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### Click to Ride: Understanding E-Ticketing Adoption in Emerging Economies Using an Extended UTAUT2 Framework

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#### ABSTRACT

This study aims to examine the key factors influencing passengers' adoption of electronic ticketing (e-ticketing) systems in public transportation in an emerging economy. To achieve this objective, the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) framework is extended by incorporating three additional variables: return and exchange, technological anxiety, and perceived risk to capture contextual and psychological influences more comprehensively. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to analyze data from 392 participants. The findings reveal that performance expectancy, effort expectancy, social influence, hedonic motivation, habit, facilitating conditions, price value, return and exchange, and perceived risk have significant effects on passengers' behavioral intention to adopt e-ticketing. In contrast, technological anxiety does not exhibit a considerable influence. These results underscore the importance of incorporating extended UTAUT2 variables to gain a more comprehensive understanding of adoption behavior. It provides actionable insights for transport operators, policymakers, and platform developers seeking to enhance user engagement and facilitate digital transformation in public transport services.

#### 1. Introduction

The digital transformation of transportation systems has revolutionized the way passengers plan, purchase, and manage their journeys, with electronic ticketing (e-ticketing) emerging as a critical technological innovation. E-ticketing provides ease, transparency, and efficiency by eliminating paper tickets and enabling users to access services via mobile or web platforms. Passengers now benefit from 24/7 ticketing access, immediate confirmation, and enhanced sensory engagement, making the travel experience easier and pleasurable (Sondhi & Joshi, 2021). Notwithstanding these benefits, the adoption rate of e-ticketing varies considerably across regions, especially in emerging economies, where infrastructural deficiencies, digital literacy disparities, and socio-economic inequalities impede the dissemination of technology (Awal et al., 2024; Islam, 2023). Understanding the determinants of passengers' willingness to adopt e-ticketing systems is essential for improving service efficiency and fostering sustainable digital transformation in public transportation (Hasan, 2022; Subramanya et al., 2022).

In Bangladesh, e-ticketing is among the fastest-growing areas within the broader e-commerce industry (Afnanin et al., 2025). The incorporation of online services has

been expedited by the government's initiatives to promote "Digital Bangladesh," the pervasive availability of mobile internet, and the expansion of affordable smartphones (Mallat et al., 2008; Hasan, 2022). Nevertheless, the long distances between cities initially impeded access, limited government transport services, and fragmented private networks, creating opportunities for platforms such as Shohoz.com, busbd.com, eticketrailway.com, and bdtickets.com (Hasan, 2022). In an effort to mitigate their dependence on third-party vendors, numerous transportation providers, including Shyamoli Paribahan and Greenline Paribahan, have implemented their own reservation systems. The COVID-19 pandemic further underscored the significance of contactless services. E-ticketing facilitated compliance with social distancing measures, reduced queue congestion, and minimized human interaction (Subramanya et al., 2022).

In the past decade, technology acceptance theories have been extensively employed to elucidate the process by which individuals choose to incorporate digital innovations. The most influential frameworks among these are the Unified Theory of Acceptance and Use of Technology (UTAUT2) and the Technology Acceptance

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Model (TAM) (Venkatesh et al., 2012). UTAUT2 identifies seven critical determinants of technology use; however, these factors may not capture the full range of variables influencing user behavior in developing economies. Frequently, passengers' adoption or rejection of new technologies is contingent on additional variables, including trust, perceived security, and digital competence (Qasem, 2018; Rajapaksha et al., 2024; Niazi, 2021).

Empirical studies have provided valuable insights into these dynamics. For instance, Awal et al. (2024) found that perceived usefulness and trust significantly influence railway passengers' adoption of e-ticketing in Bangladesh. Similarly, Hakim et al. (2024) reported that trust and user-centric system design were critical to mobile ticketing adoption among intercity bus passengers in Indonesia, while Rajapaksha et al. (2024) highlighted the role of cultural norms and social influence in Sri Lanka. Other studies have emphasized the importance of price value, hedonic motivation, and facilitating conditions in sustaining digital service usage (Muflih et al., 2020). However, much of the existing literature remains concentrated on air travel or single-modal transportation systems (Shon et al., 2003; Yusuf et al., 2025), resulting in a limited understanding of passenger behavior across broader urban and intercity transportation networks in developing economies. Although UTAUT2 provides a robust foundation for analyzing technology adoption, its direct application may not fully capture the complexity of e-ticketing adoption in emerging economies. In particular, service assurance mechanisms (such as return and exchange policies), perceived risk, and technological anxiety remain underexplored within transportation-focused UTAUT2 studies. Incorporating these constructs enables this study to address context-specific behavioral drivers highly relevant to Bangladeshi passengers. Accordingly, this research seeks to bridge the existing empirical gap by examining both traditional and extended UTAUT2 determinants of e-ticketing adoption in Bangladesh. The justification for employing an extended UTAUT2 framework lies in its flexibility to integrate psychological, technical, and contextual dimensions, thereby offering a more comprehensive understanding of user behavior (Venkatesh et al., 2012; Ameen et al., 2022). Beyond advancing theory, identifying the factors influencing e-ticketing adoption can help transport authorities, regulators, and system developers design more user-friendly, reliable, and inclusive platforms. Furthermore, understanding the role of trust, perceived risk, and service assurance can inform digital literacy initiatives and governance strategies aimed at strengthening user confidence and participation (Hasan, 2022; Awal et al., 2024).

Accordingly, this study aims to examine the factors influencing passengers' intentions to use e-ticketing by applying an extended UTAUT2 model in the context of a developing economy. By incorporating constructs such as return and exchange policies, perceived risk, and technological anxiety, the study contributes to the

literature on digital adoption. It offers policy-relevant insights for fostering sustainable and inclusive transportation systems in Bangladesh and comparable settings.

## 2. Review of literature and hypotheses development

### 2.1. E-Ticketing

E-ticketing, also known as electronic ticketing, is a way to buy, store, and manage tickets online or via mobile apps rather than purchasing physical tickets. This represents an important milestone forward in the digital revolution of the transportation, tourism, and event management sectors. With the advent of e-ticketing, passengers can quickly find transportation alternatives, pay for them, and purchase tickets on their smartphones or computers. This capability means they do not need physical tickets or long lines. (Al-Gahtani, 2016). Following the COVID-19 pandemic, the adoption of e-ticketing has accelerated due to growing preferences for contactless transactions and seamless mobile payment integration, especially in developing countries (Subramanya et al., 2022; Shuvo et al., 2024; Zhao & Bacao, 2021).

This technology has made booking and check-in easier and more efficient for service providers, saving them money. E-ticketing helps businesses save money on administration, reduce mistakes, and handle data more effectively for operational planning. From the user's perspective, the system makes things simpler, more flexible, and more accessible, particularly as mobile payment methods become more common (Islam et al., 2024).

As part of broader efforts to go digital and make transportation smarter, e-ticketing rapidly grew in popularity worldwide. This shift is closely tied to the government's promise to build a "Digital Bangladesh," as well as the growing number of smartphones and the internet's increasing accessibility in underdeveloped countries like Bangladesh. As a result, people are becoming accustomed to buying tickets for movies, shows, and transportation online. As online payment systems like bKash, Rocket, and Nagad become more reliable, people are even more confident in e-ticketing services (Islam, 2023). Awal et al. (2024) further observed that trust in digital payment ecosystems and platform reliability plays a crucial role in shaping users' continued intention to use e-ticketing services in South Asian countries.

In developing and emerging economies, e-ticketing systems have grown rapidly over the past few years due to new technologies and initiatives to make online transactions easier. However, these areas have challenges that vary from those in developed countries. People are unwilling to use digital ticketing services quite frequently because they are unaware of how to use computers, the internet is not always accessible, and they distrust online payment methods (Abdullah et al., 2016). Even with these drawbacks, the expansion of mobile commerce and

government-supported digital transformation initiatives has made it easier for many people, especially younger, tech-savvy people, to use e-tickets (Rahman et al., 2015). Government measures that support e-governance, improved digital infrastructure, and expanded mobile financial services have helped drive this advancement. As people become accustomed to interacting online through social media and smartphone apps, they are increasingly likely to use online ticketing platforms (Shuvo et al., 2024). E-ticketing is also a popular choice in the post-pandemic world because it is quick and easy, and people value contactless services for safety and time savings.

E-ticketing has grown considerably in Bangladesh across both public and private transportation. The e-ticketing services of Bangladesh Railway, Shohoz, BusBD, Biman Bangladesh Airlines, and other online platforms have changed the way travelers buy and manage their tickets (Islam, 2023). These platforms let consumers compare costs, choose their preferred times, and make secure payments, clarifying the process and making customers happier. The Digital Bangladesh Vision 2021 project and the growing use of mobile wallets have helped facilitate this shift to digital services (Hernandez, 2019).

Still, there are problems to solve. Technological concerns, perceived security threats, and insufficient refund or exchange options persist as hindrances to adoption across specific demographic segments (Abdul-Rahim et al., 2022). Furthermore, people do not trust e-ticketing services as much because internet access is spotty in rural areas, and service outages occur from time to time. To build trust and ensure equal access for all passengers, technology upgrades, user training, and customer service improvements are needed.

Overall, the rapid growth of e-ticketing in developing countries, especially Bangladesh, is a sign of a broader trend toward digital inclusion and new services. E-ticketing is projected to be crucial for fostering efficient, open, and long-lasting mobility as internet infrastructure and financial technologies continue to improve.

## 2.2. Unified theory of acceptance and use of technology 2 Model (UTAUT2)

The UTAUT2 elucidates technology adoption in consumer contexts, enhancing UTAUT by incorporating hedonic motivation, price value, and habit, alongside the traditional constructs (Venkatesh et al., 2012). This approach is ideal for understanding passengers' acceptance of e-ticketing, encompassing both practical benefits and psychological motivations for use.

Among the determinants, the first, Performance Expectancy (PE), measures how important individuals believe e-ticketing is for making things easier and more efficient. Individuals are more likely to utilize online ticketing when they perceive that it will save time and minimize queuing (Alalwan et al., 2017; Venkatesh et al., 2012). Effort expectancy (EE) evaluates the ease of using the system. User-friendly platforms make it easier for people to use the system, particularly those who are not

incredibly tech-savvy (Oliveira et al., 2016; Thakur & Srivastava, 2014). Social influence (SI) pertains to the impact of peers and societal norms on technology adoption, whereas facilitating conditions (FC) denote the resources and assistance that facilitate system utilization (Zhang et al., 2023; Wu et al., 2018). Price value (PV), hedonic motivation (HM), and habit (HT) were emphasized by Venkatesh et al. (2012) as significant factors influencing technology adoption behavior, and Liébana-Cabanillas et al. (2014) affirmed their applicability in digital transaction contexts. These factors are now widely used in e-ticketing research, suggesting that enjoyment, perceived value, and routine usage significantly influence users' intention to adopt e-ticketing services.

To adapt to evolving economic and consumer decision-making environments, UTAUT2 may be augmented by integrating return and exchange (RE) policies, technological anxiety (TA), and perceived risk (PR). Research has shown that flexible and transparent ticket return or exchange policies can enhance users' trust and confidence in e-ticketing platforms (Hu & Yang, 2021). However, TA and PR may hinder adoption, as users may fear making errors, being deceived, or experiencing data privacy breaches. UTAUT2 offers a robust framework for analyzing passengers' behavioral intentions and actual e-ticketing utilization by considering functional, social, hedonic, and habitual influences, while incorporating risk-related factors enhances its explanatory capacity in digital ticketing scenarios.

## 2.3. Performance expectancy

Performance expectancy refers to the extent to which individuals believe that using a technology would enhance their performance in their professional duties or responsibilities (Venkatesh et al., 2012; Venkatesh et al., 2003). In the context of e-ticketing, PE shows that passengers believe adopting online ticketing systems will make their trips more efficient and convenient, saving them time. When travelers believe that e-ticketing can speed up ticket purchases, reduce waiting times, and provide accurate trip information, they are more likely to use it.

Empirical data support the crucial role that PE plays in technological adoption. For instance, Venkatesh et al. (2012) showed that PE is a reliable and robust determinant of behavioral intention across a range of consumer technologies. In the context of transportation, Hilal and Varela-Neira (2022) found that perceived ease of use strongly influences passengers' propensity to use mobile ticketing systems, as they are driven by tangible benefits such as convenience and efficiency.

Similarly, Candra et al. (2024) found that PE positively influenced users' intentions to engage with online public transportation systems. They also found that consumers put a lot of weight on how valid they think something is when determining whether to transition from old ways to digital platforms.

In addition, PE could be essential in developing countries because passengers often have to endure time limits, limited access to physical ticket counters, and insecure service facilities. The belief that e-ticketing can alleviate these issues increases its popularity and the likelihood of adoption (Thakur & Srivastava, 2014). Consequently, it is both theoretically and experimentally logical to propose:

H1: Performance expectancy significantly affects passengers' intention to purchase tickets online.

#### 2.4. Effort expectancy

Effort expectancy refers to the perceived convenience of using technology (Venkatesh et al., 2003). If someone uses a system more efficiently and easily, they are said to have an effort expectation (Hasan et al., 2021). In e-ticketing, it reflects how straightforward and user-friendly the system is for travelers. When e-ticketing solutions are user-friendly and require less effort, passengers are more inclined to engage with them. Research demonstrates that EE is an important factor influencing behavioral intention. Venkatesh et al. (2012) discovered that the usability of a technology significantly influences its adoption, especially during initial phases. Similarly, Thakur and Srivastava (2014) found that simplicity of use increases users' willingness to use online or mobile services. In emerging nations, where consumer digital skills vary, a simple, intuitive e-ticketing system can significantly increase adoption. Studies also show that clear interface design and simplified transaction processes strongly promote adoption intentions, especially among users with moderate levels of digital literacy (Hasan et al., 2021; Zhao et al., 2025). Accordingly, the following hypothesis is proposed:

H2: Effort expectancy significantly affects passengers' intention to purchase tickets online.

#### 2.5. Social influence

The degree to which a person believes others can convince them to interact with the system is called social influence (Venkatesh et al., 2003). A person's attitudes and behaviors are strongly influenced by their social surroundings, including family, friends, and peers (Uddin et al., 2019). Prior research indicates that social influence is a crucial determinant of individuals' behavioral intentions (Venkatesh et al., 2003; Venkatesh et al., 2012; Ajzen, 1991). This refers to the extent to which an individual's social environment influences their intention to use online ticketing in that context. People are increasingly adopting a modern lifestyle amidst rising ostentatious consumption. Individuals frequently acclimate to a novel device that enhances their social status, reflecting the significant influence of social influence on our daily lives. Social influence significantly shapes such adoption decisions, especially as its effects are amplified by social media recommendations, peer visibility, and online reviews in collectivist cultures (Uddin et al., 2019; Joa & Magsamen-Conrad, 2022). Based on these findings, the following hypothesis can be drawn:

H3: Social influence significantly influences passengers' intentions to purchase tickets online.

#### 2.6. Facilitating conditions

Facilitating conditions refer to individuals' perceptions of the accessibility of organizational and technical support that facilitates the effective use of a specific technology (Venkatesh et al., 2003; Venkatesh et al., 2012). Within the context of e-ticketing, FC encompasses access to the internet, smartphones, secure payment systems, and reliable technical support. When passengers recognize that these essential resources and support mechanisms are accessible, they are more inclined to utilize e-ticketing services.

Research consistently highlights the influence of FC on technology adoption behavior. Venkatesh et al. (2012) stressed that FC is crucial in the post-adoption period because it affects both behavioral intention and continuing system use. Martins et al. (2014) similarly found that adequate infrastructure support and resource accessibility promote the adoption of online banking. Chiu et al. (2014) also showed that strong facilitating conditions, such as quick access and system stability, make people more confident and more willing to use digital services. Dwivedi et al. (2019) noted that in public transportation, supportive environments, such as technical assistance and institutional endorsement, significantly affect users' propensity to utilize online ticketing or travel applications. Additionally, facilitating conditions, including reliable internet connectivity and application stability, strongly influence users' adoption and sustained use of digital transportation services (Man et al., 2025). Therefore, the following hypothesis is proposed:

H4: Facilitating conditions significantly influence passengers' intentions to purchase tickets online.

#### 2.7. Price value

Within the UTAUT2 framework, price value reflects the degree to which consumers perceive the benefits of a technology to surpass its associated monetary cost (Venkatesh et al., 2012). PV in e-ticketing measures whether passengers believe online tickets (including booking fees, service charges, mobile data costs, and any hidden charges) provide a sufficient value relative to their cost. When perceived benefits (convenience, time savings, discounts, better seat selection) outweigh financial or time costs, passengers are more likely to purchase tickets online; conversely, perceived high fees or opaque charges reduce the likelihood of purchase (Liébana-Cabanillas et al., 2014; Oliveira et al., 2016). Empirical investigations within mobile payment and transportation settings consistently highlight perceived value as a significant determinant of behavioral intention. Liébana-Cabanillas et al. (2014) demonstrated that perceived value positively influences the likelihood of adopting mobile payment services, while Oliveira et al. (2016) observed similar effects in mobile payment and ticketing contexts. Meta-

analytic and review evidence further substantiates PV's explanatory power in consumer adoption models, but its significance varies across contexts. PV is more pertinent when users directly incur service payments or encounter explicit transaction costs (Fatima et al., 2021). In developing countries, consumers are typically more attuned to price and additional costs, such as "drip" or booking fees. This phenomenon makes fair and clear pricing a key factor in how many people use e-tickets (Islam et al., 2023). The following hypothesis is formulated based on established theoretical frameworks and empirical data.

H5: The price value significantly influences passengers' intention to purchase tickets online.

### 2.8. Hedonic motivation

Hedonic motivation refers to the pleasure or satisfaction individuals derive from using technology (Venkatesh et al., 2012). In the context of e-ticketing, HM refers to the positive feelings that passengers experience, such as enjoyment, satisfaction, or fun, when using digital ticketing services. When travelers perceive e-ticketing as more than a hassle, they are more inclined to use it and continue using it.

Numerous studies have underscored the significance of HM in forecasting technological adoption. Oliveira et al. (2016) demonstrated that hedonic motivation significantly influences consumers' behavioral intentions to adopt mobile payment services, highlighting the role of enjoyment in fostering favorable attitudes toward technology. Liébana-Cabanillas et al. (2014) found that hedonic value increases user engagement with m-commerce. Van der Heijden (2004) showed that in voluntary technology use, subjective satisfaction typically outweighs practical concerns, making it an important factor in customer acceptance. Furthermore, Thakur and Srivastava (2014) found that the perceived delight and novelty of digital applications significantly increase technology adoption among consumers in emerging markets. Enjoyment, satisfaction, and perceived novelty have also been shown to significantly enhance users' engagement with mobile and online services, even in utilitarian contexts such as transportation (Oliveira et al., 2016; Castanha et al., 2022). As a result, it is reasonable to assume that passengers' enjoyment and contentment with e-ticketing systems influence their desire to purchase tickets online.

H6: Hedonic motivation significantly influences passengers' intentions to purchase tickets online.

### 2.9. Habit

Habit, defined as the automatic execution of behavior through repetition, has garnered heightened interest in the study of technology adoption. Research suggests that as users consistently interact with a system, their intention to utilize it intensifies, as the behavior transitions from being solely deliberative to more habitual. In the context of electronic ticketing, studies of railway systems suggest that

habit is a key predictor of intention to use a ticket-reservation application. A study on Indian railway ticketing revealed habit, in conjunction with hedonic incentive and performance expectancy, as a key precursor to the intention to utilize the IRCTC Rail Connect service (Castanha et al., 2022). Although limited research on e-ticketing focuses solely on habit, the extensive literature regarding digital payments and self-service technology indicates that habit substantially affects intention and usage behavior (Mansur et al., 2018). Collectively, these data indicate that individuals who consistently book travel tickets online are more likely to intend to purchase e-tickets, as their past behavior influences future intentions. H7: Habit significantly influences passengers' intention to purchase tickets online.

### 2.10. Return and exchange

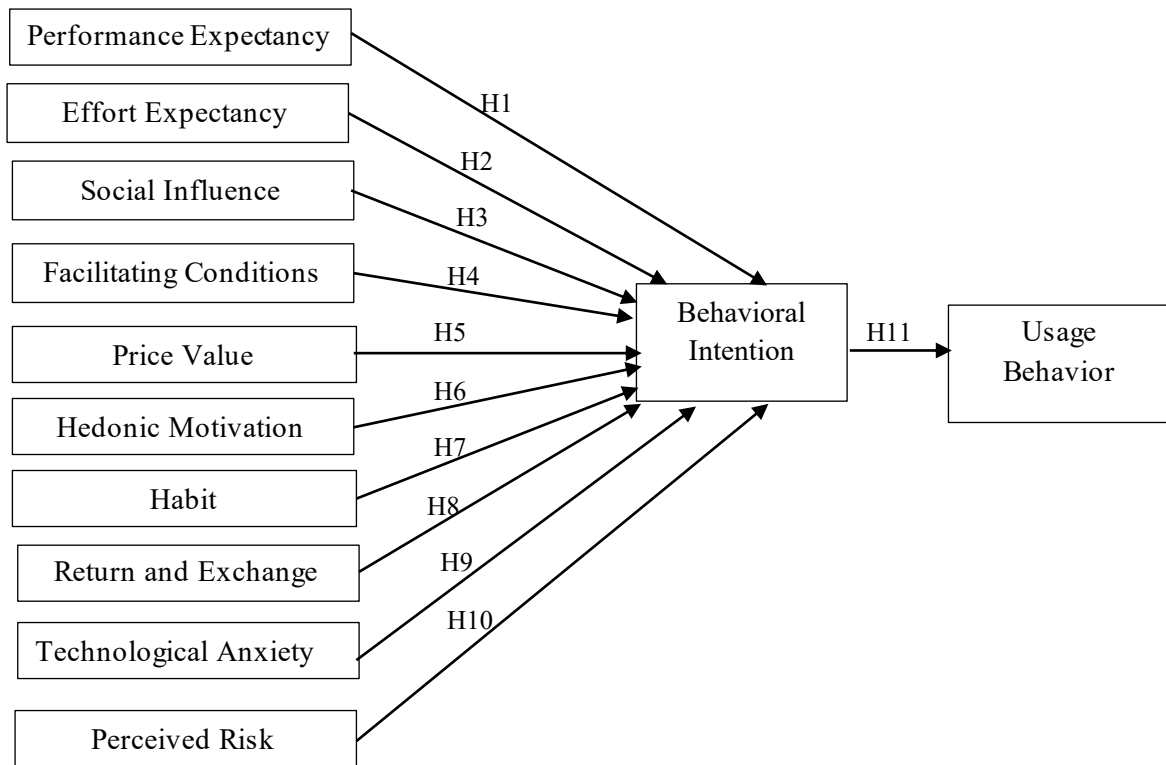
Return and exchange plans substantially reduce transaction uncertainty by providing consumers with protection against cancellations, schedule alterations, or service delivery failures. In e-commerce, lenient and transparent RE laws diminish perceived risk and enhance trust in the seller or platform, hence increasing purchase intentions (Liu & Du, 2023; Pavlou, 2003). In the travel sector, explicit regulations on refunds and swaps are particularly crucial. Flexible booking and refund options alleviate concerns about changes to plans and financial losses, which are significant factors deterring individuals in underdeveloped countries from purchasing tickets online (Phonthanukitithaworn et al., 2016). Mechanistically, effective RE policies reduce perceived risk and enhance trust, two established antecedents of behavioral intention in e-commerce and online services (Gefen et al., 2003; Pavlou, 2003).

H8: The processes of return and exchange significantly influence passengers' intentions to purchase tickets online.

### 2.11. Technological anxiety

Technological anxiety is the worry or stress people feel when using new technology (Meuter et al., 2003). People who are worried about technology may not be sure or comfortable with online platforms, digital payments, or mobile apps when it comes to e-ticketing. People who worry like this may feel less confident handling electronic systems and may avoid e-ticketing, even if they see the benefits.

Research consistently demonstrates that technological anxiety adversely affects behavioral intentions toward technology utilization. Meuter et al. (2003) showed that worry makes people much less likely to use self-service devices. Compeau and Higgins (1995) similarly found that individuals with higher anxiety exhibit diminished confidence in their computer proficiency and a reduced propensity to embrace new technologies. Agarwal and



**Figure 1: Proposed research model**

Karahanna (2000) also noted that when people are apprehensive, they do not enjoy using technology as much, which makes them less likely to use it. In addition, technology anxiety heightens perceived risk and diminishes trust in online service contexts, hence further deterring utilization (Gefen et al., 2003).

In emerging economies, where digital literacy is inconsistent and consumers frequently encounter unreliable internet connectivity and insufficient technical support, technology anxiety constitutes a significant obstacle to digital adoption (Gunasinghe & Nanayakkara, 2021; Venkatesh et al., 2012). Therefore, the following hypothesis is proposed:

H9: Technological anxiety significantly influences passengers' intention to purchase tickets online.

### 2.12. Perceived risk

Perceived risk refers to the potential dangers that passengers believe may occur when utilizing online ticketing services, including financial loss, data theft, payment errors, or receiving substandard service. In developing nations, where people may not trust digital systems as much and digital literacy levels differ, PR becomes a critical issue that affects how likely people are to use e-ticketing services. Passengers who perceive elevated risks are less inclined to adopt the intention to use online ticketing, underscoring the need to mitigate trust and security concerns (Zhao et al., 2024). Empirical

research confirms the significance of public relations in the adoption of technology. For instance, Abikari (2024) found that adverse emotions and perceived risks markedly reduce customers' willingness to adopt future e-banking systems. Awal et al. (2024) found that passengers' trust in technology had a greater effect on e-ticketing adoption than ease of use, suggesting that reducing risk perceptions is important for increasing adoption in transportation settings. In the context of online ticketing, Suh et al. (2015) found that perceived risk reduced customers' willingness to purchase tickets online. This study supports the idea that worries about risk are a barrier to adoption. In light of this theoretical and empirical evidence, it is asserted that:

H10: Perceived risk significantly influences passengers' intention to purchase tickets online.

### 2.13. Behavioral intention

Research on technology adoption has shown that behavioral intention is widely recognized as one of the most highly predictive factors of actual system usage. Venkatesh et al. (2012) assert that the UTAUT2 model posits behavioral intention as a direct predictor of usage behavior, indicating an individual's cognitive preparedness to embrace technology. Consequently, when users cultivate a strong desire to embrace a system like e-ticketing, they are more inclined to convert that desire into actual behavior. This association has been

consistently supported by empirical research across a variety of contexts. For example, behavioral intention is a powerful predictor of technology use across different information systems (Venkatesh et al., 2003). Escobar-Rodríguez and Carvajal-Trujillo (2014) also showed that travelers' actual use of online airline ticketing systems was significantly influenced by their behavioral intentions. Rahi et al. (2019) and Alalwan et al. (2017) further demonstrated that behavioral intention positively influences users' actual adoption and continued use of mobile and e-service technologies. Considering these theoretical and empirical findings, it is reasonable to infer that passengers' willingness to adopt e-ticketing systems will significantly influence their actual use in a developing economic context, where cognitive preparedness often serves as a key precursor to technological adoption.

H11: Behavioral intention significantly influences passengers' e-ticketing usage behavior.

### 3. Methods

#### 3.1. Design of the study

This study employed a quantitative, cross-sectional approach to examine the factors influencing passengers' willingness to use e-ticketing in Bangladesh, utilizing an expanded UTAUT2 model.

#### 3.2. Population and sampling technique

The target population of this study comprised individuals who use online ticketing services in Bangladesh, specifically those who purchase bus, train, aircraft, or launch tickets via online platforms. This study used convenience sampling because it was too difficult to obtain access to a fully randomized population. This approach is suitable for research involving individuals who can be easily reached and have prior experience with the subject matter being studied (Etikan et al., 2016). A total of 392 responses were obtained, surpassing the minimum sample size recommended for PLS-SEM (Hair et al., 2019), thus ensuring sufficient statistical reliability and validity.

#### 3.3. Data collection procedure

To promote broad participation and assure accuracy, responses were gathered through a self-administered questionnaire distributed via both online and offline channels. The online survey was conducted via Google Forms, and the link was disseminated via social media platforms such as WhatsApp, Facebook, and LinkedIn, as well as via email invitations. This method allowed the investigator to contact participants who frequently use digital platforms and have previous experience with e-ticketing systems.

In addition to an internet-based system, the questionnaire was distributed to passengers at designated transport points, such as bus stands, train stations, and travel agencies. This was done to collect responses from individuals who might not have easy access to online

platforms. Trained field assistants helped hand out and collect the printed questionnaires. They also ensured that the individuals who filled it out were unidentified and that participation was voluntary.

Every participant in the study was aware of its academic purpose, and privacy and anonymity were strictly maintained. Respondents could discontinue participation at any time without repercussions, as participation was entirely voluntary.

There were two parts to the questionnaire. The initial portion asked for demographic details such as gender, age, education level, and how frequently the person used e-tickets. The second part included questions based on the extended UTAUT2 model.

A pilot study was conducted to ensure the study's reliability. Data for the pilot study were collected from 20 participants who had previously purchased internet tickets. Cronbach's alpha item loadings and values for each construction were found to be between 0.60 and 0.70 in the pilot study.

#### 3.4. Measures

The measurement instrument for this study was developed by modifying items from previously validated scales to ensure reliability and construct validity. The questionnaire included various elements based on the UTAUT2 model, as well as variables specific to the e-ticketing service setting. Each dimension was evaluated using several items on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The performance expectancy and effort expectancy items were adopted from Venkatesh et al. (2003) to reflect passengers' perceptions of how e-ticketing improves travel efficiency and how easy it is to use such systems. The items of social influence and facilitating conditions were derived from Venkatesh et al. (2012) and represent the degree to which passengers believe important individuals influence their use of e-ticketing, as well as the availability of necessary resources and assistance.

Price value and hedonic motivation were adapted from Venkatesh et al. (2012) to examine passengers' perceptions of the cost-effectiveness relationship and the enjoyment associated with using e-ticket services. The return and exchange items were adapted from Brown et al. (2003) to focus on passengers' perceived convenience and satisfaction with refund or replacement procedures in online ticketing.

Additionally, technological anxiety was examined utilizing questions from Saadé and Kira (2009), which assess the level of discomfort or anxiety people experience while using e-ticketing services. The perceived risk scale was derived from Featherman and Pavlou (2003) to assess passengers' concerns about transaction safety and confidentiality when purchasing tickets online. Behavioral intention and usage behavior were taken from Venkatesh et al. (2012). Behavioral intention represents passengers' willingness and desire to keep using e-ticketing services in the future. In contrast, usage behavior evaluates the actual

frequency and consistency with which respondents use e-ticketing. Each component was meticulously reviewed and slightly adjusted to fit the Bangladeshi e-ticketing service environment while maintaining its original meaning.

### 3.5. Data analysis tool

The analysis was conducted using SmartPLS 4, which is appropriate for analyzing complex models and non-normally distributed data. Partial Least Squares Structural Equation Modeling (PLS-SEM) was applied to evaluate both the measurement and structural models (Hair et al., 2021).

## 4. Result and discussion

### 4.1. Respondents' demographics

Table 1 shows that of the 392 respondents, 203 were male (51.7%) and 189 were female (48.3%). This means that more men than women use online tickets. The most common age group among users was 16 to 25 years old (61.3%), followed by 26 to 35 years old (37.5%). 55.8% of users had not completed their bachelor's degree, while 28.8% had completed postgraduate education. Furthermore, 56.6% of users were students, 25% were businesspeople, and the rest were service workers or homemakers. Finally, 67.4% of the users' income fell below BDT 20,000.

**Table 1. Socio-demographic information of online ticket service users**

Demographic Information	Category	Frequency (N=392)	Percentage (%)
Gender	Male	203	51.7%
	Female	189	48.3%
Age	16-25 Years	240	61.3%
	26-35 Years	147	37.5%
	36-45 Years	3	0.7%
	46 and above	2	0.5%
Education Qualifications	Undergraduate	219	55.8%
	Graduate	113	28.8%
	Post-Graduate	49	12.6%
	Diploma	11	2.8%
Occupation	Student	222	56.6%
	Businessman	98	25%
	Job holder	29	7.4%
	Housewife	43	11%
Income level	Below BDT 20,000	264	67.4%
	21,000 to 30,000	23	5.9%
	31,000 to 40,000	104	26.5%
	40,001 and above	1	0.2%

### 4.2. Measurement model

The measurement model's reliability, convergent validity, and internal consistency were evaluated across twelve latent components using 37 indicators. The results are presented in Table 2. The Composite Reliability (CR) values ranged from 0.851 to 0.962, beyond the recommended threshold of 0.70, hence indicating substantial consistency among the constructs (Alalwan et al., 2017; Fornell & Larcker, 1981). AVE (Average Variance Extracted) values ranged from 0.659 to 0.908,

exceeding the minimum threshold of 0.50. This finding indicates that the convergent validity is satisfactory (Fornell & Larcker, 1981; Hair et al., 2019). All of the items had indicator loadings over 0.70, except for BI3 (0.690), which is still acceptable according to Hair et al. (2019). These results indicate that the measurement model is strong since it has excellent internal consistency and convergent validity. All categories and indicators effectively represent the targeted characteristics of passengers' e-ticketing adoption, encompassing functional, hedonic, habitual, and risk-related factors. This data presents a solid base for testing hypotheses and analyzing structural models.

### 4.3. Discriminant validity-fornell-larcker criterion

Discriminant validity ensures that a construct is unique and captures aspects not captured by other constructs in the model. The Fornell-Larcker criterion is commonly used to check for discriminant validity. The square root of each construct's AVE (diagonal values) must exceed the correlations of that construct with all other latent constructs (off-diagonal values) (Fornell & Larcker, 1981; Henseler, 2017; Voorhees et al., 2016). If a construct meets this requirement, it explains more of the variance in its own indicators than in those of other constructs.

Table 3 indicates that all of the structures fulfill this requirement. The square root of AVE for each construct ranges from 0.812 to 0.953, exceeding the correlations observed with other constructs. For example, the square root of AVE for behavioral intention is 0.812, which exceeds the square root of AVE for all other constructs (the highest correlation being 0.758 with usage behavior). Similarly, the return and exchange construct has an AVE square root of 0.929, which exceeds its highest correlation with other constructs (0.745 with habit). This pattern is uniform across all latent constructs. The findings substantiate that all components within the model are empirically distinct and assess distinctive characteristics of passengers' e-ticketing adoption. As a result, the measurement model shows strong discriminant validity, which is a favorable starting point for later structural model analysis and hypothesis testing (Mahmud et al., 2021).

### 4.4. Hypotheses results

The study's findings, presented in Table 4, predominantly validate the theoretical propositions formulated from the UTAUT2 framework and its extended constructs. H1 demonstrated that performance expectancy strongly influences passengers' behavioral intention to purchase online tickets ( $\beta = 0.182, p = 0.040$ ). The outcome aligns with prior research, indicating that passengers use e-ticketing when they recognize clear benefits such as time savings, improved travel convenience, and greater operational efficiency (Venkatesh et al., 2012; Hilal & Varela-Neira, 2022; Alalwan et al., 2017). H2 showed that effort expectancy has a positive and significant effect on behavioral intention ( $\beta = 0.311, p = 0.008$ ). This supports

the idea that user-friendliness and intuitive system design make it more likely that people will use online ticketing, especially in developing countries where people have different levels of digital literacy (Oliveira et al., 2016; Thakur & Srivastava, 2014).  $\beta = 0.026$ ;  $\beta = -0.305$ ,  $p = 0.024$ ). While literature generally H3 (Social Influence) and H4 (Facilitating Conditions) produced substantial but adverse impacts ( $\beta = -0.204$ ,  $p$  predicts a positive relationship (Zhang et al., 2017; Wu et al., 2018; Chiu et al., 2017), these findings indicate that

H5 (Price Value), H6 (Hedonic Motivation), H7 (Habit), H8 (Return and Exchange), and H10 (Perceived Risk) were all significantly supported, consistent with literature emphasizing the importance of perceived value, enjoyment, habitual use, flexible refund policies, and risk perceptions in driving e-ticketing adoption (Liébaná-Cabanillas et al., 2014; Oliveira et al., 2016; Pavlou, 2003; Venkatesh et al., 2012; Suh et al., 2015). On the other hand, H9 (Technological Anxiety) was not supported ( $\beta = 0.058$ ,  $p = 0.447$ ), suggesting that anxiety about

**Table 2. Construct Reliability and Validity**

Constructs	Indicators	Indicator Loadings	Composite Reliability (rho-c)	AVE
Behavioral Intention (BI)	BI1	0.747	0.851	0.659
	BI2	0.939		
	BI3	0.690		
Return and Exchange (RE)	RE1	0.911	0.950	0.863
	RE2	0.934		
	RE3	0.931		
Effort Expectancy (EE)	EE1	0.950	0.938	0.884
	EE2	0.930		
Facilitating Condition (FC)	FC1	0.940	0.944	0.850
	FC2	0.911		
	FC3	0.914		
Hedonic Motivation (HM)	HM1	0.890	0.907	0.764
	HM2	0.866		
	HM3	0.867		
Habit (HT)	HT1	0.905	0.938	0.791
	HT2	0.921		
	HT3	0.905		
	HT4	0.825		
Performance Expectancy (PE)	PE1	0.877	0.893	0.807
	PE2	0.920		
Perceived Risk (PR)	PR1	0.851	0.943	0.804
	PR2	0.920		
	PR3	0.916		
	PR4	0.899		
Price Value (PV)	PV1	0.948	0.962	0.894
	PV2	0.961		
	PV3	0.926		
Social Influence (SI)	SI1	0.956	0.952	0.908
	SI2	0.949		
Technological Anxiety (TA)	TA1	0.846	0.946	0.779
	TA2	0.921		
	TA3	0.906		
	TA4	0.938		
	TA5	0.796		
Usage Behavior (UB)	UB1	0.770	0.900	0.751
	UB2	0.903		
	UB3	0.919		

social pressure or excessive reliance on external resources may not consistently facilitate adoption among Bangladeshi passengers, potentially due to self-reliance or prior negative experiences with infrastructure.

technology may not be a significant problem in this case. This phenomenon may be because passengers in Bangladesh are becoming more accustomed to using mobile apps and online payment systems (Venkatesh et al., 2012; Meuter et al., 2003).

Lastly, H11 showed that behavioral intention is a substantial predictor of usage behavior ( $\beta = 0.758$ ,  $p = 0.000$ ). This supports the main idea of UTAUT2, which is that intention is a key factor in actual adoption (Venkatesh et al., 2012; Escobar-Rodríguez & Carvajal-Trujillo, 2014). Overall, these results confirm the extended UTAUT2 model in elucidating e-ticketing adoption within an emerging economic framework, emphasizing that although traditional constructs like performance expectancy (PE) and effort expectancy (EE) are significant, variables like social influence, infrastructure,

highlights that, even in swiftly digitizing environments, the perceived utility of a service is pivotal to adoption. Likewise, effort expectancy markedly affected behavioral intention, indicating that usability is essential for adoption. In Bangladesh, where digital literacy is inconsistent, intuitive system design and streamlined transaction processes diminish cognitive and operational obstacles, hence increasing the likelihood of adoption. Notably, social influence and conducive conditions had adverse impacts, potentially reflecting the distinct socio-cultural and infrastructural setting of Bangladesh.

**Table 3. Discriminant Validity-Fornell-Larcker Criterion Table**

	BI	RE	EE	FC	HM	HT	PE	PR	PV	SI	TA	UB
BI	0.812											
RE	0.544	0.929										
EE	0.583	0.542	0.940									
FC	0.530	0.553	0.836	0.922								
HM	0.622	0.695	0.728	0.758	0.874							
HT	0.663	0.745	0.759	0.721	0.808	0.890						
PE	0.511	0.447	0.724	0.695	0.634	0.610	0.898					
PR	0.593	0.487	0.595	0.698	0.567	0.604	0.520	0.897				
PV	0.517	0.641	0.773	0.753	0.734	0.755	0.688	0.692	0.945			
SI	0.487	0.633	0.719	0.731	0.697	0.745	0.642	0.640	0.756	0.953		
TA	-0.500	-0.545	-0.637	-0.514	-0.536	-0.680	-0.536	-0.531	-0.586	-0.550	0.883	
UB	0.758	0.579	0.731	0.632	0.718	0.786	0.603	0.564	0.610	0.569	-0.616	0.867

and technological anxiety may exhibit varying effects contingent upon local socio-cultural and technological contexts.

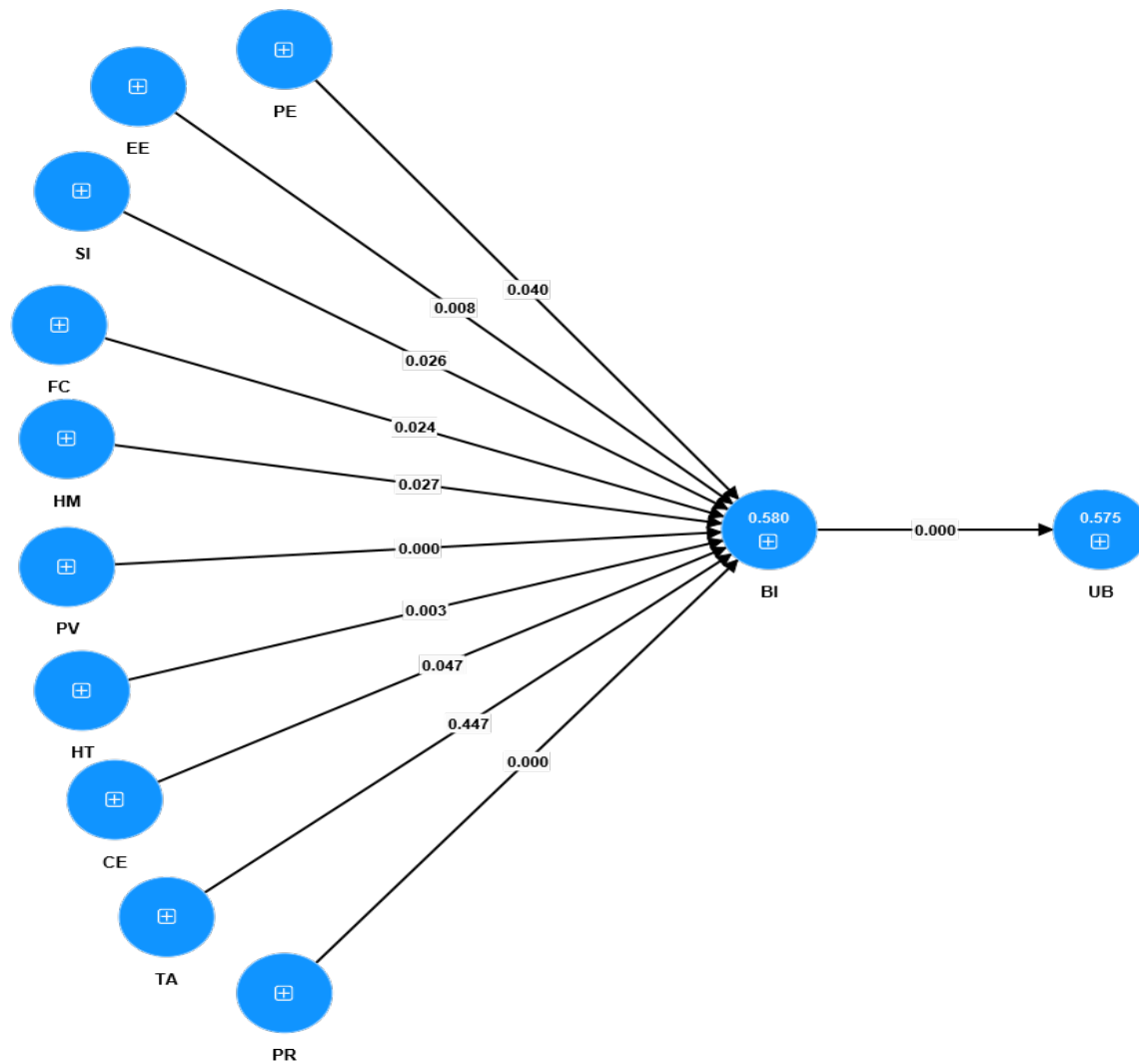
#### 4.5. Discussion

This research investigated the use of e-ticketing services by passengers in Bangladesh utilizing an expanded UTAUT2 framework. In line with previous studies, performance expectancy was a strong predictor of behavioral intention, indicating that users primarily adopt e-ticketing for its practical advantages. This finding

Although social recommendations and supportive resources typically promote adoption, they may unintentionally induce reluctance in this environment, especially if users regard them as untrustworthy or manipulative. The findings underscore the significance of price, hedonic motivation, and habit in influencing behavioral intention. These findings correspond with the enlarged UTAUT2 framework, which emphasizes that experiencing and repetitive behaviors augment rational assessments in technology adoption. Moreover, return and exchange policies substantially impacted intentions,

**Table 4. Hypotheses results**

Hypothesis	Relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics	P values	Results
H1	PE -> BI	0.182	0.180	0.088	2.057	0.040	Supported
H2	EE -> BI	0.311	0.316	0.117	2.670	0.008	Supported
H3	SI -> BI	-0.204	-0.218	0.092	2.227	0.026	Supported
H4	FC -> BI	-0.305	-0.312	0.136	2.253	0.024	Supported
H5	PV -> BI	-0.305	-0.307	0.080	3.801	0.000	Supported
H6	HM -> BI	0.241	0.249	0.109	2.217	0.027	Supported
H7	HT -> BI	0.370	0.373	0.124	2.989	0.003	Supported
H8	RE -> BI	0.149	0.155	0.075	1.990	0.047	Supported
H9	TA -> BI	0.058	0.054	0.076	0.761	0.447	Not Supported
H10	PR -> BI	0.466	0.466	0.092	5.061	0.000	Supported
H11	BI -> UB	0.758	0.759	0.037	20.755	0.000	Supported



**Figure 2. Validation of the structural model (PLS Bootstrapping Model)**

indicating that adaptable service mechanisms might alleviate perceived risk and bolster trust in digital transactions. These findings highlight the dual function of confidence and certainty in promoting adoption, particularly in online banking and ticketing contexts. Significantly, technological anxiety was not significant, indicating a transformation in individuals' digital comfort levels. The finding underscores the advancing digital maturity of Bangladeshi passengers. It suggests that obstacles to technology adoption may increasingly stem from service design and contextual elements rather than fear or unfamiliarity. The robust correlation between behavioral intention and actual usage substantiates the fundamental assertion of UTAUT2, indicating that intention is the most immediate predictor of behavior. This substantiates the framework's efficacy in elucidating both attitudes toward technology and actual adoption behavior, even in emerging economies.

#### 4.6. Theoretical implications

This research offers significant theoretical insights into technology adoption in the context of online reservation services.

Firstly, it extends the UTAUT2 framework by incorporating additional contextual factors, including technological anxiety, perceived risk, and return and exchange policies, which are particularly pertinent to online ticketing platforms. In doing so, the research offers a more comprehensive model that encompasses both traditional technology adoption determinants and domain-specific influences that influence consumer behavior. This extension aligns with previous research that highlights the importance of integrating contextual factors to achieve a more comprehensive understanding of technology adoption within specific domains (Venkatesh et al., 2012).

Secondly, this research fills a significant gap in the literature regarding the adoption of online ticketing services, particularly in developing economies such as Bangladesh. Although UTAUT2 has been extensively validated across a variety of technological contexts, there is a scarcity of research investigating its potential application in online ticketing systems. This study affirms Venkatesh et al.'s (2012) recommendation to evaluate UTAUT2 across diverse geographical and socio-economic contexts by implementing and testing the

expanded model in Bangladesh. It also provides culturally specific insights. This methodology aligns with research that underscores the need for context-specific modifications to the UTAUT2 model to account for economic and cultural disparities.

Lastly, the research enhances theoretical understanding of the interplay among psychological, technical, and social factors that affect adoption behaviors in emerging economies. The study enriches the broader literature on IT adoption, digital trust, and consumer behavior in developing markets by validating the expanded UTAUT2 model in Bangladesh. This validation provides a robust framework for future studies on the adoption of online services. This is consistent with the expanding body of literature advocating the incorporation of contextual and psychological factors into technology adoption models better to reflect the intricacies of user behavior across diverse contexts (Ameen *et al.*, 2022).

#### 4.7. Practical implications

This research offers significant practical insights for transportation authorities, legislators, and application developers aiming to improve online ticketing adoption.

Firstly, the results underscore the need to enhance the usability and accessibility of e-ticketing applications to ensure a seamless, delightful user experience. Passenger satisfaction and continued use can be substantially improved by guaranteeing app reliability, rapid performance, and intuitive design (Tamilmani *et al.*, 2021).

Secondly, to enhance user engagement, it is imperative to implement effective promotional strategies and awareness campaigns. Service providers can cultivate loyalty and attract additional users by providing personalized notifications, festival offers, and discounts (Gupta *et al.*, 2018).

Thirdly, policymakers and system developers must prioritize the development of digital literacy and user trust. Adoption rates will be enhanced, particularly in developing economies, by establishing user confidence through transparent policies and secure payment systems (Ameen *et al.*, 2022).

Finally, a partnership between the public and private sectors is vital to strengthen digital infrastructure and ensure the sustainability of e-ticketing operations (Dwivedi *et al.*, 2019).

#### 5. Limitations and future research directions

Although this study offers significant managerial and theoretical insights, it possesses some limitations that present potential for future research.

Firstly, the generalizability of the study's findings may be limited because the sample size is a small proportion of the total e-ticketing user population. To enhance external validity and ensure a more comprehensive representation, future research should draw on a more diverse and extensive sample (Shafique *et al.*, 2019).

Secondly, this study's quantitative methodology primarily measured relationships among variables without investigating the underlying causes of user behavior. To obtain more in-depth insights into passengers' motivations and perceptions, future research may employ qualitative or mixed-method designs (Baeshen, 2025).

Thirdly, the investigation was conducted in Bangladesh, an emerging economy. Thus, cross-country comparative research encompassing both developed and developing nations may provide a more thorough understanding of the cultural and contextual aspects affecting e-ticketing uptake (Leong *et al.*, 2021).

Fourthly, this investigation did not investigate demographic moderators, including income, gender, and age. Future research could investigate the extent to which these demographic variables affect the behavioral intentions of travelers toward e-ticketing platforms (Awal *et al.*, 2024).

Lastly, while this study has broadened the UTAUT2 framework to elucidate user adoption more effectively, future research could explore integrating supplementary constructs, such as trust, perceived usefulness, and digital literacy, to offer a more comprehensive understanding of consumer behavior in digital transportation services (Razaqi, 2025).

#### 6. Conclusion

E-ticketing has emerged as a significant technological innovation in Bangladesh, transforming how passengers purchase and manage transportation and event tickets. The rapid diffusion of smartphones and internet connectivity has enabled digital platforms to offer enhanced convenience, operational efficiency, and improved user experiences. Against this backdrop, the present study applied an extended UTAUT2 framework to examine the factors influencing passengers' acceptance of e-ticketing services in a developing economy context. The findings reveal that while technological anxiety does not significantly affect behavioral intention, key determinants such as performance expectancy, effort expectancy, price value, hedonic motivation, habit, service assurance, and perceived risk play critical roles in shaping adoption behavior. Importantly, this study fulfills an essential empirical gap by extending the UTAUT2 framework to the Bangladeshi e-ticketing context, where infrastructure quality and digital literacy levels vary widely. By integrating service-related and risk-oriented constructs, the research offers a more comprehensive explanation of passengers' adoption behavior than prior studies that relied primarily on core UTAUT2 variables. Beyond its theoretical contributions, the study provides practical insights for policymakers, platform developers, and marketers. Enhancing system usability, cost-effectiveness, transparency around refunds and exchanges, and service reliability can significantly strengthen user trust and encourage sustained usage. Overall, the findings support strategic initiatives to promote digital engagement and accelerate Bangladesh's

transition to automated, paperless, and inclusive ticketing systems.

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