



VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

Self-service technology in aviation: A systematic literature review

This is the Published version of the following publication

Wongyai, Phutawan Ho, Ngo, Thanh, Wu, Hanjun, Tsui, Kan Wai Hong and Nguyen, Thu-Huong (2024) Self-service technology in aviation: A systematic literature review. *Journal of the Air Transport Research Society*, 2. ISSN 2941-198X

The publisher's official version can be found at
<https://www.sciencedirect.com/science/article/pii/S2941198X24000150?via%3Dihub>
Note that access to this version may require subscription.

Downloaded from VU Research Repository <https://vuir.vu.edu.au/48397/>



Self-service technology in aviation: A systematic literature review

Phutawan Ho Wongyai^{a,*}, Thanh Ngo^a, Hanjun Wu^a, Kan Wai Hong Tsui^b, Thu-Huong Nguyen^c

^a School of Aviation, Massey University, New Zealand

^b School of Business, University of Southern Queensland, Australia

^c Victoria University Business School, Australia



ARTICLE INFO

Jel classification:

L93
M30
O30

Keywords:

Self-service technology (SST)
Systematic review
Aviation
Customer services

ABSTRACT

Airlines and airports continuously improve operational efficiency and enhance service quality, especially through self-service technology (SST). Although there are several reviews on SST, the aviation industry has been comparatively overlooked. This study offers a systematic review of the existing literature on aviation SST (e.g., self-check-in kiosks and web/e-ticketing) from the customer service perspective. Starting from a rich dataset of 678 peer-reviewed journal articles listed in Scopus, after some screening processes, 98 articles remained and were included in the full-text review and analysis. Accordingly, we found that the aviation SST literature focused on some geographical locations, e.g., North America and Asia, but not others (e.g., Africa or Oceania). Its three main research themes are customer adoption, customer satisfaction, and customer experience, in which the Technology Acceptance Model (TAM) is the dominant framework. In addition, the use of SST from the environmental perspective was rarely studied while newer SSTs such as customer service chatbots and biometric check-in will need more attention.

1. Introduction

The growth of affordable air transport over the past few decades can be attributed to favourable policies (e.g., open sky policy and other deregulations), technological advancements, and the development of low-cost business models (Belobaba et al., 2015; Budd & Ison, 2020; Doganis, 2013). According to the WorldBank (2023), global passenger air transport peaked in 2019, with approximately 4.5 billion passengers carried and 38 million flights operated. However, the aviation industry has been significantly affected by the COVID-19 pandemic, resulting in a decrease in flights and operational/financial difficulties for airlines (Sun et al., 2021, 2022). The COVID-19 pandemic caused a significant decline in global air passengers, with a 60% reduction compared to 2019 (ICAO, 2022), resulting in many airlines ceased their operations in 2020 (Bailey, 2021; IATA, 2022b). Nevertheless, with preventive measures and vaccinations, it is projected that passenger numbers will recover and surpass pre-pandemic levels by 2024 (IATA, 2022a). Indeed, the initial recovery of the aviation sector was observed in some countries and regions such as China (Czerny et al., 2021), Europe (Su et al., 2023), and the US (Sun et al., 2022, 2023).

Technological advancements have led to a shift from traditional service encounters with human employees to technology-based self-service, such as mobile banking, online retailing, chatbot customer service, and service robots (Wang et al., 2012). Self-service technology allows cus-

tomers to serve themselves using technological interfaces without direct assistance (Meuter et al., 2000). To the best of our knowledge, the term “self-service technology” (SST) first appeared in the literature in 1993 in a retail banking study by Marr and Prendergast (1993). However, the concept of self-service has been studied for a long time, with early examples including grocery store self-checkout, self-service airline ticket vendors, self-service gasoline stations, and automated teller machines (ATMs) (Bateson, 1985; Erdmann & Neal, 1971; Kutler, 1982; McClurg & Andrews, 1974; Metacalf & Greenhalgh, 1968).

Introducing SST in customer services offers benefits such as labour cost reduction, increased customer satisfaction and loyalty, and access to new customer segments (Bitner et al., 2002). SST provides competitive advantages through quick and easy service accessibility (Meuter et al., 2000). However, organizations must also be cautious of potential risks and drawbacks. Excessive reliance on advanced technology and poor service design can create the perception that technology surpasses customer abilities, negatively impacting satisfaction (Zhu et al., 2007). Additionally, when SST fails at simple tasks and requires frequent personnel assistance, the perceived value of the service may decrease, leading to increased labor costs (Hilton et al., 2013).

SST in aviation began with the automatic ticket vendors at airports that allowed customers to buy tickets without airline staff (Erdmann & Neal, 1971). In 2007, the International Air Transport Association (IATA) launched the Fast Travel Program, integrating self-service channels to

* Corresponding author.

E-mail address: P.Wongai@massey.ac.nz (P.H. Wongyai).

Table 1
Keywords used in the search strategy.

Context	Keywords
Airport; Airline	self-service; self-service technology; technology-based self-service; common use self-service; CUSS; check-in kiosk; self-service check-in; web check-in; mobile check-in; self-service bag drop; self bag drop; automated bag-drop; biometric; self-boarding; automated boarding gate; facial recognition; automated border control; automated immigration gate; AI; artificial intelligence; chatbot; e-ticket; electronic ticket; e-boarding pass; electronic boarding pass; parking online payment; e-transfer gate; electronic transfer gate; electronic passport; e-passport

improve customer service and airport/airline efficiency (IATA, 2013). More SSTs are introduced to facilitate various stages of the passenger journey, from online reservation and ticketing to self-check-in, baggage drop-off, automated border control and immigration (e-gate), and self-boarding (Abdelaziz et al., 2010). Thai Air Asia reported over 50% of passengers using self-checking methods (AsiaAviation, 2019); the same figure for the global market is nearly 70% (SITA, 2023). Hence, airlines and airports continue to invest in SST for improving their customer services (SITA, 2022).

Although there are several reviews on SST, the focus is on the hospitality and tourism industry Amaro and Duarte (2013); Mohamad Suhaili et al. (2021); Shin and Perdue (2019); Shiwen et al. (2022); Solakis et al. (2022); Vakulenko et al. (2018); Vakulenko et al. (2019). Less attention is given to the aviation sector, although the recent pandemic required the sector to apply many SST services that require substantial funding that only airlines and airports can pay (but not easily applied in other sectors). Particularly, Kiliç et al. (2021) reviewed 193 airport-related papers to explore the areas of research related to innovation at airports. Alabsi and Gill (2021) examined 31 airport-related papers to discover passenger concerns about their information privacy during journeys through smart airports. Thums et al. (2023) analyzed 123 airport-related papers to explore the trends and developments of digital technologies in the workplace, in this case, the airports. Consequently, one could argue that there is a lack of a comprehensive review on the customer services in aviation using SST, not only for airports but also for airlines and the whole aviation sector. This study is the first to systematically address the following research questions to fill the gaps in the literature:

- (RQ1) What has been studied in aviation SST regarding customer services?
- (RQ2) What theories and variables have been discussed and applied so far?
- (RQ3) What could be future research direction(s) in aviation SST?

The rest of the paper is organized as follows. Section 2 describes the method used and the data collection strategy. Section 3 reports the key findings of the review and Section 4 discusses and proposes some future research directions.

2. Methodology

2.1. Systematic literature review

Systematic review could help researchers build background knowledge, form a theory, and define the gap from the evaluation of existing literature in the field (Snyder, 2019). Although systematic review was mainly conducted in the medical field, it has been increasingly implemented in other fields (Linnenluecke et al., 2020) such as business and management, including supply chain management (Carter & Easton, 2011), strategic management (Shujahat et al., 2017), marketing (Vrontis et al., 2021), and aviation, including air transport networks (de Oliveira et al., 2022), unmanned aerial vehicles (Merkert & Bushell, 2020; Wandelt, Wang, et al., 2023), airport service quality (Usman et al., 2022), aviation innovation (Pereira et al., 2021), and aircraft leasing (Wandelt, Sun, et al., 2023b).

2.2. Data collection

Aviation SST journal articles were extracted from SCOPUS databases using multiple search terms; note that conference papers were excluded because they may not be peer-reviewed. As self-service technologies were provided mainly by airlines and airports, the context keywords were “Airline” and “Airport” in combination with other keywords. Moreover, “Smart Airport” was also included in the search. Hence, a total of 61 search terms were used (see Table 1).

The data of each journal article, for example, title, author, abstracts, and keyword, are exported into a spreadsheet file. A total of 1,129 papers were retrieved, and 678 papers remained after removing duplications. However, the full-text articles have also been examined manually to screen for the following exclusion criteria:

- Articles that were non-peer-reviewed (63 articles removed)
- Articles that did not focus on customer service, for example, software engineering, programming, demand forecasting, and scheduling (446 articles removed)
- Articles that only used aviation as an example of SST (36 articles removed).
- Consequently, 133 journal articles remain. They were again assessed for eligibility regarding the following inclusion criterion:
- Articles that focused on aviation SST for customer services.

Thus, 35 journal articles were further excluded because their research focuses were diverted from aviation SST for customer services. In the end, a total of 98 journal articles remained for our analysis. We reported the process following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework of Moher et al. (2009), illustrated in Fig. 1 below.

After that, the data for our 98 journal articles were extracted and recorded regarding:

- Characteristics of the article: author(s), year of the publication, type of research, article title, journal title, keywords, and geographical scope of the studies.
- Study methodology: research approach(es), theory or model implemented, variable(s) used in those studies.
- Self-service technologies: types of self-service technologies focused by each study.

3. Results

3.1. Descriptive analysis

The number of journal articles included in the systematic literature review from 2000 (the oldest SST aviation research) to August 2023 (the cutoff point for data collection) was illustrated in Fig. 2, whereas aviation SST research has gained increasing attention since 2000.

We found that almost half of the 98 articles have been conducted in Asia (e.g., South Korea, Malaysia, and Hong Kong/Taiwan but not mainland China). Meanwhile, 17 articles were conducted in Europe (e.g., Spain, Netherlands, Ireland, and the UK) and another 15 articles examined the context of the US. Other places such as South America, Oceania, and Africa received little attention (Fig. 3).

The research design of the articles was assigned into 5 different categories following previous study (e.g., Wu et al., 2020), namely Case

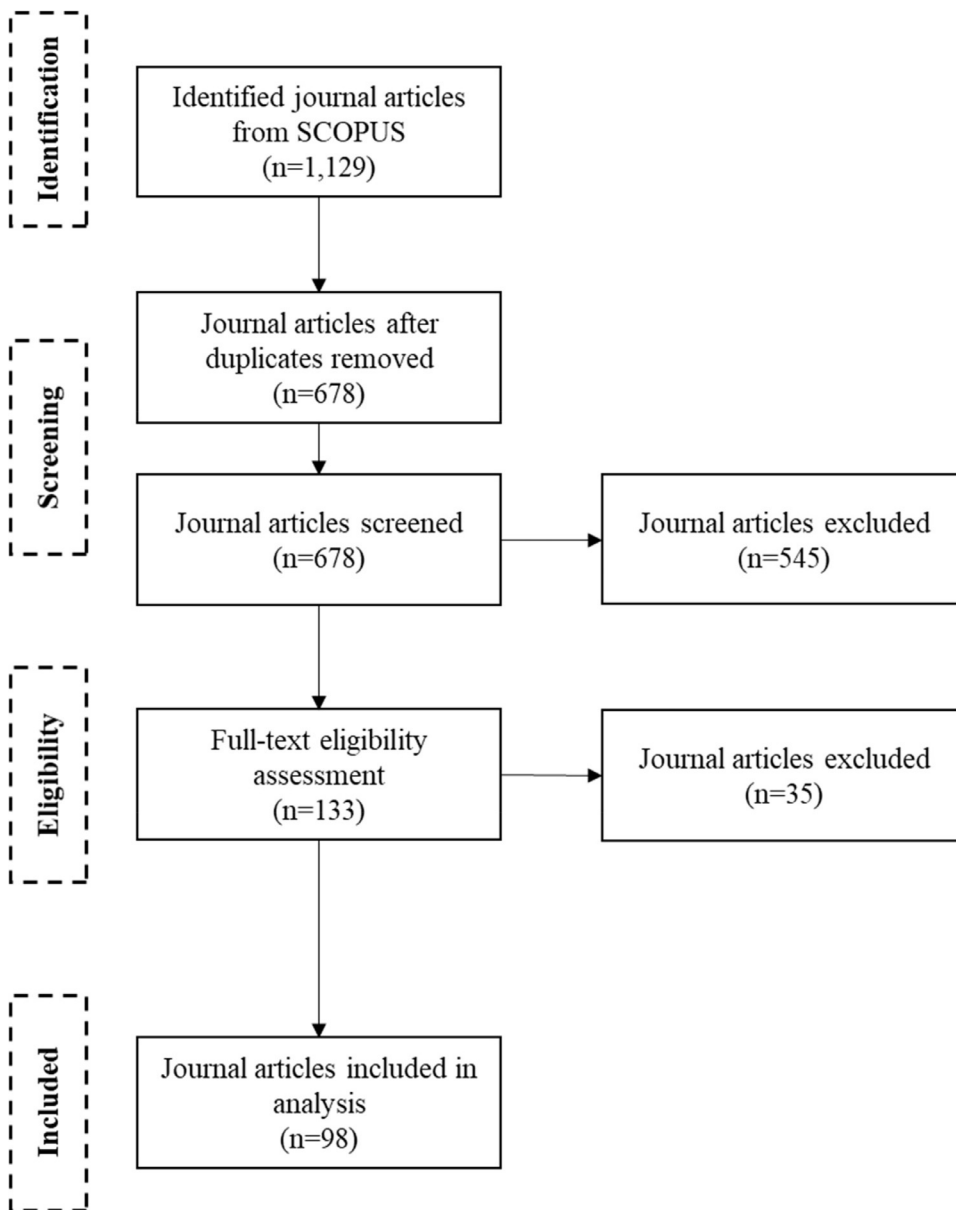


Fig. 1. The PRISMA flowchart reporting different stages of literature review.

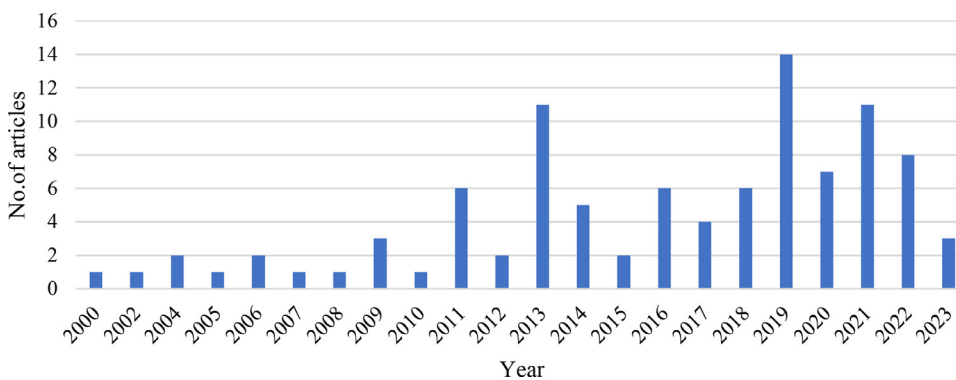


Fig. 2. Number of SST articles.

study, Empirical study, Review, Simulation/Optimization, and Survey. Note that articles belong to more than one category were assigned to the one of its main focuses. Fig. 4 illustrates that the design predominantly adopted in aviation SST studies is the survey approach which is not surprising as the nature of the research was based on customer perspectives, and the survey is a cost-saving and efficient way to do that.

Table 2 further summarizes the self-service technologies (SSTs) studied in aviation since 2000. SST studies can be categorized into three groups based on the number of articles. The most popular group includes self-check-in kiosks, web/e-ticketing, and web check-in. The moderately popular group includes automated border control and self-security identity verification. The less popular or emerging group includes mobile

Table 2
Aviation SSTs being studied over time.

SSTs	2000	2002	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Self-Check-in Kiosks		1			1		1	2		3	1	2	2	2	2	1	2	5	1	5	1	1	31
Web/e-Ticketing	1		2	1	1	1		1		2	1	5	1	1	1	1	1	3	1	1	1	2	23
Overall SST									1		2	2	1	1	1	2	1	1	2	4	4	2	21
Web Check-in					1					2	2	2	1	3	3	1	1	1		2			12
(PC/Laptop/Mobile)												1		1	1			2	2				7
Self-Security Identity Verification					1							1	2	1	1		1		1				7
Automated Border Control					1							1											7
Mobile App											1					1			1	1	1		5
Ticketing																1							5
Self-baggage Drop																		2		1	1		4
Service Robot																		1	1	1	1		4
Biometric Check-in																		1		1			3
Mobile App					1																		3
Check-in					1					1							1				2		2
Chatbot																							2
Self-boarding																			1	1			2

application ticketing and check-in, self-baggage drops, service robots, chatbots, and biometric check-in. Research primarily focused on check-in (including baggage drop-off), with 54 articles (around 55%). Mobile check-in received limited attention, while self-baggage drops, biometric check-in, automated border control, and self-security identity verification gained interest in recent years (Gures et al., 2018; Lien et al., 2021; Moon & Lee, 2022).

Many theories and frameworks have been applied to aviation SST studies since 2000, as illustrated in Table 3. Accordingly, the frequently used theories/frameworks are the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), and the Extended Unified Theory of Acceptance and Use of Technology (UTAUT2). There is, however, a trend to integrate different frameworks/models such as TAM/TPB, TAM/SERVQUAL, TAM/e-SQ, and TAM/ECT.

We further investigate the top independent and dependent variables used in the aviation SST literature and list them in Table 4 and 5, respectively. For the *independent variables*, the most popular ones are ‘perceived ease of use’ and ‘perceived usefulness’ - these two are the main variables of the TAM model. It is observed that most of those independent variables are desirable ones, following the original frameworks of TAM and TPB. The undesirable variables (e.g., ‘perceived risk’) are involved only in recent publications, despite that the aviation industry is increasingly raising concerns about the safety issue and the environment. For the *dependent variables*, the most popular is ‘adoption intention’, followed by ‘attitude toward SST’ and ‘satisfaction with SST’. Resembling the independent variables, the undesirable perception and behavior received little attention.

3.2. Content and Thematic Analyses

The bibliographic coupling was conducted to examine the research focuses on aviation SST. Using VOSviewer, the preliminary analysis revealed three main clusters, including 58 out of 98 journal articles (Fig. 5). After investigating each cluster, three main themes emerged: customer SST adoption, customer satisfaction, and customer experience. Therefore, the thematic analysis of this literature review will focus on these themes. All 98 journal articles were reviewed and assigned to each theme. These themes were somehow inter-connected. Several articles combine different themes, whereas others focus strongly on only one theme. Therefore, the data in Fig. 6 contained multiple counts for articles that fall into more than one theme. Overall, most of the attention has been given to the customer adoption of aviation SST (54.14%), followed by customer satisfaction (25.23%) and customer experience (19.63%). Customer adoption was an early attractive theme in aviation SST research and has continuously received attention from researchers, whilst customer satisfaction and customer experience have gained more attention in the past decade.

3.3. Customer adoption

From the 98 selected articles, 59 were categorized into customer adoption theme. The most cited article was by Liljander et al. (2006), followed by Lu et al. (2019), Kim et al. (2009), Gupta et al. (2004), and Escobar-Rodríguez and Carvajal-Trujillo (2013), and so on. These authors studied customer adoption via Technology Readiness (TR), Diffusion of Innovations (DI), and Service Robot Integration Willingness (SRIW), under the viewpoint of the TAM/TPB/UTAUT2 frameworks (see Table 6). It was reasonable to see these kinds of theories being implemented in customer adoption research because they were trying to explain customer intention and actual behavior, in this case, SST adoption (Ajzen, 1991; Davis, 1986; Fishbein & Ajzen, 1975; Venkatesh & Davis, 2000; Venkatesh et al., 2003). Also note that many articles did not state clearly which theory or framework the variables were from, maybe because they used a mixed-framework, and were categorized as “not identified”.

Table 3
Theory/framework adopted over time.

Theory/Framework	2000	2002	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Not identified		1		1	1		1	1		1		5	2		2	2	3	4	5	3	1	3	36
TAM			1					1		1		2	2	1	1	1		4	1	3			18
TPB												1						1		3			5
e-Service Quality										2		1			1								4
Technology Readiness					1					1	1									1			4
Attribution Theory												1								2			3
UTAUT2												1								1			3
SERVQUAL															1								3
SSTQUAL																	1			1	1		3
Expectancy Theory			1									1											2
Expectation												1					1						2
Confirmation Theory																							2
TAM2								1														1	2
Diffusion of Innovations											1											1	2
Self-determination Theory																				1	1		2
Service-dominant Logic																1				1			2
Stimulus-Organism-Response																		1			1		2
Theory of Trust											1											1	2
Transfer																							2

5

Table 4
Top independent variables being studied over time.

IVs	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Perceived Ease of Use			1	2		1		2	1	1	2	1		5	1	3	1		21
Perceived Usefulness				2				2	1	1	1	1	1	5	1	3	1		19
Attitude toward SST		1		2			1	1	2	1	1			1		4	1		15
Satisfaction with SST						1					1		3	2		1	1	1	10
SST Quality				1				1	1		1		2		1	1	1		9
Subjective Norms				1			1	1			1	1	1	1		2			9
Age						1		1	1				1	1		2	1		8
Perceived Enjoyment					1			1			1	1	1	3					8
Innovativeness	1					1			1					1		3			7
Perceived Risk				1					1		1			3	1				7

Notes: Most of the extracted variables were generalized to simplify the report. The names of variables that were unique, unclear, or had similar names with theory but different intentions remained unchanged.

Table 5
Top dependent variables being studied over time.

DVs	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Adoption Intention	1	1		2			1	4	3	1	2	1		5	2	4	2		29
Attitude toward SST	1	1		2			1	1	2	1	1			2		3	1		16
Satisfaction with SST				2		3			2				3	2		3	1		16
Perceived Usefulness				2				1	1	1		1	1	4	1	2			14
Perceived Ease of Use				1		1			2					2	1	2			9
Satisfaction with SST Provider										1	1	1		1	1	2			7
Actual Use								2	1			1	1						5
Customer Loyalty								1			1					1			4
Perceived Value						1		1		1									4
Purchase Intention						1		1							1		1		4

Notes: Most of the extracted variables were generalized to simplify the report. The names of variables that were unique, unclear, or had similar names with theory but different intentions remained unchanged.

Table 6
Most applied theories/frameworks in SST adoption research.

Theory/Framework	Main Reference	Articles
Technology Acceptance Model	Davis (1986)	17
Not identified	-	16
Theory of Planned Behavior	Ajzen (1991)	5
Technology Readiness	Parasuraman (2000)	4
Extended Unified Theory of Acceptance and Use of Technology	Venkatesh et al. (2012)	3
Extended Technology Acceptance Model	Venkatesh and Davis (2000)	2
Diffusion of Innovations	Rogers (2003)	2
Stimulus-Organism-Response	Mehrabian and Russell (1974)	2
Theory of Trust Transfer	Stewart (2003)	2
Artificially Intelligent Device Use Acceptance	Gursoy et al. (2019)	1

Table 7
Most applied theories/frameworks in customer satisfaction research.

Theory/Framework	Main Reference	Articles
Not identified	-	16
Technology Acceptance Model	Davis (1986)	3
e-Service Quality	Zeithaml et al. (2000); Santos (2003)	3
SSTQUAL	Lin and Hsieh (2011)	2
Attribution Theory	Kelley and Michela (1980); Feldman (1981)	2
Expectation-confirmation Theory	Oliver (1980)	2
Unified Theory of Acceptance and Use of Technology	Venkatesh et al. (2003)	1
Kano Model	Kano (1984)	1
Means-end Theory	Zeithaml (1988)	1
Stimulus-Organism-Response Model	Mehrabian and Russell (1974)	1
Self-determination Theory	Deci and Ryan (2012)	1
SERVQUAL	Parasuraman et al. (1988)	1

Furthermore, the hypotheses of each article were extracted. It should be noted that some variables were studied as both an independent and dependent role. The two main independent variables from TAM, *perceived ease of use* and *perceived usefulness*, were studied in 19 and 18 articles, respectively. Followings are *attitude toward SST* (14 articles), *subjective norms* (8 articles), *age*, *perceived enjoyment*, and *perceived risk* (7 articles each), and *innovativeness* and *perceived behavioral control* (6 articles each). Several theories hypothesized that behavioral intention led to actual use (Ajzen, 1991; Davis, 1986; Venkatesh & Davis, 2000; Venkatesh et al., 2003). Therefore, *adoption intention* was also studied as an independent variable (5 articles). For dependent variables, *adoption intention* was studied the most (29 articles), followed by *attitude toward SST* (16 articles). *Perceived usefulness* and *perceived ease of use* were also studied as dependent variables in 13 and 9 articles, respectively. *Actual use* and *satisfaction with SST* were studied in 5 articles each.

3.4. Customer satisfaction

Customer satisfaction was the next popular theme among the aviation SST literature (see Fig. 6). The study of Chen and Wang (2016) on customer satisfaction and loyalty was cited the most, followed by the study of Misopoulos et al. (2014) on customer satisfaction and dissatisfaction. Other linkages include the relationship between the efficiency of SST, hedonic quality, and customer loyalty (Llach et al., 2013), passenger satisfaction and SST (Bogicevic et al., 2017), and the moderating effect of the TAM variable on passenger satisfaction (Lee & Wu, 2011). Regarding theories and frameworks, TAM and e-SQ were the most popular, followed by SSTQUAL, the Attribution Theory, and the Expectation-confirmation Theory (see Table 7).



Fig. 3. Geographical locations of the sampled countries in aviation SST research.

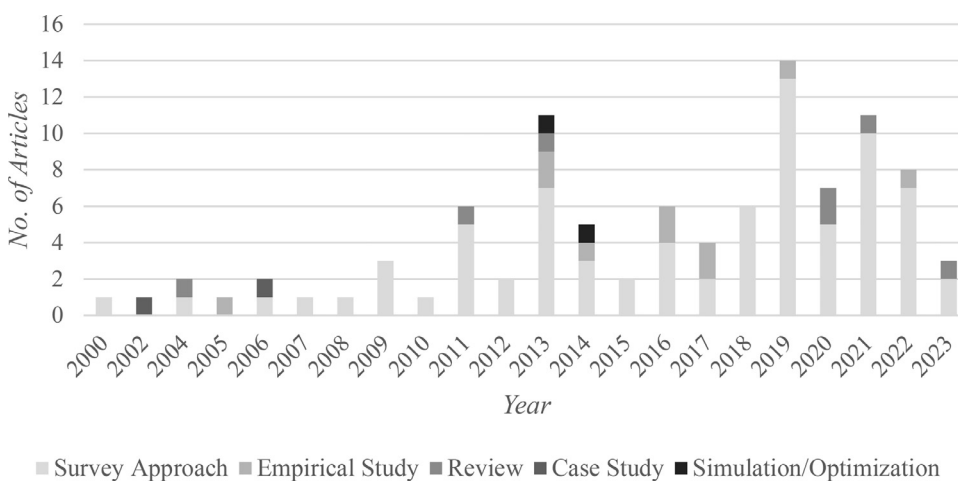


Fig. 4. Research designs of the aviation SST literature.

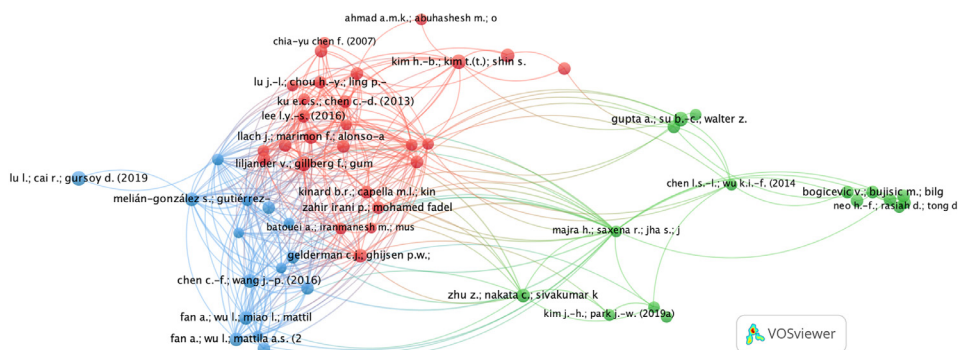


Fig. 5. The three themes of aviation SST studies.

Additionally, the independent and dependent variables were investigated. First, *satisfaction with SST* was studied the most as the independent variable (10 articles), followed by *SST quality* (5 articles), *perceived ease of use* and *satisfaction with SST providers* (4 articles each), and *age*, *perceived enjoyment*, *perceived usefulness*, and *perceived value* (3 articles each). As the dependent variable, *satisfaction with SST* and *satisfaction with SST providers* were studied in 15 and 7 articles, respectively, followed by *customer loyalty* and *perceived value* (4 articles each), and *perceived usefulness* (3 articles).

3.5. Customer experience

The most cited article was [Zeng et al. \(2020\)](#), who reviewed and suggested how COVID-19 could foster the implementation of SST and en-

hance the customer experience in many industries, including aviation. This is followed by [Zhu et al. \(2013\)](#) on customer recovery from SST service failure, [Kim et al. \(2017\)](#) on (negative) customer reviews of SST at tourism destinations, and [Misopoulos et al. \(2014\)](#) on customer experience and its influence on customer satisfaction and dissatisfaction. While some theories have been applied in a few articles, for example, Self-determination Theory and Service-dominant Logic (2 articles each), 11 articles did not mention it. Considering the variables used in the articles, there were also no highly studied variables, either independent or dependent. Note that unlike customer adoption and satisfaction research, more than half of the customer experience research implemented other methodologies than surveys with hypotheses testing, such as literature review, interview, and text mining (see [Table 8](#)).

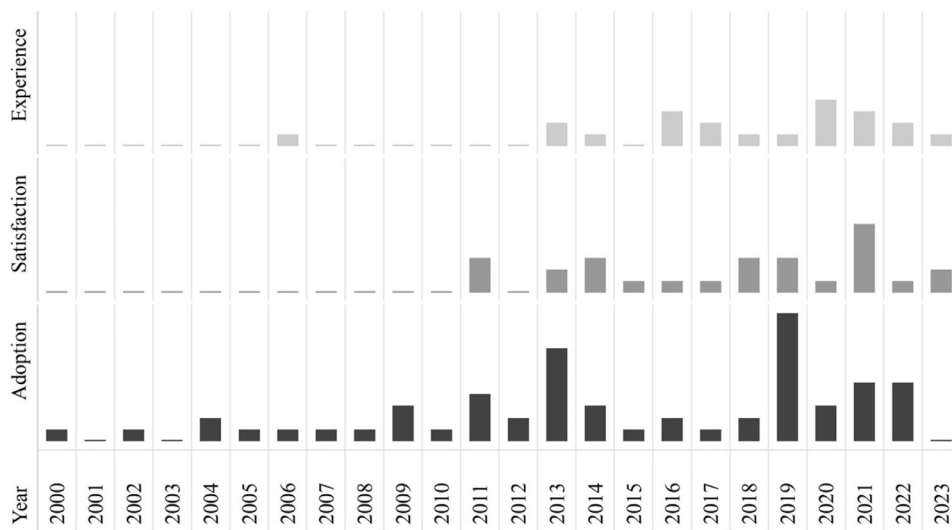


Fig. 6. The three themes over time.

Table 8
Most applied theories/frameworks in customer experience research

Theory/Framework	Main Reference	Articles
Not identified	-	12
Self-determination Theory	Deci and Ryan (2012)	2
Service-dominant Logic	Vargo and Lusch (2004); Vargo and Lusch (2008)	2
SERVQUAL	Parasuraman et al. (1988)	1
Social Practice Theory	Schatzki (1996); Watson et al. (2012)	1
Resource Mapping Framework	Maglio and Spohrer (2008)	1
Expectancy Theory	Heider (2013)	1
Customer Participation Theory	Chan et al. (2010)	1
e-Service Quality	Zeithaml et al. (2000); Santos (2003)	1
Attribution Theory	Kelley and Michela (1980); Feldman (1981)	1
Social Response Theory	Nass and Moon (2000)	1

3.6. Discussions and future research directions

Aviation self-service technology research has attracted scholars since 2000, and the increasing number of journal articles illustrates that the topic has gained more attention. The objectives of this study were to offer an overview of aviation SST research, theories and factors that have been investigated from a customer service perspective and provide research gaps. 98 journal articles from 2000 until August 2023 have been reviewed following the systematic literature review process. Several important findings from the systematic literature review are emphasized and discussed.

3.7. The geographical issue

We found an unbalanced interest among the aviation SST literature regarding the sampled countries or regions of research. In particular, the reviewed articles concentrated more on the United States, Europe, and Asia, while South America, Africa, and Oceania received much less interest. Interestingly, research focusing on mainland China and Japan is rare even though some airports in these countries are among the top 10 best regional airports in Asia (Skytrax, 2023), and they belong to Asia. While it may be due to our sampling method, which only includes published articles in English and therefore excludes local publications published in another language, it still indicates a need for further examinations of customer services (in aviation) using SST in those regions, or even for multiple regions, such as in Lu et al. (2011), Lee (2016), and Rubio-Andrada et al. (2023).

3.8. The technological issue

In terms of the technologies being studied in aviation SST, self-check-in kiosks and web/e-ticketing received the most attention as they were integrated into the traditional services in an early stage of SST implementation and widely available. However, with the advancement of new technologies, modern SSTs (e.g., chatbots, biometric check-in, self-boarding) are being integrated more widely. It is noted that while general chatbots such as ChatGPT have found their way into aviation education and research (Wandelt, Sun, et al., 2023a), airlines and airports still tailor their own chatbots specifically for customer service purposes. Consequently, future research may investigate the drivers and barriers to passenger adoption of these modern SSTs. Given that each SST has different characteristics and requirements and may be used in different contexts, it is important to both focus on a particular SST (e.g., biometric check-in) and the multiple usage of several SSTs (e.g., for the pre-flight or airport-related processes) to provide insights about customer services (Gelderman et al., 2011). Lastly, the passenger journey will be more automated in the future, meaning that passengers may have to perform most of the tasks by themselves. Hence, it is worth investigating the passenger perceptions toward the automated journey so that airline and airport can better design their process.

3.9. The technical issue

Although the TAM and TPB frameworks will continue its predominant role resulting from the most attention scholars have given to customer SST adoption research, it is encouraged that future study should

apply newer frameworks that can incorporate two or more models (e.g., TAM/TPB, TAM/SERVQUAL, TAM/e-SQ, and TAM/ECT) into a single study to provide a broader assessment on customers service SST as suggested in Thamaraiselvan and Thanigaiarul (2019), Kasim et al. (2021), and Lien et al. (2021), among others. Moreover, researchers may apply more context-specific frameworks, such as SRIW (Lu et al., 2019) and AIDUA (Gursoy et al., 2019) to best answer their research objectives.

With the increasing use of SST by passengers, more research has been conducted not only on the level of satisfaction but also on what led to the satisfaction of passengers. Studies have supported that the service quality of the SST increases passenger satisfaction (Lee & Wu, 2011; Moon et al., 2021; Yusra & Agus, 2018). The quality of aviation SST service was measured using different frameworks, for example, the e-SQ (Lau et al., 2011; Lee & Wu, 2011; Llach et al., 2013), SSTQUAL (Suwannakul & Khetjenkarn, 2022; Yusra & Agus, 2018), and SERVQUAL (Lestari & Ellyawati, 2019). Other than the satisfaction with SST, researchers investigated further that the quality or performance of SST could eventually lead to passenger satisfaction with SST providers, which are airlines and airports (Batouei et al., 2020; Bogicevic et al., 2017). However, the studies regarding how SST could create customer loyalty until now were still limited (Chen & Wang, 2016; Moon et al., 2021; Suwannakul & Khetjenkarn, 2022; Yusra & Agus, 2018). Understanding what aspects of SST could lead to increased customer loyalty can benefit the service providers.

Regarding the variables used, perceived ease of use, perceived usefulness, and attitude toward SST were the most studied independent variables. On the other hand, the most popular dependent variables were adoption intention, attitude toward SST, and satisfaction with SST. However, the result of the core hypotheses of TAM was not consensus. For example, while the effect of perceived ease of use on adoption intention was accepted by some research (Ko & Park, 2019; Naruetharadhol et al., 2022; Taufik & Hanafiah, 2019), it was rejected by the others (Kasim et al., 2021; Lien et al., 2021; Mohd Suki & Mohd Suki, 2017). This could result from the existing differences in passenger demographics, such as age, nationality, and purpose of travel, which required more investigations. Although the relationship between behavioral intention and actual technology usage was a core hypothesis of TAM, it was noticeable that no study investigated this relationship in the aviation SST context. To test whether someone who stated an intention to use the technology would actually use it, the data on the actual usage must be collected separately after introducing the specific technology. In other words, passengers may state that they intend to use the SST but may or may not actually use it. This posed challenges to the data collection as it may not be feasible to contact the same passengers again. The future investigation of this relationship using longitudinal data can fill the gap in aviation SST adoption research.

Less attention was given to the undesirable ones as they were not originally introduced in the popular frameworks of TAM, TPB, and UTAUT. Future studies could investigate more about the role of, for instance, insecurity, discomfort, privacy concerns, anxiety, and avoidance intention. In addition, the environmental mindset of passengers received little attention in the aviation SST research (Miskolczi et al., 2021). Since the aviation industry is expected to recover from the pandemic within 2024 (IATA, 2022a) and the environmental challenge lies ahead, the factors related to the green mindset of the passengers, green initiatives, and green image of airlines and airports should be paid more attention.

Passengers could face failure from the SST sometimes during the service encounter and must find a way to recover from it by themselves. Unlike the traditional service encounter, human employees usually deal with service failure. However, service failure and self-recovery in aviation SST have attracted only a few research (Chiu & Nguyen, 2022; Fan et al., 2016; Fan et al., 2020; Zhu et al., 2013). Future research on this topic could help companies design more suitable SST services to

cope with different scenarios that passengers may encounter. Moreover, some SSTs are being integrated with human-like (or anthropomorphism) features, for example, kiosks that use human-like voice or chatbots that reply more naturally, which could be an attractive feature that passengers are looking for. The research on the anthropomorphism of the SST could reveal new information that could be used to attract more passengers to use SST and enhance their experience. While the ultimate goal of airlines and airports is to automate passenger processing, research in forced-use situations is scarce. Research to explore the experience of such a situation can help the company manage the service and reduce the negative outcomes (Feng et al., 2019).

It is further noticed that businesses nowadays are not only concerned about their short-term profits but also about their long-term sustainable development, including the environmental, social, and governance (ESG) impacts. Many airlines have published sustainability reports, including plans and goals for improving their employee well-being. However, research in aviation SST for customer service mostly approaches from a customer point of view, for instance, customer adoption, satisfaction, and experience. Future research from an employee's perspective is needed on how the implementation of SST impacts their roles, performance, and well-being. In addition, with smarter airports and airlines, educational challenges arise on how to make sure that aviation personnel possess the skills required to safely operate together with the technology and for the jobs that may be created by future technological transformation (Sun et al., 2021).

3.10. Limitations

The current study has some limitations to address. Firstly, this study contained only peer-reviewed journal articles. Future studies may include conference papers or book chapters in the review process for more coverage. Moreover, the search was limited to the SCOPUS database. Incorporating publications from other databases, such as Web of Science and Google Scholar, could reveal additional insights. Finally, the review included only publications in English. Therefore, the future study may include publications in other languages for a more comprehensive review.

Data availability

Data were collected from SCOPUS.

Declaration of Competing Interests

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Phutawan Ho Wongyai reports financial support and administrative support were provided by Massey University. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRedit authorship contribution statement

Phutawan Ho Wongyai: Writing – original draft, Methodology, Formal analysis, Conceptualization. **Thanh Ngo:** Writing – review & editing, Supervision, Conceptualization. **Hanjun Wu:** Writing – review & editing, Methodology. **Kan Wai Hong Tsui:** Writing – review & editing. **Thu-Huong Nguyen:** Writing – review & editing.

Appendix 1

Table A1

Table A1

List of 98 articles included in the systematic review.

Year	Title	Author(s)	Journal
2000	Privacy policies of air travel web sites: A survey and analysis	Nyshadham E.A.	Journal of Air Transport Management
2002	Online kiosks: The alternative to mobile technologies for mobile users	Slack F.; Rowley J.	Internet Research
2004	An empirical study of consumer switching from traditional to electronic channels: A purchase-decision process perspective	Gupta A.; Su B.-C.; Walter Z.	International Journal of Electronic Commerce
2004	Information exchanges associated with Internet travel marketplaces	Smith A.D.	Online Information Review
2005	Barriers to online booking of scheduled airline tickets	Klein S.; Köhne F.; Öörni A.	Journal of Travel and Tourism Marketing
2006	Biometrics: The next frontier in service excellence, productivity and security in the service sector	Heracleous L.; Wirtz J.	Managing Service Quality
2006	Technology readiness and the evaluation and adoption of self-service technologies	Liljander V.; Gillberg F.; Gummerus J.; van Riel A.	Journal of Retailing and Consumer Services
2007	Passenger use intentions for electronic tickets on international flights	Chia-Yu Chen F.	Journal of Air Transport Management
2008	Do airline self-service check-in kiosks meet the needs of passengers?	Chang H.-L.; Yang C.-H.	Tourism Management
2009	Investigating passengers intentions to use technology-based self check-in services	Lu, J.-L.; Chou, H.Y.; Ling, P.C.	Transportation Research Part E: Logistics and Transportation Review
2009	Modeling roles of subjective norms and eTrust in customers' acceptance of airline B2C eCommerce websites	Kim H.-b.; Kim T.(T.); Shin S.W.	Tourism Management
2009	The impact of social presence on technology based self-service use: The role of familiarity	Kinard B.R.; Capella M.L.; Kinard J.L.	Services Marketing Quarterly
2010	How motivation, opportunity and ability can drive online airline ticket purchases	Bigné E.; Hernández Blanca B.; Ruiz C.; Andreu L.	Journal of Air Transport Management
2011	Acceptance of self-service check-in at Zurich airport	Wittmer A.	Research in Transportation Business and Management
2011	Determinants of passengers' choice of airline check-in services: A case study of American, Australian, Korean, and Taiwanese passengers	Lu J.-L.; Choi J.K.; Tseng W.-C.	Journal of Air Transport Management
2011	Choosing self-service technologies or interpersonal services-The impact of situational factors and technology-related attitudes	Gelderman C.J.; Ghijsen P.W.; van Diemen R.	Journal of Retailing and Consumer Services
2011	Airline e-ticketing service: How e-service quality and customer satisfaction impacted purchase intention	Lau T.-C.; Kwek C.-L.; Tan H.-P.	International Business Management
2011	Moderating effects of technology acceptance perspectives on e-service quality formation: Evidence from airline websites in Taiwan	Lee F.-H.; Wu W.-Y.	Expert Systems with Applications
2011	From self-service to super-service: A resource mapping framework for co-creating value by shifting the boundary between provider and customer	Campbell C.S.; Maglio P.P.; Davis M.M.	Information Systems and e-Business Management
2012	Do offline factors trigger customers' appetite for online continual usage?: A study of online reservation in the airline industry	Al-Hawari M.A.; Mouakket S.	Asia Pacific Journal of Marketing and Logistics
2012	The Effect of Technology Readiness on Customers' Attitudes toward Self-Service Technology and Its Adoption; The Empirical Study of U.S. Airline Self-Service Check-In Kiosks	Lee W.; Castellanos C.; Chris Choi H.S.	Journal of Travel and Tourism Marketing
2013	Check-in services and passenger behaviour: Self service technologies in airport systems	Castillo-Manzano J.I.; López-Valpuesta L.	Computers in Human Behavior
2013	Airlines, apps, and business travel: A critical examination	Budd L.; Vorley T.	Research in Transportation Business and Management
2013	An analysis of the relationship between travel preferences and intentions to use registered traveler biometric systems in air travel	Morosan C.	Journal of Hospitality and Tourism Technology
2013	Determinants of online booking loyalties for the purchasing of airline tickets	Llach J.; Marimon F.; Alonso-Almeida M.D.M.; Bernardo M.	Tourism Management
2013	Customer decision-making processes and motives for self-service technology usage in multi-channel hospitality environments	Kelly P.; Lawlor J.; Mulvey M.	International Journal of Electronic Customer Relationship Management
2013	Fitting facilities to self-service technology usage: Evidence from kiosks in Taiwan airport	Ku E.C.S.; Chen C.-D.	Journal of Air Transport Management
2013	Key drivers of consumer purchase of airline tickets: A cross-cultural analysis	Ruiz-Mafe C.; Sanz-Blas S.; Hernandez-Ortega B.; Brethouwer M.	Journal of Air Transport Management
2013	Online drivers of consumer purchase of website airline tickets	Escobar-Rodríguez T.; Carvajal-Trujillo E.	Journal of Air Transport Management
2013	Self-Service Technology Versus Traditional Service: Examining Cognitive Factors In The Purchase Of The Airline Ticket	López-Bonilla J.M.; López-Bonilla L.M.	Journal of Travel and Tourism Marketing
2013	The antecedents of travellers' e-satisfaction and intention to buy airline tickets online: A conceptual model	Zahir Irani P.; Mohamed Fadel Bukhari S.; Ghoneim A.; Dennis C.; Jamjoom B.	Journal of Enterprise Information Management
2013	Fix It or Leave It? Customer Recovery from Self-service Technology Failures	Zhu Z.; Nakata C.; Sivakumar K.; Grewal D.	Journal of Retailing
2014	Uncovering customer service experiences with Twitter: The case of airline industry	Misopoulos F.; Mitic M.; Kapoulas A.; Karapiperis C.	Management Decision

(continued on next page)

Table A1 (continued)

Year	Title	Author(s)	Journal
2014	Antecedents of intention to use CUSS system: moderating effects of self-efficacy	Chen L.S.-L.; Wu K.I.-F.	Service Business
2014	Empirical analysis of a self-service check-in implementation in Singapore Changi Airport	Lee C.K.M.; Ng Y.; Lv Y.; Taezoon P.	International Journal of Engineering Business Management
2014	The use of e-passports for inbound airport border security screening: The passenger perspective	Kneale D.K.; Baxter G.S.; Wild G.	Aviation
2014	Biometric technology and privacy: a perspective from tourist satisfaction	Neo H.-F.; Rasiah D.; Tong D.Y.K.; Teo C.-C.	Information Technology and Tourism
2015	Self-consciousness profiles in the acceptance of airline e-ticketing services	López-Bonilla J.M.; López-Bonilla L.M.	Anatolia
2015	Services innovation impact to customer satisfaction and customer value enhancement in airport	Chen J.K.C.; Batchuluun A.; Batnasan J.	Technology in Society
2016	Structuring Technology Applications for Enhanced Customer Experience: Evidence from Indian Air Travellers	Majra H.; Saxena R.; Jha S.; Jagannathan S.	Global Business Review
2016	Customer participation, value co-creation and customer loyalty - A case of airline online check-in system	Chen C.-F.; Wang J.-P.	Computers in Human Behavior
2016	Does anthropomorphism influence customers' switching intentions in the self-service technology failure context?	Fan A.; Wu L.; Mattila A.S.	Journal of Services Marketing
2016	Managing airport service quality – The impact of self-service technologies	Otieno P.S.; Govender K.	Investment Management and Financial Innovations
2016	An empirical examination of U.S. travelers' intentions to use biometric e-gates in airports	Morosan C.	Journal of Air Transport Management
2016	Hospitality Industry Web-Based Self-Service Technology Adoption Model: A Cross-Cultural Perspective	Lee L.Y.-S.	Journal of Hospitality and Tourism Research
2017	Customer Roles in Self-Service Technology Encounters in a Tourism Context	Kelly P.; Lawlor J.; Mulvey M.	Journal of Travel and Tourism Marketing
2017	The impact of traveler-focused airport technology on traveler satisfaction	Bogicevic V.; Bujisic M.; Bilgihan A.; Yang W.; Cobanoglu C.	Technological Forecasting and Social Change
2017	Flight ticket booking app on mobile devices: Examining the determinants of individual intention to use	Mohd Suki N.; Mohd Suki N.	Journal of Air Transport Management
2017	What makes tourists feel negatively about tourism destinations? Application of hybrid text mining methodology to smart destination management	Kim K.; Park O.-J.; Yun S.; Yun H.	Technological Forecasting and Social Change
2018	Assessing the self-service technology usage of Y-Generation in airline services	Gures N.; Inan H.; Arslan S.	Journal of Air Transport Management
2018	The influence of perceived service quality towards customer satisfaction and Loyalty in Airasia self check-in system	Yusra; Agus A.	Journal of Social Sciences Research
2018	Air passengers' willingness to pay for counter check-in services	Kuo C.-W.; Jou R.-C.	Transportation Research Part A: Policy and Practice
2018	Moderating effect of privacy concerns and subjective norms between satisfaction and repurchase of airline e-ticket through airline-ticket vendors	Liang C.-C.; Shiau W.-L.	Asia Pacific Journal of Tourism Research
2018	The requirement of accessibility: European automated border control systems for persons with disabilities	Oostveen A.-M.; Lehtonen P.	Technology in Society
2018	Analyzing customer satisfaction in self-service technology adopted in airports	Yau H.K.; Tang H.Y.H.	Journal of Marketing Analytics
2019	Adding or destroying value? User experiences of tourism self-service technologies	Kelly P.; Lawlor J.	Journal of Hospitality and Tourism Insights
2019	The effect of TBSS relational benefit on relational commitment and willingness to buy again: Focusing on customers using technology-based self service of airlines	Ko S.-H.	International Journal of Innovative Technology and Exploring Engineering
2019	The effect of airport self-service characteristics on passengers' perceived value, satisfaction, and behavioral intention: Based on the SOR model	Kim J.-H.; Park J.-W.	Sustainability (Switzerland)
2019	The effect of airport self-service characteristics on passengers' technology acceptance and behavioral intention	Kim J.-H.; Park J.-W.	Journal of Distribution Science
2019	Effect of customer readiness on technology-based self-service quality and usage intention	Ko S.-H.; Park J.-M.	International Journal of Innovative Technology and Exploring Engineering
2019	Understanding the attitudes and purpose for the usage of self-service technologies (SSTs) at the airports	Thamaraiselvan N.; Thanigaiarul S.	International Journal of Recent Technology and Engineering
2019	Effect of E-Service quality on repurchase intention: Testing the role of e-satisfaction as mediator variable	Lestari V.T.; Ellyawati J.	International Journal of Innovative Technology and Exploring Engineering
2019	A study on passenger experience using smart security system in Dubai airport	Kamalrudin M.; Abdulla Almarri G.	International Journal of Recent Technology and Engineering
2019	Acceptance of biometric technology in airport check-in	Negri N.A.R.; Borille G.M.R.; Falcão V.A.	Journal of Air Transport Management
2019	Airport passengers' adoption behaviour towards self-check-in Kiosk Services: the roles of perceived ease of use, perceived usefulness and need for human interaction	Taufik N.; Hanafiah M.H.	Heliyon
2019	Determining intention to buy air e-tickets in Malaysia	Lee K.-F.; Haque A.; Maulan S.; Abdullah K.	Management Science Letters
2019	Developing and validating a service robot integration willingness scale	Lu L.; Cai R.; Gursoy D.	International Journal of Hospitality Management

(continued on next page)

Table A1 (continued)

Year	Title	Author(s)	Journal
2019	Integrating qualitative comparative analysis and support vector machine methods to reduce passengers' resistance to biometric e-gates for sustainable airport operations	Kim C.; Costello F.J.; Lee K.C.	Sustainability (Switzerland)
2019	Understanding forced adoption of self-service technology: the impacts of users' psychological reactance	Feng W.; Tu R.; Lu T.; Zhou Z.	Behaviour and Information Technology
2020	Components of airport experience and their roles in eliciting passengers' satisfaction and behavioural intentions	Batouei A.; Iranmanesh M.; Mustafa H.; Nikbin D.; Ping T.A.	Research in Transportation Business and Management
2020	Revolution of artificial intelligence and the internet of objects in the customer journey and the air sector	Saadi H.; Touhami R.; Yagoub M.C.E.	Journal of Information Technology Management
2020	A study on the customer attitudes toward the airport IT service: Focusing on handling process and acceptance intention	Park H.-Y.	Journal of Distribution Science
2020	E-WOM and airline e-ticket purchasing intention: Mediating effect of online passenger trust	Ahmad A.M.K.; Abuhashesh M.; Obeidat Z.; AlKhatib M.J.	Management Science Letters
2020	From high-touch to high-tech: COVID-19 drives robotics adoption	Zeng Z.; Chen P.-J.; Lew A.A.	Tourism Geographies
2020	When does technology anthropomorphism help alleviate customer dissatisfaction after a service failure?—The moderating role of consumer technology self-efficacy and interdependent self-construal	Fan A.; Wu L.; Miao L.; Mattila A.S.	Journal of Hospitality Marketing and Management
2020	The intention of passengers towards repeat use of biometric security for sustainable airport management	Kim C.; Lee K.C.; Costello F.J.	Sustainability (Switzerland)
2021	Customer service vs self-servicequality experiment: which one is a better strategy forairlines in indonesia	Soelasih Y.; Suman	Academy of Strategic Management Journal
2021	Self-service technology adoption by air passengers: a case study of fast air travel services in Taiwan	Lien C.-H.; Hsu M.K.; Shang J.-Z.; Wang S.W.	Service Industries Journal
2021	Role of Technology Readiness in Airline Passengers' Perceptions of Self-service Technology Quality	Suwannakul E.	African Journal of Hospitality, Tourism and Leisure
2021	Passengers' perceptions on the use of biometrics at airports: A statistical model of the extended theory of planned behavior	Kasim K.O.; Winter S.R.; Liu D.; Keebler J.R.; Spence T.B.	Technology in Society
2021	Passengers intentions towards self-services check-in, Kuwait airport as a case study	AlKheder S.	Technological Forecasting and Social Change
2021	Airport self-service technologies, passenger self-concept, and behavior: An attributional view	Antwi C.O.; Ren J.; Owusu-Ansah W.; Mensah H.K.; Aboagye M.O.	Sustainability (Switzerland)
2021	"Find a flight for me, Oscar!" Motivational customer experiences with chatbots	Jiménez-Barreto J.; Rubio N.; Molinillo S.	International Journal of Contemporary Hospitality Management
2021	Technology-enhanced airport services—attractiveness from the travelers' perspective	Miskolczi M.; Jászberényi M.; Tóth D.	Sustainability (Switzerland)
2021	Self-check-in kiosk quality and airline non-contact service maximization: how to win air traveler satisfaction and loyalty in the post-pandemic world?	Moon H.G.; Lho H.L.; Han H.	Journal of Travel and Tourism Marketing
2021	Investigation into waiting time, self-service technology, and customer loyalty: The mediating role of waiting time in satisfaction	Ayodeji Y.; Rjoub H.	Human Factors and Ergonomics In Manufacturing
2021	Predicting the intentions to use chatbots for travel and tourism	Melián-González S.; Gutiérrez-Taño D.; Bulchand-Gidumal J.	Current Issues in Tourism
2022	Technology social practices by Millennials and Gen Z at airport departure terminals	Pant P.	Tourism Management Perspectives
2022	Relationship between self-service technologies' service quality, satisfaction, attitudinal and behavioral loyalty of airline passengers	Suwannakul E.; Khetjenkarn S.	ABAC Journal
2022	Self-service technologies (SSTs) in airline services: multimediating effects of flow experience and SST evaluation	Moon H.Y.; Lee B.Y.	International Journal of Contemporary Hospitality Management
2022	Invasive Yet Inevitable? Privacy Normalization Trends in Biometric Technology	Paik S.; Mays K.K.; Katz J.E.	Social Media and Society
2022	Understanding Consumer Buying Intention of E-Commerce Airfares Based on Multivariate Demographic Segmentation: A Multigroup Structural Equation Modeling Approach	Naruetheradhol P.; Wongsaichia S.; Zhang S.; Phonthanukitithaworn C.; Ketkaew C.	Sustainability (Switzerland)
2022	Impact of innovation characteristics of airport self-bag-drop service on attitude, trust, and behavioural intention: using trust transfer theory	Shin H.; Kang S.-E.; Lee C.-K.	Asian Journal of Technology Innovation
2022	Service failure and self-recovery in tech-based services: self-determination theory perspective	Chiu Y.-T.H.; Nguyen D.M.	Service Industries Journal
2022	Tourists' Attitudes toward the Use of Artificially Intelligent (AI) Devices in Tourism Service Delivery: Moderating Role of Service Value Seeking	Chi O.H.; Gursoy D.; Chi C.G.	Journal of Travel Research
2023	Machine learning and mixed reality for smart aviation: Applications and challenges	Jiang Y.; Tran T.H.; Williams L.	Journal of Air Transport Management
2023	Passengers satisfaction with the technologies used in smart airports: An empirical study from a gender perspective	Rubio-Andrada L.; Celemin-Pedroche M.S.; Escat-Cortés M.-D.; Jiménez-Crisóstomo A.	Journal of Air Transport Management
2023	Achieving sustainable customer loyalty in airports: The role of waiting time satisfaction and self-service technologies	Ayodeji Y.; Rjoub H.; Özgüt H.	Technology in Society

References

- Abdelaziz, S. G., Hegazy, A. A., & Elabbassy, A. (2010). Study of airport self-service technology within experimental research of check-in techniques case study and concept. *International Journal of Computer Science Issues (IJCSIS)*, 7(3), 30.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T).
- Alabsi, M. I., & Gill, A. Q. (2021). A review of passenger digital information privacy concerns in smart airports. *IEEE Access*, 9, 33769–33781. Article 9360741. <https://doi.org/10.1109/ACCESS.2021.3061425>
- Amaro, S., & Duarte, P. (2013). Online travel purchasing: A literature review. *Journal of Travel and Tourism Marketing*, 30(8), 755–785. <https://doi.org/10.1080/10548408.2013.835227>.
- AsiaAviation. (2019). Annual report 2018. A. A. P. C. Limited. <https://hub.optiwise.io/en/documents/18153/20190322-aav-ar2018-en-02.pdf>.
- Bailey, J. (2021, 9/3/2021). Which airlines ceased operations in 2020? Simple flying. <https://simpleflying.com/which-airlines-ceased-operations-in-2020/>
- Bateson, J. E. G. (1985). Self-service consumer: An exploratory study. *Journal of Retailing*, 61(3), 49.
- Batouei, A., Iranmanesh, M., Mustafa, H., Nikbin, D., & Ping, T. A. (2020). Components of airport experience and their roles in eliciting passengers' satisfaction and behavioural intentions. *Research in Transportation Business and Management*, 37 Article 100585. <https://doi.org/10.1016/j.rtbm.2020.100585>.
- Belobaba, P., Odomi, A., & Barnhart, C. (2015). *The global airline industry*. John Wiley & Sons.
- Bitner, M. J., Ostrom, A. L., & Meuter, M. L. (2002). Implementing successful self-service technologies. *Academy of Management Executive*, 16(4), 96–109. <https://doi.org/10.5465/ame.2002.8951333>.
- Bogicevic, V., Bujisic, M., Bilgihan, A., Yang, W., & Cobanoglu, C. (2017). The impact of traveler-focused airport technology on traveler satisfaction. *Technological Forecasting and Social Change*, 123, 351–361. <https://doi.org/10.1016/j.techfore.2017.03.038>.
- Budd, L., & Ison, S. (2020). *Air transport management: An international perspective*. Routledge.
- Carter, C. R., & Easton, P. L. (2011). Sustainable supply chain management: Evolution and future directions. *International Journal of Physical Distribution and Logistics Management*, 41(1), 46–62. <https://doi.org/10.1108/09600031111101420>.
- Chan, K. W., Yim, C. K., & Lam, S. S. (2010). Is customer participation in value creation a double-edged sword? Evidence from professional financial services across cultures. *Journal of Marketing*, 74(3), 48–64.
- Chen, C. F., & Wang, J. P. (2016). Customer participation, value co-creation and customer loyalty - A case of airline online check-in system. *Computers in Human Behavior*, 62, 346–352. <https://doi.org/10.1016/j.chb.2016.04.010>.
- Chiu, Y. T. H., & Nguyen, D. M. (2022). Service failure and self-recovery in tech-based services: Self-determination theory perspective. *Service Industries Journal*, 42(13-14), 1075–1100. <https://doi.org/10.1080/02642069.2022.2104257>.
- Czerny, A. I., Fu, X., Lei, Z., & Oum, T. H. (2021). Post pandemic aviation market recovery: Experience and lessons from China. *Journal of Air Transport Management*, 90, Article 101971. <https://doi.org/10.1016/j.jairtraman.2020.101971>.
- Davis, F. D. (1986). A technology acceptance model for empirically testing new end-user information systems: Theory and results Massachusetts Institute of Technology.
- de Oliveira, R. P., Lohmann, G., & Oliveira, A. V. M. (2022). A systematic review of the literature on air transport networks (1973–2021). *Journal of Air Transport Management*, 103, Article 102248. <https://doi.org/10.1016/j.jairtraman.2022.102248>.
- Deci, E. L., & Ryan, R. M. (2012). Self-determination theory. *Handbook of Theories of Social Psychology*, 1(20), 416–436.
- Doganis, R. (2013). *Flying off course: The economics of international airlines*. Routledge.
- Erdmann, R. L., & Neal, A. S. (1971). Laboratory vs. field experimentation in human factors—An evaluation of an experimental self-service airline ticket vendor. *Human Factors*, 13(6), 521–531. <https://doi.org/10.1177/001872087101300603>.
- Escobar-Rodríguez, T., & Carvajal-Trujillo, E. (2013). Online drivers of consumer purchase of website airline tickets. *Journal of Air Transport Management*, 32, 58–64. <https://doi.org/10.1016/j.jairtraman.2013.06.018>.
- Fan, A., Wu, L., & Mattila, A. S. (2016). Does anthropomorphism influence customers' switching intentions in the self-service technology failure context? *Journal of Services Marketing*, 30(7), 713–723. <https://doi.org/10.1108/JSM-07-2015-0225>.
- Fan, A., Wu, L., Miao, L., & Mattila, A. S. (2020). When does technology anthropomorphism help alleviate customer dissatisfaction after a service failure?—The moderating role of consumer technology self-efficacy and interdependent self-construal. *Journal of Hospitality Marketing and Management*, 29(3), 269–290. <https://doi.org/10.1080/19368623.2019.1639095>.
- Feldman, J. M. (1981). Beyond attribution theory: Cognitive processes in performance appraisal. *Journal of Applied Psychology*, 66(2), 127.
- Feng, W., Tu, R., Lu, T., & Zhou, Z. (2019). Understanding forced adoption of self-service technology: the impacts of users' psychological reactance. *Behaviour and Information Technology*, 38(8), 820–832. <https://doi.org/10.1080/0144929X.2018.1557745>.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Addison-Wesley Pub. Co.
- Gelderman, C. J., Ghijsen, P. W. T., & van Diemen, R. (2011). Choosing self-service technologies or interpersonal services—The impact of situational factors and technology-related attitudes. *Journal of Retailing and Consumer Services*, 18(5), 414–421. <https://doi.org/10.1016/j.jretconser.2011.06.003>.
- Gupta, A., Su, B. C., & Walter, Z. (2004). An empirical study of consumer switching from traditional to electronic channels: A purchase-decision process perspective. *International Journal of Electronic Commerce*, 8(3), 131–161. <https://doi.org/10.1080/10864415.2004.11044302>.
- Gures, N., Inan, H., & Arslan, S. (2018). Assessing the self-service technology usage of Y-Generation in airline services. *Journal of Air Transport Management*, 71, 215–219.
- Gursoy, D., Chi, O. H., Lu, L., & Nunkoo, R. (2019). Consumers acceptance of artificially intelligent (AI) device use in service delivery. *International Journal of Information Management*, 49, 157–169. <https://doi.org/10.1016/j.ijinfomgt.2019.03.008>.
- Heider, F. (2013). *The psychology of interpersonal relations*. Psychology Press.
- Hilton, T., Hughes, T., Little, E., & Marandi, E. (2013). Adopting self-service technology to do more with less. *Journal of Services Marketing*, 27(1), 3–12. <https://doi.org/10.1108/08876041311296338>.
- IATA. (2013). Simplifying the Business (StB): Transformation in progress and explorations underway. <https://www.iata.org/contentassets/bea47a9502844cbd9848be95e21c40eb/stb-white-paper-2013.pdf>
- IATA. (2022a). Air Passenger Numbers to Recover in 2024 <https://www.iata.org/en/pressroom/2022-releases/2022-03-01-01/>
- IATA. (2022b). Global outlook for air transport: Sustained recovery amidst strong headwinds. <https://www.iata.org/en/iata-repository/publications/economic-reports/global-outlook-for-air-transport%20december-2022/>
- ICAO. (2022). The World of Air Transport in 2021. <https://www.icao.int/sustainability/WorldofAirTransport/Pages/the-world-of-air-transport-in-2021.aspx>
- Kano, N. (1984). Attractive quality and must-be quality. *Journal of the Japanese society for quality control*, 31(4), 147–156.
- Kasim, K. O., Winter, S. R., Liu, D., Keebler, J. R., & Spence, T. B. (2021). Passengers' perceptions on the use of biometrics at airports: A statistical model of the extended theory of planned behavior. *Technology in Society*, 67 Article 101806. <https://doi.org/10.1016/j.techsoc.2021.101806>.
- Kelley, H. H., & Michela, J. L. (1980). Attribution theory and research. *Annual Review of Psychology*, 31(1), 457–501.
- Kiliç, S., Ucler, C., & Martin-Domingo, L. (2021). Innovation at airports: A systematic literature review (2000–2019). *Aviation*, 25(3), 220–231. <https://doi.org/10.3846/aviation.2021.14917>.
- Kim, H. b., Kim, T., & Shin, S. W. (2009). Modeling roles of subjective norms and eTrust in customers' acceptance of airline B2C eCommerce websites. *Tourism Management*, 30(2), 266–277. <https://doi.org/10.1016/j.tourman.2008.07.001>.
- Kim, K., Park, O. J., Yun, S., & Yun, H. (2017). What makes tourists feel negatively about tourism destinations? Application of hybrid text mining methodology to smart destination management. *Technological Forecasting and Social Change*, 123, 362–369. <https://doi.org/10.1016/j.techfore.2017.01.001>.
- Ko, S. H., & Park, J. M. (2019). Effect of customer readiness on technology-based self-service quality and usage intention. *International Journal of Innovative Technology and Exploring Engineering*, 8(3C), 331–335.
- Kutler, J. (1982). Consumers' acceptance of ATMs. *Credit*, 1–35 Jan/Feb, 8.
- Lau, T. C., Kwek, C. L., & Tan, H. P. (2011). Airline e-ticketing service: How e-service quality and customer satisfaction impacted purchase intention. *International Business Management*, 5(4), 200–208. <https://doi.org/10.3923/ibm.2011.200.208>.
- Lee, F. H., & Wu, W. Y. (2011). Moderating effects of technology acceptance perspectives on e-service quality formation: Evidence from airline websites in Taiwan. *Expert Systems with Applications*, 38(6), 7766–7773. <https://doi.org/10.1016/j.eswa.2010.12.131>.
- Lee, L. Y. S. (2016). Hospitality industry web-based self-service technology adoption model: A cross-cultural perspective. *Journal of Hospitality and Tourism Research*, 40(2), 162–197. <https://doi.org/10.1177/1096348013495695>.
- Lestari, V. T., & Ellyawati, J. (2019). Effect of E-Service quality on repurchase intention: Testing the role of e-satisfaction as mediator variable. *International Journal of Innovative Technology and Exploring Engineering*, 8(7C2), 158–162. <https://doi.org/10.35940/ijtee.g5400.0881019>.
- Lien, C. H., Hsu, M. K., Shang, J. Z., & Wang, S. W. (2021). Self-service technology adoption by air passengers: a case study of fast air travel services in Taiwan. *Service Industries Journal*, 41(9-10), 671–695. <https://doi.org/10.1080/02642069.2019.1596934>.
- Liljander, V., Gillberg, F., Gummerus, J., & Van Riel, A. (2006). Technology readiness and the evaluation and adoption of self-service technologies. *Journal of Retailing and Consumer Services*, 13(3), 177–191.
- Lin, J. S. C., & Hsieh, P. L. (2011). Assessing the self-service technology encounters: Development and validation of SSTQUAL scale. *Journal of Retailing*, 87(2), 194–206. <https://doi.org/10.1016/j.jretai.2011.02.006>.
- Linnenluecke, M. K., Marrone, M., & Singh, A. K. (2020). Conducting systematic literature reviews and bibliometric analyses. *Australian Journal of Management*, 45(2), 175–194. <https://doi.org/10.1177/0312896219877678>.
- Llach, J., Marimon, F., Alonso-Almeida, M. D. M., & Bernardo, M. (2013). Determinants of online booking loyalties for the purchasing of airline tickets. *Tourism Management*, 35, 23–31. <https://doi.org/10.1016/j.tourman.2012.05.006>.
- Lu, J. L., Choi, J. K., & Tseng, W. C. (2011). Determinants of passengers' choice of airline check-in services: A case study of American, Australian, Korean, and Taiwanese passengers. *Journal of Air Transport Management*, 17(4), 249–252. <https://doi.org/10.1016/j.jairtraman.2010.12.011>.
- Lu, L., Cai, R., & Gursoy, D. (2019). Developing and validating a service robot integration willingness scale. *International Journal of Hospitality Management*, 80, 36–51. <https://doi.org/10.1016/j.ijhm.2019.01.005>.
- Maglio, P. P., & Spohrer, J. (2008). Fundamentals of service science. *Journal of the Academy of Marketing Science*, 36, 18–20.
- Marr, N. E., & Prendergast, G. P. (1993). Consumer adoption of self-service technologies in retail banking: Is expert opinion supported by consumer research? *International Journal of Bank Marketing*, 11(1), 3–10. <https://doi.org/10.1108/02652329310023381>.
- McClurg, J. M., & Andrews, I. R. (1974). A consumer profile analysis of the self-service gasoline customer. *Journal of Applied Psychology*, 59(1), 119–121. <https://doi.org/10.1037/h0035818>.

- Mehrabrian, A., & Russell, J. A. (1974). *An approach to environmental psychology*. the MIT Press.
- Merkert, R., & Bushell, J. (2020). Managing the drone revolution: A systematic literature review into the current use of airborne drones and future strategic directions for their effective control. *Journal of Air Transport Management*, 89 Article 101929. <https://doi.org/10.1016/j.jairtraman.2020.101929>.
- Metcalfe, D., & Greenhalgh, C. (1968). Price behaviour in a retail grocery sub-market. *European Journal of Marketing*, 2(3), 243–251. <https://doi.org/10.1108/EUM000000005257>.
- Meuter, M. L., Ostrom, A. L., Roundtree, R. I., & Bitner, M. J. (2000). Self-service technologies: Understanding customer satisfaction with technology-based service encounters. *Journal of Marketing*, 64(3), 50–64. <https://doi.org/10.1509/jmkg.64.3.50.18024>.
- Miskolczi, M., Jászberényi, M., & Tóth, D. (2021). Technology-enhanced airport services—Attractiveness from the travelers' perspective. *Sustainability (Switzerland)*, 13(2), 1–18 Article 705. <https://doi.org/10.3390/su13020705>.
- Misopoulos, F., Mitic, M., Kapoulas, A., & Karapiperis, C. (2014). Uncovering customer service experiences with Twitter: The case of airline industry. *Management Decision*, 52(4), 705–723. <https://doi.org/10.1108/MD-03-2012-0235>.
- Mohamad Suhaili, S., Salim, N., & Jambli, M. N. (2021). Service chatbots: A systematic review. *Expert Systems with Applications*, 184 Article 115461. <https://doi.org/10.1016/j.eswa.2021.115461>.
- Mohd Suki, N., & Mohd Suki, N. (2017). Flight ticket booking app on mobile devices: Examining the determinants of individual intention to use. *Journal of Air Transport Management*, 62, 146–154. <https://doi.org/10.1016/j.jairtraman.2017.04.003>.
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., Antes, G., Atkins, D., Barbour, V., Barrowman, N., Berlin, J. A., Clark, J., Clarke, M., Cook, D., D'Amico, R., Deeks, J. J., Devreux, P. J., Dickersin, K., Egger, M., Ernst, E., Götzsche, P. C., . . . Tugwell, P. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine*, 6(7) Article e1000097. <https://doi.org/10.1371/journal.pmed.1000097>.
- Moon, H. G., Lho, H. L., & Han, H. (2021). Self-check-in kiosk quality and airline non-contact service maximization: How to win air traveler satisfaction and loyalty in the post-pandemic world? *Journal of Travel and Tourism Marketing*, 38(4), 383–398. <https://doi.org/10.1080/10548408.2021.1921096>.
- Moon, H. Y., & Lee, B. Y. (2022). Self-service technologies (SSTs) in airline services: Multi-mediating effects of flow experience and SST evaluation. *International Journal of Contemporary Hospitality Management*, 34(6), 2176–2198. <https://doi.org/10.1108/IJCHM-09-2021-1151>.
- Naruetharadhol, P., Wongsachia, S., Zhang, S., Phonthanakitithaworn, C., & Ketkaew, C. (2022). Understanding Consumer Buying Intention of E-Commerce Airfares Based on Multivariate Demographic Segmentation: A Multigroup Structural Equation Modeling Approach. *Sustainability (Switzerland)*, 14(15), Article 8997. <https://doi.org/10.3390/su14158997>.
- Nass, C., & Moon, Y. (2000). Machines and mindlessness: Social responses to computers. *Journal of social issues*, 56(1), 81–103.
- Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, 17(4), 460–469.
- Parasuraman, A. (2000). Technology readiness index (Tri): A multiple-item scale to measure readiness to embrace new technologies. *Journal of Service research*, 2(4), 307–320. <https://doi.org/10.1177/109467050024001>.
- Parasuraman, A., Zeithaml, V., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64, 12–40.
- Pereira, B. A., Lohmann, G., & Houghton, L. (2021). Innovation and value creation in the context of aviation: a systematic literature review. *Journal of Air Transport Management*, 94, Article 102076. <https://doi.org/10.1016/j.jairtraman.2021.102076>.
- Rogers, E. (2003). Diffusion of innovations.
- Rubio-Andrada, L., Celemin-Pedroche, M. S., Escat-Cortés, M. D., & Jiménez-Crisóstomo, A. (2023). Passengers satisfaction with the technologies used in smart airports: An empirical study from a gender perspective. *Journal of Air Transport Management*, 107 Article 102347. <https://doi.org/10.1016/j.jairtraman.2022.102347>.
- Santos, J. (2003). E-service quality: a model of virtual service quality dimensions. *Managing Service Quality. An International Journal*, 13(3), 233–246.
- Schatzki, T. R. (1996). *Social practices: A Wittgensteinian approach to human activity and the social*. Cambridge University Press.
- Shin, H., & Perdue, R. R. (2019). Self-Service Technology Research: A bibliometric citation visualization analysis. *International Journal of Hospitality Management*, 80, 101–112. <https://doi.org/10.1016/j.ijhm.2019.01.012>.
- Shiwen, L., Kwon, J., & Ahn, J. (2022). Self-service technology in the hospitality and tourism settings: a critical review of the literature. *Journal of Hospitality & Tourism Research*, 46(6), 1220–1236.
- Shujahat, M., Hussain, S., Javed, S., Malik, M. I., Thurasamy, R., & Ali, J. (2017). Strategic management model with lens of knowledge management and competitive intelligence: A review approach. *VINE Journal of Information and Knowledge Management Systems*, 47(1), 55–93. <https://doi.org/10.1108/VJIKMS-06-2016-0035>.
- SITA. (2022). Air Transport IT Insights 2022. <https://www.sita.aero/resources/surveys-reports/air-transport-it-insights-2022/>
- SITA. (2023). 2023 Passenger IT Insights. <https://www.sita.aero/globalassets/docs/surveys-reports/passenger-it-insights-2023.pdf>
- Skytrax. (2023). World's Best Regional Airports 2023. Retrieved 28/11/2023 from <https://www.worldairportawards.com/worlds-best-regional-airports-2023/>
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333–339. <https://doi.org/10.1016/j.jbusres.2019.07.039>.
- Solakis, K., Katsoni, V., Mahmoud, A. B., & Grigoriou, N. (2022). Factors affecting value co-creation through artificial intelligence in tourism: a general literature review. *Journal of Tourism Futures*. <https://doi.org/10.1108/JTF-06-2021-0157>.
- Stewart, K. J. (2003). Trust transfer on the world wide web. *Organization science*, 14(1), 5–17.
- Su, J., Wu, H., Tsui, K. W. H., Fu, X., & Lei, Z. (2023). Aviation resilience during the COVID-19 pandemic: A case study of the European aviation market. *Transportation Research Part A: Policy and Practice*, 177, Article 103835. <https://doi.org/10.1016/j.tra.2023.103835>.
- Sun, X., Wandelt, S., & Zhang, A. (2021). Technological and educational challenges towards pandemic-resilient aviation. *Transport Policy*, 114, 104–115. <https://doi.org/10.1016/j.tranpol.2021.09.010>.
- Sun, X., Wandelt, S., & Zhang, A. (2022). COVID-19 pandemic and air transportation: Summary of recent research, policy consideration and future research directions. *Transportation Research Interdisciplinary Perspectives*, 16, Article 100718. <https://doi.org/10.1016/j.trip.2022.100718>.
- Sun, X., Wandelt, S., & Zhang, A. (2023). Aviation under the COVID-19 pandemic: A synopsis from normalcy to chaos and back. *Journal of the Air Transport Research Society*, 1(1), 136–151.
- Suwannakul, E., & Khetjenkarn, S. (2022). Relationship between self-service technologies' service quality, satisfaction, attitudinal and behavioral loyalty of airline passengers. *ABAC Journal*, 42(3), 1–16.
- Taufik, N., & Hanafiah, M. H. (2019). Airport passengers' adoption behaviour towards self-check-in Kiosk Services: the roles of perceived ease of use, perceived usefulness and need for human interaction. *Heliyon*, 5(12) Article e02960. <https://doi.org/10.1016/j.heliyon.2019.e02960>.
- Thamaraiselvan, N., & Thanigaiarul, S. (2019). Understanding the attitudes and purpose for the usage of self-service technologies (SSTs) at the airports. *International Journal of Recent Technology and Engineering*, 8(3), 7034–7039. <https://doi.org/10.35940/ijrte.C5057.098319>.
- Thums, J., Künzel, L., Klumpp, M., Bardmann, M. M., & Ruiner, C. (2023). Future air transportation and digital work at airports – Review and developments. *Transportation Research Interdisciplinary Perspectives*, 19 Article 100808. <https://doi.org/10.1016/j.trip.2023.100808>.
- Usman, A., Azis, Y., Harsanto, B., & Azis, A. M. (2022). Airport service quality dimension and measurement: A systematic literature review and future research agenda. *International Journal of Quality and Reliability Management*, 39(10), 2302–2322. <https://doi.org/10.1108/IJQRM-07-2021-0198>.
- Vakulenko, Y., Hellström, D., & Oghazi, P. (2018). Customer value in self-service kiosks: A systematic literature review. *International Journal of Retail and Distribution Management*, 46(5), 507–527. <https://doi.org/10.1108/IJRDM-04-2017-0084>.
- Vakulenko, Y., Oghazi, P., & Hellström, D. (2019). Innovative framework for self-service kiosks: Integrating customer value knowledge. *Journal of Innovation and Knowledge*, 4(4), 262–268. <https://doi.org/10.1016/j.jik.2019.06.001>.
- Vargo, S. L., & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68(1), 1–17. <https://doi.org/10.1509/jmkg.68.1.1.24036>.
- Vargo, S. L., & Lusch, R. F. (2008). Service-dominant logic: Continuing the evolution. *Journal of the Academy of Marketing Science*, 36(1), 1–10. <https://doi.org/10.1007/s11747-007-0069-6>.
- Venkatesh, V., & Davis, F. D. (2000). Theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2), 186–204. <https://doi.org/10.1287/mnsc.46.2.186.11926>.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: toward a unified view. *MIS Quarterly*, 27(3), 425–478. <https://doi.org/10.2307/30036540>.
- Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157–178. <https://doi.org/10.2307/41410412>.
- Vrontis, D., Makrides, A., Christofi, M., & Thrassou, A. (2021). Social media influencer marketing: A systematic review, integrative framework and future research agenda. *International Journal of Consumer Studies*.
- Wandelt, S., Sun, X., & Zhang, A. (2023a). AI-driven assistants for education and research? A case study on ChatGPT for air transport management. *Journal of Air Transport Management*, 113, Article 102483. <https://doi.org/10.1016/j.jairtraman.2023.102483>.
- Wandelt, S., Sun, X., & Zhang, A. (2023b). Is the aircraft leasing industry on the way to a perfect storm? Finding answers through a literature review and a discussion of challenges. *Journal of Air Transport Management*, 111, Article 102426. <https://doi.org/10.1016/j.jairtraman.2023.102426>.
- Wandelt, S., Wang, S., Zheng, C., & Sun, X. (2023). AERIAL: A meta review and discussion of challenges toward unmanned aerial vehicle operations in logistics, mobility, and monitoring. *IEEE Transactions on Intelligent Transportation Systems*, 1–14. <https://doi.org/10.1109/TITS.2023.3343713>.
- Wang, C., Harris, J., & Patterson, P. G. (2012). Customer choice of self-service technology: The roles of situational influences and past experience. *Journal of Service Management*, 23(1), 54–78. <https://doi.org/10.1108/095642312112089970>.
- Watson, M., Pantzar, M., & Shove, E. (2012). The dynamics of social practice: Everyday life and how it changes. *The dynamics of social practice*, 1–208.
- WorldBank. (2023). Air transport, passengers carried. (2020). Impacts of aviation subsidies on regional wellbeing: Systematic review, meta-analysis and future research directions. *Transport Policy*, 99, 215–239. <https://doi.org/10.1016/j.tranpol.2020.08.003>.
- Yusra, & Agus, A. (2018). The influence of perceived service quality towards customer satisfaction and Loyalty in Airasia self check-in system. *Journal of Social Sciences Research*, 766–775 2018(Special Issue 2). <https://doi.org/10.32861/jssr.sp12.766.775>.
- Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing*, 52(3), 2–22.
- Zeithaml, V. A., Parasuraman, A., & Malhotra, A. (2000). *A Conceptual Framework for Understanding E-Service Quality: Implications for Future Research and Managerial Practice*. Cambridge, MA: Marketing Science Institute Vol. 115.

Zeng, Z., Chen, P. J., & Lew, A. A. (2020). From high-touch to high-tech: COVID-19 drives robotics adoption. *Tourism Geographies*, 22(3), 724–734. <https://doi.org/10.1080/14616688.2020.1762118>.

Zhu, Z., Nakata, C., Sivakumar, K., & Grewal, D. (2007). Self-service technology effectiveness: The role of design features and individual traits. *Journal of the*

Academy of Marketing Science, 35(4), 492–506. <https://doi.org/10.1007/s11747-007-0019-3>.

Zhu, Z., Nakata, C., Sivakumar, K., & Grewal, D. (2013). Fix it or leave it? Customer recovery from self-service technology failures. *Journal of Retailing*, 89(1), 15–29. <https://doi.org/10.1016/j.jretai.2012.10.004>.