The Impact of E-Ticketing on Behavioral Intention to Use and the Moderating Role of Information and Communication Technology Tools

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Abstract This study is an attempt to measure the most important factors affecting the behavioral intention to use e-ticketing, considering the mediating effect of (Information Communication Tools (ICT) on the relationship between the following independent variables (perceived convenience, perceived ease of use, facilitating conditions, Perceived Usefulness, information quality, perceived security, perceived privacy, customer technical support, and infrastructure) and dependent variable (behavioral intention to use). The result revealed that the following independent variables (perceived convenience, information quality, perceived privacy) don't have direct impact on the dependent variable (behavioral intention to use). While the following variables (perceived ease of use, facilitating condition, perceived usefulness, perceived security, and infrastructure) have direct positive impact on the dependent variable (behavioral intention to use). The analytic results showed that concerning the (ICT) tools, two categories of (ICT) were revealed, the (ICT) tools as a moderator for the first category (low skills) moderate the relationship between perceived convenience and behavioral intention to use, while for the second category (high skills) (ICT) tools moderate the relationship between (customer technical support, infrastructure) and behavioral intention to use. The study a survey scheme and data were collected using a structured questionnaire from a sample of (254) internet users. The analytical statistics were derived using AMOS® 20.0 software package.

Keywords E-ticketing strategies · Information and Communication Technology tools (ICT) · Behavioral intention to use

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1 Introduction

The past few years have witnessed a great development in internet technology and increased popularity among individuals and organizations, which has led the latter to pay more attention to the development of new methods of dealing with customers electronically and take care of them and maintain them, which requires developing websites and making them more effective and safer. Owning an ineffective website in terms of the services provided will definitely weaken the image of the organization and its position in the market.

It is therefore necessary to pay attention to the factors that enhance the customer's position and uses of the website. Individuals usually accept to visit websites that provide them with high quality services at low prices, and quick delivery of the required services.

Studies have shown that customer satisfaction occurs when the purchase process is economic and the experience of dealing with the website is a pleasant one, which may lead to a repeat visit (Ahn et al. 2007). Airlines are advanced users of ICT tools, and several airline functions rely heavily on ICT tools. The emergence of the Internet in the mid-1990s as well as the development of Intranets and Extranets forced airlines to refocus their strategies on technological innovations to enhance their competitiveness (Buhalis 2004).

E-tickets have had a share of this development, which is widely used by organizations and in various forms such as shopping coupons, tickets to a music or sports event, as well as booking airline tickets at any time and from anywhere. The Internet and websites that have changed everything in the business world over the past two decades have had an impact on the rapid expansion of electronic booking and payment systems around the world.

E-ticketing is easier, immediate, secure, informative, and systematic to sharpen the behavior intention of the customer. Organizations improve their information systems and service quality for e-ticketing to facilitate and motivate their customers to buy e-tickets (Shafique et al. 2019).

The acceptance of e-commerce by prospective online buyers is enhanced because of the usefulness and user-friendliness of the online buying system, joyful experience, computer adeptness, and exploratory mindset. Thus, the acceptance of online buying as a viable option to the traditional face-to-face encounters for the purchase of air and rail tickets brings various issues regarding customer's perception and attitude toward technology acceptance for e-ticketing (Panchamia and Doctor 2015).

Is the wide use of electronic tickets really an alternative to the purchase of traditional tickets? Can the latter offer a number of benefits to organizations? As a reduction in cost and an increase in operational efficiency, which may affect the consumer's desire to take purchasing decisions, is the use of electronic tickets expected to continue to increase over time?

Reviewing previous studies, it appears that most studies focused on some factors that may affect the decision to buy electronic tickets over the Internet. The most important factors reported by previous studies were ease of use, safety and risk in

the purchasing process in terms of financial personal issues. There is no study that took all these factors combined in terms of ease of use, saving in time and effort, providing the necessary facilities to deal with the website, in addition to the quality of information, account security, privacy, providing the necessary infrastructure, and technically supporting the customer. All these factors combined will be taken into consideration, to reveal their impact on the intention of buying tickets online, so this distinguishes our study from other studies and gives it more weight in knowing the most important factors affecting the intention to use, considering the effect of the moderating variable of the study (Information Communication Technology Tools: ICT Tools) through which we will highlight the extent to which this variable is able to modify the relationship between the independent and dependent variables.

The past studies revealed that many factors affect the intent-to-use e-ticketing system for flight booking. The decision-makers need to know what are the most powerful factors that lead the customer to use the e-ticketing system and to apply an advanced change to obtain the intention to purchase. Hence, the role of this study is to reveal the relationships between all independent variable on intention to use. This is because applying the e-ticketing system is considered an advanced way rather than face-to-face purchasing. This study is an attempt to understand the customers' behavioral intention to use e-ticketing system to book their flights instead of buying tickets ordinarily, i.e., face-to-face. Furthermore, it helps decision-makers solve any related problems and encourage new customers to use modern online services.

So, this study tries to determine the most effective factors that affect the customer's behavioral intention to use e-ticketing system. Furthermore, to know how (ICT) Tools will moderate the relationship between these two variables.

Therefore, we need to answer the following research questions:

- How does perceived convenience impact Behavioral Intention to Use?
- How does perceived ease of use impact Behavioral Intention to Use?
- How does Facilitating Conditions impact Behavioral l Intention to Use?
- How does Perceived Usefulness impact Behavioral Intention to Use?
- How does Information Quality impact Behavioral Intention to Use?
- How does Perceived Security impact Behavioral Intention to Use?
- How does Perceived Privacy impact Behavioral Intention to Use?
- How does Customer Technical Support Impact Behavioral Intention to Use?
- How does Infrastructure impact Behavioral Intention to Use?
- How do ICT tools moderate the relationship model of e-ticketing strategies (Perceived Convenience, Perceived Ease of Use, Facilitating Conditions, Perceived Usefulness, Information quality, Perceived Security, Perceived Privacy, Customer Technical Support, Infrastructure) and Behavioral Intention to Use?

For that, this study aims to develop a new model for e-ticketing strategies and the customer's behavioral intention to use, by collecting the most effective factors from the literature, testing the model with the population of the study, using AMOS to analyze the collected data, using ICT as a moderator, and writing discussion, results and recommendations.

2 Theoretical Framework

The theoretical framework of the study is divided into three main sections:

2.1 E-Ticketing Strategies

The first section of the theoretical framework is divided into nine variables which are: perceived convenience, perceived ease of use, facilitating conditions, perceived usefulness, information quality, perceived security, perceived privacy, customer technical support, and infrastructure.

Perceived Convenience. It is an important aspect of the consumer's concern in terms of the time and effort needed to make the purchase of products, and some have explained that convenience is a way to create added value for consumers by reducing the time and effort spent to complete the purchase process, and the product may be considered appropriate if obtained by the consumer with the least possible psychological and physical pressure that the consumer can feel while completing the purchasing process especially when using modern methods In the process of purchasing services, saving time compared to traditional systems affects the intention to buy to the consumer, according to a study (Prayoonphan and Xu 2019).

Time is also one of the most important factors affecting the process of online marketing, as browsing products electronically can reduce time and stress compared to traditional marketing. There are differences between consumers who deal with the Internet and those who are not connected to it, as the first category is interested in saving time and choice while the second group is concerned about the direction of security, privacy and on-time delivery. What distinguishes dealing with the Internet is the simplicity of the purchasing process, saving time and traffic jams (Vasić et al. 2019).

The definition of convenience will also be based on easy access to products and convenience in dealing, and ease of use depends on ease of learning, control, clarity, understanding, flexibility and easy access to skills to use the product, as it is measured by working more and faster and increasing efficiency and productivity in addition to making the task easier and more useful, and it is clear that the concept of comfort is based on dimensions that are based on reduced waiting and saving effort, and it is considered a key factor to motivate consumers to conduct their transactions and buy (Zhang et al. 2006).

Perceived Ease of Use. Experience in general is very important for performing any activity, especially if it is satisfactory, it becomes a catalyst for the involvement of individuals, especially those who use websites, which studies have shown that the ease of use of the site directs and motivates individuals to use it and increases the behavioral intention to use it (Kim and Lim 2001; Moon and Kim 2001).

Studies through the TAM (Technology Acceptance Model) model have shown that ease of use and perceived benefit lead to increased use of the website, although they have not proved to be sufficient factors to clarify the motivations of consumer use of the website. It can also be added that the playfulness factor can increase acceptance of use of the site (Ahn et al. 2007).

Facilitating Condition. This factor reflects the availability of the facilitated conditions available from the levels of performance, the effort expected by the consumer to complete his transactions online, the main expectations of the behavior of actual use lies in the intention of buying online and facilitating the conditions to complete it, and the results have shown that the actual use of sites at the lowest cost (LCC: Low Cost Carrier) for the purchase of airline tickets depends on three main factors: The intention to buy online, usually consumers in the use of the website, and the easy conditions available to consumers. It has also been shown that the factor of better conditions has an impact on online purchases and on the intention to use online purchases (Escobar-Rodríguez and Carvajal-Trujillo 2014).

It has also been defined as the degree to which individuals believe to be the regulatory and technical infrastructure to support the use of the system (Prayoonphan and Xu 2019).

According to (UTAUT: Unified Theory of Acceptance and Use of Technology), facilitating condition affects the behavior of use and has a link with behavioral intentions, and therefore stimulates the use of the electronic deposit and payment system (Prayoonphan and Xu 2019).

Perceived Usefulness. Website profiles, perceived usefulness and confidence factor are among the most important variables that determine the behavior of online consumer shopping, and the results have indicated that the attitudes of online shoppers in terms of perceived usefulness, security of websites site and leisure shopping orientation have all contributed to online shopping. The results indicated that Indian consumers' attitudes about online shopping are determined by the perceived usefulness and ease of use of websites (Khare et al. 2012).

Many studies have shown the relationship between web quality and user acceptance, most of which have shown that web quality and the quality of information available have a positive impact on users' views of perceived interest direction and ease of use of the site (Ahn et al. 2007).

In the past decades, ease of use and perceived usefulness have been very important in determining the extent to which individuals accept the use of information technology (Kim and Lim 2001; Moon and Kim 2001).

The perceived usefulness is measured by six items related to work more quickly, job performance, increased productivity and effectiveness, as well as making the task easier and useful (Zhang et al. 2006).

Perceived usefulness, and perceived ease of use are defined differently but in practice they may be inseparable to users. It is highly likely that at the high level of the construct, the respondents would think convenience means useful. But when we

operationalize the perceived convenience construct, the respondents should not be confused with perceived usefulness (Zhang et al. 2006).

Information Quality. The concept of information quality is related to (Relevance, Accuracy, Timeliness, Content, Format, Completeness, Understandability), it is the degree to which the user thinks that the information at the website holds the features of content, accuracy, format, and timeliness (Kuan et al. 2008). It means the value perceived by a customer (Chang et al. 2019). Hence, quality of information is essential for the decision to purchase at the website for the first time as well as for making purchases in the future (Kuan et al. 2008).

Offering high standards of information quality such as being (various, complete, detailed, accurate, timely, relevant, and reliable) will definitely afford consumers with convenience, and raise their ability to take decisions.

Information quality from the customer's perspective includes that the information on the website is, accurate, comprehensive, conform to a format, have content, be timely, and up to date (Escobar-Rodríguez and Carvajal-Trujillo 2014; Kim et al. 2008; Wen 2009).

Perceived Security. The perceived security that consumers notice in companies' websites is one of the aspects that consumers consider significant for online purchasing (Kim et al. 2011). It could be also described as the security components such as authentication, protection, verification, encryption, and non-repudiation (Kim et al. 2008). The security for providing personal information, and online purchase risk (Yang and Jun 2008).

Therefore, if consumers perceive that the website has security components such as a safe shopping guarantee, a security policy, and protection mechanisms such as encryption, protection, and authentication, they will trust the security during online purchasing (Escobar-Rodríguez and Carvajal-Trujillo 2014).

Guo et al. (2012) defined it as 'the ability of the website to protect consumers' personal data from any unauthorized disclosure of information during electronic transactions".

Therefore, security will affect customers' decision to buy online services including e-ticketing (Qteishat et al. 2014; Santos 2003; Vasić et al. 2019; Yang and Jun 2008; Zhang et al. 2006).

Security and privacy were proposed to be more critical than information content and site design for determining purchase intention (Zhang et al. 2006). Data security is also affect consumer decision-making regarding e-ticketing (Qteishat et al. 2014).

Perceived Privacy. Privacy is one of the major elements that may hinder the development of e-commerce (Escobar-Rodríguez and Carvajal-Trujillo 2014; Yousafzai et al. 2003), it is critical for consumers that online companies should protect their privacy during online purchasing, since it expresses the possibility that the online company will guarantee that the confidential information of the consumers is protected against unauthorized disclosure or use (Kim et al. 2008).

Yousafzai et al. (2003) defined it as "the consumers' perception regarding their ability to monitor and control the information about themselves." the consumer may think that the online seller will give or sell this information to other entities, companies, and person. Accordingly consumers must know that online companies do have the required facilities to guard their privacy (Escobar-Rodríguez and Carvajal-Trujillo 2014; Kim et al. 2008).

Customer Technical Support. Customer technical support is considered one of the critical issues that are using in e-ticketing techniques because customer perceptions are playing an important role in service quality which is presenting to the customers. Decision-makers are taking customer perception into consideration when shaping the individuals' roles and services to utilize e-ticketing services (Qteishat et al. 2014).

For that, the level of technical support provided to the customer is influencing by the customer perception and notes, especially when arising any problems in the ticketing service. Another study stated that the perceptions of the customer regarding customer service have a big effect on customer behavior because when the customer finds that the specific organization will provide him good and different support if he purchases his ticket from it, there will be a great chance to buy his ticket from this organization (Mensah et al. 2021).

Furthermore, Srivastava and Purohit (2021) stated that many airlines' companies have lost many customers as a result of a failure to provide good customer support in e-ticketing services. Airlines companies found that e-ticketing is one of the good solutions in reducing costs and increasing efficiency in booking tickets, so they quickly adopted e-ticketing without putting in good services and protocols for customers and technical support.

Furthermore, several organizations have confirmed that using e-ticketing in their services often requires the expansion of the practices of the customer service that meet the specific needs of customers related to e-ticketing and e-service. Without meeting these needs, customers will see the e-ticketing services as cumbersome and will not be encouraged to use e-service to meet their needs (Jin et al. 2021; Kolsaker et al. 2004).

Infrastructure. Infrastructure support often refers to the extent of use and deployment of IT infrastructures to support the user's activity. Infrastructure like computers, networks, servers, and databases which using to support e-ticketing operations is also playing a good role in developing customer satisfaction with these services (Panchamia and Doctor 2015).

As stated before, e-ticketing services were developed in a quick and weak way in the organization which was not initially integrated with other services, which made some problems in serving and supporting customers. In order to use e-ticketing services in an effective way and to solve customer problems, organizations should establish network infrastructure to support e-ticketing services and to create a comprehensive system that meets the customer needs and streamlines processes within the organization. Without this infrastructure support, organizations would not

be able to achieve cost reductions and enhanced customer satisfaction (Qteishat et al. 2014).

Infrastructure impacts customer and organizational outcomes together. The impact of e-ticketing infrastructure for the customer is the importance of availability and accuracy in service and enabling the customer to purchase his tickets by using an accurate system on other hand, the infrastructure can provide the organization the continuity and the ability to minimize risks and support the functionality of the processes. Thus, infrastructure support must be importantly considered when developing the services of e-ticketing processes (Jin et al. 2021; Mensah et al. 2021; Zambon et al. 2011).

2.2 ICT Tools (The Moderator)

Information and communication technology (ICT) is divided into two main sides: information technology and communications. The first side is referring to information technology which means any computed technology, like computers, any connected hardware, software, networks, any communication infrastructure and devices, the internet, and others. The second side is called communication which refers to the transmission of data from one computer to another, or from one device to another. As a result, any machine that aids data transfer qualifies as a communications device. Modems, cables, and ports, for example, are all communication equipment. Programs that allow data to be transmitted are referred to as communications software (Almakenzi et al. 2015; Alzaghal and Mukhtar 2017; Cheng et al. 2021).

Information and communication technologies (ICT) allow people to access information via telecommunications, so the term is similar to information technology but also refers to communication technologies like the internet, Mobiles, wireless networks, voice over internet protocol (VoIP), video conferencing, social networking, and other communication mediums. Modern information and communication technology has created a global community, allowing people to communicate with one another regardless of where they live. As a result, ICT is examined in relation to how current communication technologies impact society. The relevance of ICT, according to the European Commission, rests less in the technology itself than in its ability to provide access to information and communication for underserved communities (Alzaghal et al. 2020; Pratt 2021).

ICT has aided the formation and growth of new enterprises by providing a value proposition based on its use in areas such as online sales, outsourcing, and competition. Information and communication technology (ICT) are seen as instruments that help boost production and transparency in a variety of industries, including agriculture and tourism. As a result, effectively utilizing ICT has become a vital prerequisite for worldwide competitiveness, as it is critical in supporting and strengthening information sharing through new channels of communication rather than conventional ones. ICT tools are also thought to help boost production and transparency in a variety of industries, including agricultural and tourism. Because the low cost and

accessibility of IT products promote access to information outside national lines, the growth of ICT has led to substantial changes in society since the emergence of the internet (Alzaghal and Mukhtar 2018; Pratt 2021).

As a result, effective use of ICT has become a core requirement for international competitiveness, as it is critical in supporting and enhancing information sharing using new channels of communication rather than traditional ones. As a result, ICT companies seek out technology professionals rather than business professionals (Mensah et al. 2021).

2.3 Behavioral Intention to Use

It is important to understand customers' purchase intentions because a customer's behavior can usually be predicted by his or her intention (Chang et al. 2019). "Theory of Reasoned Action (TRA), which suggests that social behavior is motivated by an individual's attitude toward carrying out that behavior, a function of one's beliefs about the outcome of performing that behavior and an evaluation of the value of each of those outcomes. According to TRA, behavior is determined directly by the intention to perform, because people, in general, behave as they intend to do, within the available context and time. Behavioral intentions to use, in turn, are determined by these attitudes toward using the system. Finally, behavioral intentions to use lead to actual system use" (Moon and Kim 2001).

"According to the Theory of Planned Behavior and its predecessor, the Theory of Reasoned Action, behavioral intention can be a strong predictor of actual behavior" (Koufaris 2002). Therefore, the significance of behavioral intention to use as a dependent variable in this study model.

3 Conceptual Model

Based on literature review and relating it to the structural model, the investigated constructs and their definition are summarized in Table 1 as follows:

Depending on the previous studies in literature and the previous constructs, the following hypotheses were proposed:

- H1 The Perceived Convenience has a direct impact on Behavioral Intention to Use.
- H2 The Perceived Ease of Use has a direct impact on Behavioral Intention to Use.
- H3 The Facilitating Conditions has a direct impact on Behavioral Intention to Use.
- H4 The Perceived Usefulness has a direct impact on Behavioral Intention to Use.
- H5 The Information Capability has a direct impact on Behavioral al Intention to Use.

Table 1 The literature-derived constructs and the operational definitions

Model	Constructs	Definitions
E-Ticketing Strategies	Perceived Convenience	According to customer perception of convenience, the advantage of online shopping is related to browsing benefits and the reduction of time spent on shopping (Szymanski and Hise 2000)
	Perceived Ease of Use	Easy to learn, expert's help, clear and understanding, easy to become skillful, mental effort, controllable, friendliness (Ahn et al. 2007)
	Facilitating Conditions	The degree to which an individual believes that organizational and technical infrastructure exists to support use of the system (Escobar-Rodríguez and Carvajal-Trujillo 2014)
	Perceived Usefulness	Quickness, better decision, job performance, save money, productivity, task quality, job easiness (Ahn et al. 2007)
	Information Quality	Relevance, Accuracy, Timeliness, Content, Format, Completeness, Understandability (Kuan et al. 2008)
	Perceived Security	The security for providing personal information, and online purchase risk. Security refers to freedom from risk or doubt during the service process and affects consumers' confidence in online transaction (Yang and Jun 2008; Zhang et al. 2006)
	Perceived Privacy	The probability that the online seller will ensure that the confidential information on the consumer acquired during the completion of the online transaction is protected against unauthorized disclosure or use (Kim et al. 2008)

(continued)

Table 1 (continued)

Model	Constructs	Definitions
	Customer Technical Support:	There are many success characteristics of the systems determining criteria in the assessment of system support to the customers like; reliability, response time and ease of terminal use; data accuracy, reliability, completeness, system flexibility and ease of use; and consistency of the user interface, quality of documentation and sometimes, quality and maintainability of the program code (Buhalis 2004; Sureshkumar and Palanivelu 2011)
	Infrastructure	Infrastructure support refers to the adequacy of the deployment of IT infrastructures like computers, networks, servers, and databases, to support the user's activity. Infrastructure support and facilitating conditions are important additions to Technology Acceptance Model for online shopping tasks (Bhattacherjee and Hikmet 2008; Panchamia and Doctor 2015)
(ICT) Tools		Information and communication technologies are important tools that are utilized in everyday life and can help SMEs grow by encouraging the establishment and development of new firms. In research on organizational and business success, ICT tools have been employed as a success factor (Alzaghal and Mukhtar 2018; Cheng et al. 2021)
Behavioral Intention to Use	Intention to Use	Continuance, regular use, frequency, prefer to use, recommendation (Ahn et al. 2007; Koufaris 2002; Palmer 2002)

- H6 The Perceived Security has a direct t impact on Behavioral Intention to Use
- H7 The Perceived Privacy has a direct impact on Behavioral Intention to Use.
- H8 The Customer Technical Support has a direct impact on Behavioral Intention to Use.
- H9 The Infrastructure has a direct impact on Behavioral Intention to Use.

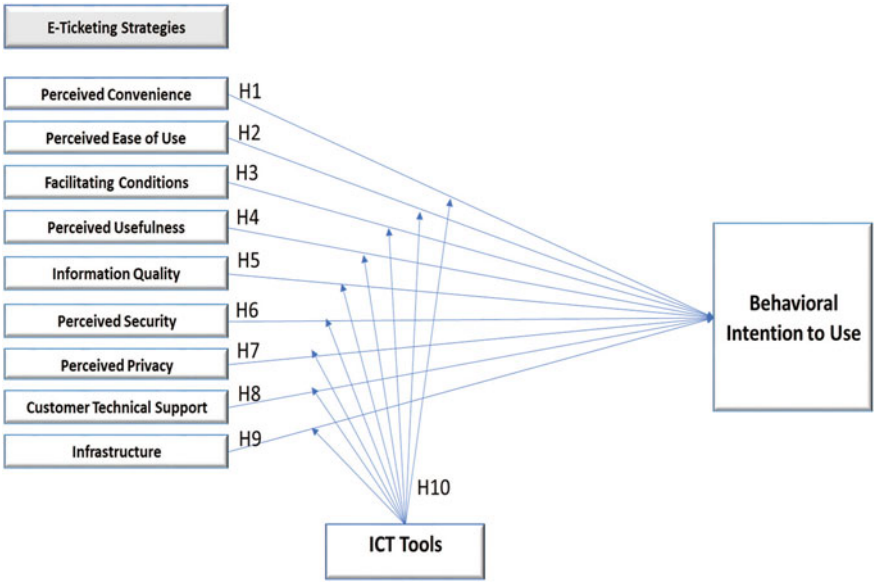

Fig. 1 The conceptual model

- H10 ICT tools moderates the relationship model of Perceived Convenience, Perceived Ease of Use, Facilitating Conditions, Perceived Usefulness, Information quality, Perceived Security, Perceived Privacy, Customer Technical Support, Infrastructure and Behavioral Intention to Use.

Depending on the summarized constructs shown in Table 1 and the previous hypotheses, the following Fig. 1 is showing the conceptual model for this study:

4 Research Methods

4.1 Development of Measurement Scales

To test the study hypotheses, the researchers addressed the variables through an extensive literature review. The main three constructs of this study are summarized in Table 2 below which illustrates the operationalization for each of the study constructs.

Table 2 Research construct operationalization

Constructs	Authors
E-Ticketing Strategies	
a) Perceived Convenience • E-ticketing saves time • E-ticketing offers the possibility of shopping 24/7 • E-ticketing is the smart way to spend time	(Vasić et al. 2019)
b) Perceived Ease of Use • Learning about the E-ticketing Website is easy for me • It will be impossible to use the E-ticketing Web without expert help • My interaction with the E-ticketing Web is clear and understandable • It is easy for me to become skillful at using the E-ticketing Web • Using the E-ticketing Web requires a lot of mental effort • I find it easy to get the E-ticketing Web to do what I want it to do • I find this E-ticketing Website user friendly	(Ahn et al. 2007)
c) Facilitating Conditions • I have the resources necessary to use E-ticketing websites • I have the knowledge necessary to use E-ticketing websites • I feel comfortable using E-ticketing websites	(Escobar-Rodríguez and Carvajal-Trujillo 2014)
d) Perceived Usefulness • Using the E-ticketing Web enables me to accomplish tasks more quickly • Using the E-ticketing Web helps me to get better decision • Using the E-ticketing Web improves the performance of my tasks • Using the E-ticketing Web saves me money • Using the E-ticketing Web increases my task productivity • Using the E-ticketing Web improves my task quality • Using E-ticketing Web makes my job easier	(Ahn et al. 2007)

(continued)

Table 2 (continued)

Constructs	Authors
e) Information Quality • E-ticketing websites provide accurate information I need in the purchase process • E-ticketing websites provide sufficient information needed in the purchase process • E-ticketing websites provide enough depth of information • The information provided by E-ticketing websites is helpful to me in the purchase process • The information in E-ticketing websites is clear to me • E-ticketing websites provide up-to-date information	(Escobar-Rodríguez and Carvajal-Trujillo 2014)
f) Perceived Security • E-ticketing Websites check online customers' identity for security purposes • E-ticketing websites ensure that information about electronic transactions is protected from being altered or destroyed • I felt secure in providing personal information for purchasing airline tickets online • Airline companies have adequate website security features • Airline companies protect my privacy when purchasing tickets online • Airline companies' websites provide high protection on my credit card information	(Nithya and Kiruthika 2021; Qteishat et al. 2014)
g) Perceived Privacy • I am concerned that E-ticketing websites collect too much personal information from me • I am concerned that E-ticketing websites will use my personal information for other purposes without my authorization • I am concerned that E-ticketing websites will share my personal information with other entities without my authorization • I am concerned that unauthorized persons (e.g., hackers) have access to my personal information • I am concerned about the privacy of my personal information during a transaction • I am concerned that E-ticketing websites will sell my personal information to others without my permission	(Escobar-Rodríguez and Carvajal-Trujillo 2014)

(continued)

Table 2 (continued)

Constructs	Authors
h) Customer Technical Support • E-ticketing provides good personal sales assistance by e-mail or SMS • E-ticketing provides FAQ (frequently asked questions and answers) links to the relevant information • E-ticketing technical support terms and conditions of sales are easy to find through the web • E-ticketing provides an easy access to the company's policy for shipping and handling of their products • E-ticketing provides full details of pricing and taxes for product and service	(Qteishat et al. 2014)
i) Infrastructure • E-ticketing infrastructure allows information to be readily accessible to you • E-ticketing Infrastructure helps new users with an easy access to all applications • E-ticketing Infrastructure can be integrated with other e-things • E-ticketing Infrastructure flexibly adjusts to new job demands • E-ticketing Infrastructure provides sufficient information • I'm satisfied with the accuracy that E-ticketing website provides	(Qteishat et al. 2014)
(ICT) Tools	
• To what extent you are using websites and e-booking systems • To what extent you receive assistance from ICT specialists when using online purchasing system • To what extent your ICT infrastructure support using online purchasing • To what extent you are using market research and analysis tools (e.g., online focus groups, online surveys, statistical software, or secondary data such as searchable databases) • To what extent you are using ICT tools to communicate with companies and organizations • To what extent you are using ICT tools in order to collect business knowledge related to competitor's companies, offers, prices, and operating environment	(Mkwizu and Sichone 2019; Pavel 2018; Silva 2017)

(continued)

Table 2 (continued)

Constructs	Authors
Behavioral Intention to Use	
• I will keep use this Website in the future • I will use this Web on a regular basis in the future • I will frequently use this Website in the future • I will use this site rather than other Websites for purchasing product • I will recommend others to use this Website	(Ahn et al. 2007)

4.2 Research Design and Sampling

An online questionnaire was used to collect data from the study population which is the individuals who use electronic tickets. In order to test the validity of the measurement tool, the questionnaire was first tested by (30) experts from both the academic researchers and airline sectors, then the final form of the questionnaire was launched for 3 months.

The type of the sample that were used was a non-probability sample (purposive), the main reason for using this type of samples was that the population framework is not existed.

The final launched online survey can be found on this link: https://docs.google.com/forms/d/e/1FAIpQLSdXyDXUODbB2XJvoNYASKzR_Y1qIHHHrPSjLQUEwQovyYA-tw/viewform?usp=sf_link

The questionnaire used was a 5-Point Likert-type scale. The numbers of respondents by the end of the data gathering period were (254) respondents, classified according to gender was 56.7% male, 43.3% female; and by Age was 2.3% (less than 20) years,62.2% (21–30) years, 31.9% (31–40) years, 3.6% (41 and over) years.

According to educational level, 4.3% high school and less, 65% had a bachelor's degree, 30.7% post graduate degree.

As for social status, 27.2% were single, 68% were married, 2.4% were divorced, 2.4% were separated.

According to Duration of Social Media Consumption Daily, 30% were (less than 2) hours, 39% (2–4) hours, 24% (5–9) hours, 7% (More than 10) hours.

Royal Jordanian Airline was the first rank within the respondents' best choice of airlines, followed by Turkish Airlines, Qatar Airways, and Emirates Airline.

5 Findings

5.1 Descriptive Statistics

The main descriptive statistics were derived using AMOS® 20.0 software package. Table 3 below illustrates the mean, standard deviation, and ranking for each of the variables used for the analysis.

Structural equation model was used to analyze the data. It permits to estimate the effect of independent variables on dependent variable, and estimation of mediating effects. From Table 4, the path coefficient from Perceived Ease of Use would have a significant effect on Behavioral Intention to Use. The results support H2 hypothesis ($\beta = 214, t = 3.758, P < 0.05$). Also, suggested that Facilitating Conditions would have a significant effect on Behavioral Intention to Use. The results support this hypothesis ($\beta = 0.136$, $t = 2.333$, $P < 0.05$). Also, H4 proposed that Perceived Usefulness would have a significant effect on Behavioral Intention to Use. The results support this hypothesis ($\beta = 0.149$, $t = 2.008$, $P < 0.05$) and the results found there is a significant effect of Perceived Security on Behavioral Intention to Use ($\beta = 0.172$, $t = 2.405$, $P < 0.05$). Finally, the results reveal a significant effect of Infrastructure on Behavioral Intention to Use ($\beta = 0.453$, $t = 6.066$, $P < 0.05$). So H9 is confirmed.

While the path coefficient from Perceived Convenience and Behavioral Intention to Use ($\beta = 0.021$, $t = 0.417$) is not significant ($P > 0.05$), therefore the results don't support H1. Also, the results indicate there is no direct effect of Information Quality on Behavioral Intention to Use ($\beta = 0.103$, $t = 1.195$, $P > 0.05$). The results don't support H5. Also, the results indicate there is no direct effect of Perceived Privacy on Behavioral Intention to Use ($\beta = 0.016$, $t = 0.361$, $P > 0.05$). The results don't support H7. In addition, H8 don't supported since there is no direct effect of Customer Technical Support on Behavioral Intention to Use ($\beta = 0.107$, $t = 1.745$, $P > 0.05$). The nine independent variables explain 63 percent of the variance in Behavioral Intention to Use.

To examine the moderate role of ICT tools, a multi-group analysis structural equation modelling was used (see Table 5). To ensure that differences in the relationships among the constructs of the study were because of the ICT tools effect, an invariance analysis was used. In the first step we classify the sample into two groups according to mean score namely: high ICT tools group (mean >= 3) and low ICT tools group (mean < 3) the sample size for each group (206,48) respectively.

The second step of the analysis involved testing the baseline model for the two groups. Therefore, the validated structural path model was examined across two groups (high and low) considered collectively -without any equality-constrained relationship across two groups. The chi-square and degree of freedom yielded from the unconstrained model were compared to the particular constrained path.

Table 3 Descriptive statistics and correlation matrix

Variable	Mean	St. De	1	2	3	4	5	6	7	8	9	10
ICT tools	3.60	0.700										
Perceived Convenience	4.08	0.656	0.288*									
Perceived Ease of Use	3.75	0.566	0.466*	0.481*								
Facilitating Conditions	3.94	0.722	0.279*	0.482*	0.613*							
Perceived Usefulness	3.90	0.666	0.266*	0.562*	0.581*	0.657*						
Information Quality	3.77	0.716	0.315*	0.618*	0.551*	0.670*	0.825*					
Perceived Security	3.76	0.703	0.361*	0.532*	0.495*	0.598*	0.736*	0.814*				
Perceived Privacy	3.45	0.799	0.324*	0.168*	0.428*	0.191*	0.249*	0.300*	0.273*			
Customer Technical Support	3.70	0.623	0.385*	0.402*	0.472*	0.355*	0.517*	0.560*	0.566*	0.420*		
Infrastructure	3.74	0.611	0.468*	0.453*	0.584*	0.528*	0.676*	0.678*	0.704*	0.426*	0.766*	
Behavioral Intention to Use	3.86	0.698	0.384*	0.462*	0.590*	0.479*	0.662*	0.657*	0.664*	0.348*	0.539*	0.732*

Note: * Sig < 0.01
The SD is the highest for perceived privacy and the lowest for perceived ease of use

Table 4 Path analysis for the constructs of the study

	Relation	Coefficients	CR	Support/non-support
Path	B I U ← Perceived Convenience	0.021	0.417	0.677
	B I U ← Perceived Ease of Use	0.214	3.758**	***
	B I U ← Facilitating Conditions	0.136	2.333*	0.02
	B I U ← Perceived Usefulness	0.149	2.008*	0.045
	B I U ← Information Quality	0.103	1.195	0.232
	B I U ← Perceived Security	0.172	2.405*	0.016
	B I U ← Perceived Privacy	0.016	0.361	0.718
	B I U ← Customer Technical Support	0.107	1.745	0.081
	B I U ← Infrastructure	0.453	6.066**	***

Explained variance proportion R2 of behavioral intention to use = 0.630
Note *p < 0.05; **p < 0.01

Table 5 Results of multi-group analysis for ICT Tools

Models	χ^2 difference	Δ df	P	B	t-value	β	t-value
Constrained Model	22.417**	9	0.008				
B I U ← Perceived Convenience	0.437	1	0.508	0.086	1.524	0.005	0.039
B I U ← Perceived Ease of Use	1.101	1	0.294	0.155	2.641*	0.183	1.136
B I U ← Facilitating Conditions	0.002	1	0.961	0.064	1.01	0.274	1.443
B I U ← Perceived Usefulness	0.577	1	0.447	0.224	2.856*	0.057	0.265
B I U ← Information Quality	5.465*	1	0.019	0.025	0.272	0.571	2.442*
B I U ← Perceived Security	0.149	1	0.699	0.089	1.081	0.013	0.076
B I U ← Perceived Privacy	0.286	1	0.593	0.033	0.666	0.034	0.315
B I U ← Customer Technical Support	5.886*	1	0.015	0.173	2.665*	0.388	1.786
B I U ← Infrastructure	7.362**	1	0.007	0.572	7.334*	0.051	0.233

Note * p < 0.05; ** p < 0.01

The results indicate that the groups (high/low) are different at the model level following a significant χ^2 difference tests ($\chi^2 = 22.417$, $p < 0.05$). This suggests that high and low ICT groups could have differences in Behavioral Intention to Use. The respective path analysis also indicates a significant χ^2 difference test on the paths: "Information Capability → B I U", "Customer Technical Support → B I U" and "Infrastructure → B I U". Hence, supporting H10 partially. The beta value is significant effect of Information Quality on appear in the low ICT group ($\beta = 0.517$, t-value = 2.442) while the effect of both Customer Technical Support on B I U and Infrastructure on BIU are significant in high ICT group ($\beta = 0.173$, t-value = 2.665) and ($\beta = 0.572$, t-value = 7.334).

5.2 Reliability and Validity

Content validity was tested through distributing the first copy of questionnaire to (30) experts as illustrated before. To test the reliability "Cronbach alpha" was calculated as shown in the following Table 6:

Table 6 Cronbach alpha statistics

Variables	Cronbach Alpha
ICT tools	0.732
Perceived Convenience	0.782
Perceived Ease of Use	0.878
Facilitating Conditions	0.731
Perceived Usefulness	0.903
Information Quality	0.864
Perceived Security	0.858
Perceived Privacy	0.782
Customer Technical Support	0.857
Infrastructure	0.844
Behavioral Intention to use	0.887

6 Conclusions

The result revealed that the following independent variables (perceived convenience, information quality, perceived privacy) doesn't have direct impact on the dependent variable (behavioral intention to use).

The result also showed that the following variables (perceived ease of use, facilitating condition, perceived usefulness, perceived security and infrastructure) have direct positive effect on the dependent variable (behavioral intention to use).

The analytic results showed that concerning the (ICT) tools, two categories of (ICT) engagement were revealed, the first category is related to participants who have low skills in using computer skills and low online purchasing experience.

The (ICT) tools as a moderator for this category mediate the relationship between perceived convenience and behavioral intention to use, since the results showed no direct effect of perceived convenience and behavioral intention to use.

Therefore, companies should take into consideration the importance of illustrating the benefits and advantages of e-ticketing.

The second category of (ICT) tools was those participants with high computer skills and high online purchasing experience, for those the (ICT) tools mediate the relationship between (customer technical support, infrastructure) and behavioral intention to use.

Knowing that the results do not show any direct effect between customer technical support and behavioral intention to use. While, there is a direct effect between infrastructure and behavioral intention to use.

This indicate that companies should pay more attention to all the dimensions related to (customer technical support) which, may include: pricing and taxing, techniques, condition of sale, sales assistance, shipping policies).

Also, regarding the direct effect of infrastructure and behavioral intention to use, this implies that companies must devote more efforts on making the information of the websites more accurate, flexible, adequate, and easy to access.

7 Discussion

The results showed that facilitating conditions has a direct impact on behavioral intention to use e-ticketing and this result is consistent with the study of Escobar-Rodríguez and Carvajal-Trujillo (2014), which indicated that the facilitating conditions factor significantly affects online purchases and the intention to use. Furthermore, other studies have revealed that facilitating conditions are highly related to behavioral intent (Prayoonphan and Xu 2019; Venkatesh et al. 2012), and opposes the results found by San Martín and Herrero (2012), which indicates that customers pay high attention to the technical resources that support the use of the system, this accordingly will affect their intention to use e-ticketing.

The results of the study also revealed that both perceived ease of use, perceived usefulness, have direct impact on behavioral intention to use e-ticketing, and these results are consistent with the study of Shafique et al. (2019). Other studies like Moon and Kim (2001) also showed that perceived ease of use and perceived usefulness are very important and have a significant impact on creating the intention to deal with the website and the web system. Zhang et al. (2006), found also a positive relationship between perceived convenience and accepting the process of use. The study of Khare et al. (2012) showed that there are three factors associated with consumers' attitudes towards online purchases: 'perceived usefulness', 'ease of use', 'perceived risk'. This result also supported by Kolsaker et al. (2004) study which indicates that ease of purchase emerges as a key indicator of respondents' willingness to buy online.

The results also revealed that perceived security, and infrastructure have direct impact on behavioral intention to use e-ticketing, these outcomes are consistent with Panchamia and Doctor (2015) which revealed that the relationship between the factors of Technology Acceptance Model and other external factors such as perceived risk and infrastructure support which may influence the customer's attitude and intention to use towards e-ticket booking. Infrastructure support proved to be an insignificant variable affecting the behavioral intention to use is strongly determined by perceived usefulness and attitude. Kolsaker et al. (2004) results also indicate that respondents require further reassurance about the safety of transacting online and some service back-up from vendors. Concerns over the security of financial transactions and the confidentiality of personal information emerge as important factors in respondents' perceptions of risk. Taherdoost (2018) also concluded that intention to use e-services is ruled by three major variables: quality, satisfaction and security. (Chang et al. 2019; Vasić et al. 2019) revealed also that security is one of factors that creates a desire to buy by consumers.

The results of the study also showed that the following factors (information quality, and perceived privacy) have no direct impact on the behavioral intention to use, this result contradicts with the study of Kuan et al. (2008) which showed that information quality is highly associated with both intention of both initial and continued purchase. Furthermore, the study of Kim et al. (2008) revealed that (perceived privacy, and information quality) as part of perceived risk in their study affect intention to use. The main explanation for this result is that customers may believe that security is more important for them than privacy and they may own high skills and experiences in dealing with online purchasing, therefore these two factors did not affect their intention to use e-ticketing system.

Regarding the ICT tools (as a moderator), limited studies used ICT as a moderator between e-ticketing strategies and behavioral intention to use. The results of the study revealed that the ICT tools moderate the relationship between perceived convenience and behavioral intention to use for the first category participants who have low skills in using computers and online purchasing. Although that the same results showed that there is no direct effect of perceived convenience and behavioral intention to use without the moderator. Liébana-Cabanillas et al. (2020) found that perceived utility of mobile payment services is influenced by innovativeness, stress, and perceived simplicity of use. As a result, the desire to utilize mobile payment services as an ICT

tool is influenced by perceived utility, perceived satisfaction, perceived danger, and perceived trust. The results provide ways for businesses to combine this technology-based payment solution.

Furthermore, the ICT tools moderate the relationship between (customer technical support, infrastructure) and behavioral intention to use for the second category participants who have high skills in using computers and online purchasing. Although, that the same results do not show any direct effect between customer technical support and behavioral intention to use without the moderator, while there is a direct effect between infrastructure and behavioral intention to use without the moderator. In the same context, Mac Callum and Jeffrey (2014) explores the impact of ICT anxiety, ICT literacy, perceived ease of use and usefulness on the adoption of mobile learning. The results showed that the basic level of ICT literacy and an advanced level of mobile literacy had an impact on intention to adopt but an advanced level of ICT literacy was not found to have any effect. Furthermore, Puthur et al. (2020) indicated that the two main variables of the technology acceptance model (TAM), perceived usefulness and perceived ease of use, as well as trust and computer self-efficacy, account for over 70% of the variation in the user's intention to reuse the Indian railways' e-ticket booking site. The results indicate that in order to increase citizens' intent to reuse their services, the e-ticketing website should have user-friendly, high-quality information content and outstanding website quality.

Finally, the results of the study showed that ICT tools are not moderating the relationship between (Perceived ease of use, facilitating conditions, perceived usefulness, information quality, perceived security, perceived privacy) and behavioral intention to use. This result is disagreed with some studies in different fields, Bundot et al. (2017) found that lecturer's intention to use ICT was influenced by perceived usefulness, attitude, and perceived ease of use.

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