communication', and 'feedback'. L8 said, *"We have a coaching system. The cabin chiefs and cabin attendants are affiliated with determined control cabin chiefs. When we need it, we seek help from our coaches before going to the management. In the past, we often tried to get information by consulting the coaches. Now we can easily access the information we need through the apps"*. L1 said, *"As cabin crew members increased, we needed more digital innovations. For example, when the company was small, everyone knew each other, and we all had each other's phone numbers. However, now, we are more than two*

thousand. We may need to contact each other when there is a problem while taking over duty or when a cabin crew member is late for a flight. For this, we used to call crew planning and have them reach out. With digitalization, we started to act faster in case of need by accessing contact information through apps".

L10 explained, "There are documents we must fill out in detail if there is an unruly or sick passenger during the flight. We used to send these manually filled documents to the company by co-mailing them. Thanks to the applications, we both accelerated the process of informing the company and eliminated situations such as co-mail that created a workload during the intense flight tempo. In addition, we quickly record our feedback through the application".

The second theme of LCC airline is determined as 'ground time'. 'Pre-flight preparations' and 'boarding' codes are combined under this theme. Regarding these codes, L2 says, *"When we go to the aircraft, we have a limited time to start boarding. Therefore, we must complete many tasks in a short time. For example, when I get on the aircraft, one of the first things I do is to check that the in-flight sale is loaded correctly. Because in case of an incorrect loading, the plane will be delayed. We have different in-flight sale types according to the lines. I check the loading type on the tablet and match the loading on the aircraft".* L5 said, *"At the pre-flight briefing, we check the number of passengers, passengers with infants, flight and ground times, and passengers with special conditions from the applications. Thus, we avoid delays by making the necessary plans".*

In addition, L9 said, *"One of the most critical phases of our task is the passenger boarding stage. If there was a delay, it was probably due to boarding. Our most vital challenges are giving the same seat number to two different passengers, separating families, and giving seat numbers to passengers with special conditions that do not comply with the rules. In such cases, the tablet is useful. I solve the problems without causing delay by checking the accessible seats and detecting the seat numbers that do not comply with the rules beforehand".*

The last theme in LCC airline has been 'revenue growth', consisting of the codes 'saving time', 'sales growth', and 'flawless account closure'. L6 said, *"Before we switched to digital devices, we manually did everything related to sales. Many tasks that require attention, such as registering the products sold one by one, calculating the fees and change, checking the remaining amount to the target for the extra sales commission, and closing the account, were taking much time. Now, it's all done from a single device. It is a great convenience for us".* L3 explains, *'In-flight selling had always been problematic. When closing the account, it was usually incomplete and*

deducted from our salaries. We got rid of this problem when our sales devices came. In addition, since the device does much work, the time we can allocate to sales has increased. It reflects on our salaries". Table 2 shows the codes and themes obtained from FSC and LCC airlines.

Table 2. Themes and Codes of FSC and LCC Airlines

| Themes of FSC | Codes of FSC |
|-----------------------------|-----------------------------|
| <i>Passenger Experience</i> | Speed |
| | Convenience |
| | Problem-Solving |
| <i>Accessibility</i> | Apps |
| | e-forms |
| | Feedback |
| | Diversity |
| <i>Safety</i> | Crew Health |
| | Crew Safety |
| Themes of LCC | Codes of LCC |
| <i>Communication</i> | Digital Information Sharing |
| | Crew Communication |
| | Feedback |
| <i>Ground Time</i> | Pre-flight Preparations |
| | Boarding |
| <i>Revenue Growth</i> | Saving Time |
| | Sales Increase |
| | Flawless Account Closure |

DISCUSSION AND CONCLUSION

The research results reveal that transferring documents such as handbooks, announcements, route information [including special customs requirements, service differences, etc.], and corporate forms carried by cabin crew members to tablets and smartphones via applications increases accessibility in times of need. In addition, digital applications developed by airlines enable cabin crews to communicate among themselves, thus adding efficiency to operational processes. Moreover, cabin crews can access information such as passengers' special situations and meal preferences and connect flights from digital devices, enabling them to offer better-personalized services.

Airlines' adoption of different competitive strategies causes different approaches in their digital transformation efforts. For example, FSCs generally focus on digital transformation in catering and passenger satisfaction tasks. On the other hand, LCCs are turning to digital transformation

activities to shorten ground times and make in-flight sales more efficient. Some difficulties related to digital transformation were also revealed in the study. The diversity of applications and websites in FSC airlines can hinder ease of use. This is also because more resources can be allocated to digital transformation than LCCs. On the other hand, LCCs consider more expense control in all their activities and develop simpler and fewer mobile apps with relatively fewer resources. Considering the effect of simplification in technology on ease of use, this attitude of LCCs may increase the benefit of digital transformation.

Considering the studies conducted within the scope of the Technology Acceptance Model, ease of use and perceived usefulness are prominent factors in the effectiveness of digitalization efforts. Therefore, when developing applications and web pages for cabin crews, airline companies should clearly articulate how these tools will simplify existing tasks and highlight the associated benefits. Cabin crews should be prepared for these changes through seminars, informational notes, training sessions, and case studies aimed at raising awareness about digitalization. Technological advancements in the tourism sector are frequently adopted in the aviation industry, where competition is intense. Through digitalization, the background tasks of cabin crews will be streamlined, reducing their physical fatigue and thereby increasing the time available for passenger interaction. This enhanced interaction not only improves the passenger experience but also provides a competitive advantage for the airline.

As a result, in both airlines, when the duties of cabin crew departments that cannot be directly observed by passengers are shifted from manual processes to digital processes, profitability and competitiveness in the market can be increased by providing: (1) Personalized services to passengers; (2) Increasing the efficiency of the boarding process; (3) Reducing ground times. This study focuses primarily on using mobile devices and apps in cabin crew departments and does not explore other digital technologies such as artificial intelligence, machine learning, or robotics. In addition, only the perspective of the cabin crew is reviewed in the study, and the passengers' opinions are not considered. Investigating the potential benefits of advanced technologies and how passengers perceive digital technologies in cabin crew activities will contribute to the literature in future research.

REFERENCES

Airasia (2023). *FACES - Facial Recognition ID*. [Link](#)

Airbus (2019, 02 april). *Airbus Connected Experience Goes from Concept Phase to Reality*. [Link](#)

Erdağ, T., Erdoğan, U. & Pinar, R. I. (2024). Digital transformation in cabin crew department: a comparative qualitative research in FSC and LCC Airlines. *Rosa dos Ventos - Turismo e Hospitalidade*, 16(3), 638-660. <http://dx.doi.org/10.18226/21789061.v16i3p638>

- Airlinetrends (2017, 01 april). *Lufthansa Uses Virtual Reality to Sell Last-Minute Upgrades to Premium Economy at The Gate*. [Link](#)
- Akpınar, A. T., & Erdağ, T. (2018). Sustainable performance assessment system model suggestion for cabin crew in different airlines. In O. Geyik, & A. Gacar. (eds.), CUDES 2018 7. International Congress on Current Debates in Social Science Programme & *Abstract Book*, (pp. 91). İstanbul: Kayhan Printing Co Ltd.
- Bader, A., Baldauf, M., Leinert, S., Fleck, M., & Liebrich, A. (2012). Mobile tourism services and technology acceptance in a mature domestic tourism market: the case of Switzerland. In M. Fuchs, F. Ricci, & L. Cantoni. (eds), *Information and Communication Technologies in Tourism 2012* (pp. 296-307). Vienna: Springer,. [Link](#)
- Bieger, T. & Agosti, S. (2005). Business models in the airline sector- evolution and perspectives. In S. Albers, W. Delfmann, H. Baum, & S. Auerbach. (eds.), *Strategic Management in the Aviation Industry*. Köln: Kölner Wissenschaftsverlag.
- Brown, S. (2022, 09 november). 10 Capabilities to Accelerate Digital Transformation. *MIT Management Sloan School*. [Link](#)
- BThaber (2019, 22 october). PIN Developed by OGOO Brings All Pegasus Employees Together. *Tüm Pegasus Çalışanlarını Bir Araya Getiriyor*. [Link](#)
- Bükeç, C. M., & Başdemir, M.M. (2022), Kabin Hizmetlerinde Ekip Kaynak Yönetimi ve Eğitimleri. In P. Ünsal, & S. Çeken. (eds.), *Aviation Psychology: Constructs, Research and Practices* (pp. 427-453). İstanbul: İstanbul University Press.
- Condor (2020, 15 october). Digitalization above the clouds: condor cabin crews receive 'skytabs'. *Condor News*. [Link](#)
- Curtis, S., Gesler, W., Smith, G., & Washburn, S. (2000). Approaches to sampling and case selection in qualitative research: examples in the geography of health. *Social Science & Medicine*, (50), 1001-1014. [Link](#)
- Davis, F. D. (1986). *A Technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results*. Doctoral Thesis, MIT Sloan School of Management, Cambridge, MA. [Link](#)
- Davis, F. D. (1989). Perceived Usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340. [Link](#)
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, 35(8), 982-1003. [Link](#)
- Flynn, D. (2017). *Emirates Rolls Out Smartphone-Based Meal Ordering*. [Link](#)
- Gürbüz, T. İ. (2022). A senior cabin crew member's viewpoint on being a cabin crew member: questions-replies. In P. Ünsal, & S. Çeken. (eds.), *Aviation Psychology: Constructs, Research and Practices* (pp. 408-425). İstanbul: İstanbul University Press.
- Heiets, I., La J., Zhou W., Xu S., Wang X., & Xu Y. (2022). Digital transformation of airline industry. *Research in Transportation Economics*, 92, 101186. [Link](#)

Erdağ, T., Erdoğan, U. & Pınar, R. I. (2024). Digital transformation in cabin crew department: a comparative qualitative research in FSC and LCC Airlines. *Rosa dos Ventos - Turismo e Hospitalidade*, 16(3), 638-660. <http://dx.doi.org/10.18226/21789061.v16i3p638>

- Hermes (2020). Digitalization, AI in Aviation and the Human Factor. *Report, R20-R. Hermes Air Transport Organization*. [Link](#)
- Işılar, H. B. (2021). Evaluation of digital marketing applications in the airline industry. *Journal of Aviation and Space Studies*, 1(2), 42-63. [Link](#)
- Innova (2015, 16 april). New Era in Aviation: Digital Cabin Management. *Innova*. [Link](#)
- Innova (2022). Success Stories, Turkish Airlines Digital Cabin Management System. *Innova*. [Link](#)
- Kazançoğlu, İ. (2011). The effect of corporate image and perceived service quality on creating customer loyalty in airline companies. *Mediterranean Faculty of Economics and Administrative Sciences Journal*, 11(21), 130-158. [Link](#)
- Kıyıklık, A., Kuşakcı, A. O., & Mbowe, B. (2022). A digital transformation maturity model for the airline industry with a self-assessment tool. *Decision Analytics Journal*, 3, 100055. [Link](#)
- Kucerova, V. (2023). What is Cabin Crew Digitalization?. *SITA for Aricraft*. [Link](#)
- Li, T., & Chen, Y. (2019). Will virtual reality be a double-edged sword? Exploring the moderation effects of the expected enjoyment of a destination on travel intention. *Journal of Destination Marketing and Management*, 12, 15-26. [Link](#)
- Mazis, N. (2020, 23 august). *Digital Transformation and the Airline Industry- 8 Success Factors*. [Link](#)
- Meydan, C. H. (2023). A review on digital transformation practices in airline companies. *Journal of Aviation Research*, 5(1), 65-82. [Link](#)
- Özdemir, M. (2010). Qualitative data analysis: a study on the problem of methodology in social sciences. *Univesity Eskişehir Osmangazi - Journal of Social Sciences*, 11(1), 323-343. [Link](#)
- Paajarvi, M. (2004). *Future Mobile Data Services for Tourism: Barriers and Enablers for Adoption of a Mobie Tourist Guide in the Tourism Indusrty of Norrbotten*. Master Dissertation, Lulea Universtiy of Technology. Sweden. [Link](#)
- Pegasus (2018, 15 may). Pegasus increased its guest numbers by 15 percent in 2017 and closed the year with a turnover of 5.3 billion TL. *Pegasus Airlines*. [Link](#)
- Porter, M. E. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: The Free Press.
- PROS (2019). *The State of Airline Digitization: Expectations Meet Reality*. White Paper. PROS Holdings, Inc. (NYSE: PRO). [Link](#)
- Rouby, I. (2018). A new business model: low cost carriers (the case of easyjet). *Global Review of Research in Tourism, Hospitality and Leisure Management*, 4(1), 608-631. [Link](#)
- Savcı, M., & Haftacı, V. (2017). Evaluating the role of activity-based costing (abc) in measuring value-creating activities in value chain analysis. *University Kocaeli – Journal of Social Sciences*, (34), 261-284. [Link](#)
- Schallmo, D. R. A. (2016). *Jetzt Digital Tansformieren*. Wiesbaden: Springer Gabler.
- Schmitt, D., & Gollnick, V. (2016). *Air Transport System*. Viyana: Springer-Verlag.

- Sert, E. (2020). *Industry 4.0 value chain core activities analysis in digital transformation: Model proposal for the automotive sector*. Thesis Doctoral, Istanbul University, Faculty of Business Administration. Turkey. [Link](#)
- Shaw, S. (2007). *Airline Marketing and Management*. Burlington: Ashgate Publishing Company.
- Shehada, M. (2014). Flight attendants turnover, length of service, and reasons for leaving, 2009-2011. *International Journal of Management and Commerce Innovations*, 2(2), 355-364. [Link](#)
- Shiwakoti, N., Hu, Q., Pang, M. K., Cheung, T. M., Xu Z., & Jiang, H. (2022). Passengers' perceptions and satisfaction with digital technology adopted by airlines during Covid-19 pandemic. *Future Transportation*, 2(4), 988-1009. [Link](#)
- SITA (2023). *Digital Cabin Crew*. Positioning Paper. [Link](#)
- Şimşek, G. (2018, 09 december). What apps do flight attendants use?. *Haber Türk*. [Link](#)
- Turkish Airlines. (2017). *Sustainability Report 2017*. [Link](#)
- Turkish Airlines. (2021). *Annual Report 2021*. [Link](#)
- United (2023). *United Airlines- Description of Flight Attendant Job Duties*. [Link](#)
- Zeren, D. (2014). Technology Acceptance Model. In M. Yağcı, & S. Çabuk. (eds.), *Marketing Theories* (pp. 171-186). İstanbul: MediaCat.

Appendix-A

Semi-structured interview questions: (1) Do you use digital devices and applications while performing your job in the airline you work for? (2) Do you think digital transformation has increased your performance and productivity compared to the past? (3) Could you tell us about the digital applications developed for your profession in the airline you work for? (4) Do you encounter difficulties when using digital applications? What are the aspects that need improvement? (5) What are the benefits of digital transformation that ease your workload on your flight duties? (6) Do you think the digital transformation in your profession impacts the quality of service you offer passengers?

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