Research Paper / Araştırma Makalesi

Factors Affecting E-Wallet Usage: A Study in Türkiye

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Abstract

In today's increasingly digitalized world, the concept of the electronic wallet (e-wallet) is rapidly replacing the traditional physical wallet. This technological transformation enables consumers to conveniently purchase products and services from any person or store around the world, regardless of time and place. Over the years, many theoretical models have been developed and improved to explain the acceptance and adoption of such innovations, starting with the well-known Technology Acceptance Model (TAM). In this study, user experience and behavioral intentions related to e-wallet usage were examined based on the TAM framework. A total of 330 individuals voluntarily participated in the research. A structured questionnaire was administered to the participants to gather their opinions and experiences regarding the use of e-wallets on the internet. In the survey, items about perceived usefulness, perceived ease of use, intention to use, system security, cultural congruity, social image, and system quality were measured using a 5-point Likert-type scale. The collected data were analyzed through SPSS 23, and the results were reported using descriptive statistics, normality tests, factor analysis, reliability analysis, and regression analysis.

Keywords: E-wallet, Intention to Use, Technology Acceptance Model

E-Cüzdan Kullanımını Etkileyen Faktörler: Türkiye'de Bir Araştırma

Öz

Günümüzde hızla dijitalleşen dünyada elektronik cüzdan (e-cüzdan) kavramı, geleneksel fiziksel cüzdanların yerini almaya başlamıştır. Bu teknolojik yenilik, kullanıcıların zaman ve mekân sınırlaması olmaksızın dünyanın farklı bölgelerindeki kişi ve işletmelerden ürün veya hizmet satın alabilmelerine olanak tanımaktadır. Teknolojik yeniliklerin benimsenmesini ve kullanıcılar tarafından kabul edilmesini açıklamak amacıyla bugüne kadar çeşitli teorik modeller geliştirilmiş ve sürekli olarak iyileştirilmiştir. Bu modellerin en yaygın kullanılanlarından biri Teknoloji Kabul Modeli (TAM)'dir. Bu çalışmada, e-cüzdan kullanımına ilişkin kullanıcı deneyimi, algılar ve davranışsal niyetler TAM çerçevesi temelinde incelenmiştir. Araştırmaya toplam 330 gönüllü katılımcı dâhil edilmiştir. Katılımcıların internet ortamında e-cüzdan kullanımına yönelik tutum ve deneyimlerini belirlemek amacıyla yapılandırılmış bir anket uygulanmıştır. Anket formunda algılanan fayda, algılanan kullanım kolaylığı, kullanım niyeti, sistem güvenliği, kültürel uyum, sosyal imaj ve sistem kalitesi gibi değişkenler 5'li Likert tipi ölçekle ölçülmüştür. Elde edilen veriler SPSS 23 programı aracılığıyla analiz edilmiş; bulgular betimleyici istatistikler, normallik testi, faktör ve güvenirlik analizleri ile regresyon analizleri kullanılarak raporlanmıştır.

Anahtar Kelimeler: E-cüzdan, Kullanım Niyeti, Teknoloji Kabul Modeli

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Introduction

The digital revolution has led to transformations in almost every aspect of society, including the economy, trade, marketing, and consumer behavior. This transformation has initiated the digitalization era, making it possible to engage in all kinds of shopping with the help of digital devices. Thus, a search for alternative payment methods has begun. Gradually, traditional currencies have started to be replaced by digital and virtual currencies. Consequently, many transactions that were traditionally carried out face-to-face or in writing, in other words, conventionally, have become electronic. While traditional payment types are categorized as cash, credit cards, EFT, direct debit, and debit cards, which were used before the development of e-commerce, electronic payment types are categorized as electronic money, virtual credit cards, commercial bank money, electronic checks, smart cards, e-wallets, and mobile payments (Altuntaş, 2011).

The first signs of the digital wallet revolution began to appear in the late 1990s when PayPal was used as a software solution that made it easy for users to store credit cards for repeated online purchases. Initially, PayPal enabled its users to make small payments via email. As technology developed, the PayPal system was also developed and redesigned many times (Olsen, Hedman & Vatrapu, 2011). The evolution of digital wallets saw Google become the first major company to launch a mobile wallet in 2011. Electronic wallets (e-wallets) have become applications that can be downloaded for free on all mobile phones from Google Play and the iOS App Store. Due to these applications, many transactions, such as payment transactions, online shopping, and price comparison shopping, can be performed on mobile devices (Clark, 2001). According to a recent report by Juniper Research, there will be more than 5.2 billion e-wallet users worldwide in 2026, up from 3.4 billion in 2022 - a significant increase of more than 53%. According to the research, "superapps" will encourage the use of e-wallets in emerging nations that are now thought to be cash-heavy (Juniper Research, 2022).

Considering the changing environment of digital banking, Fareed (2023) provides a thorough analysis of payment technologies, with a focus on e-wallets. This study highlights the growing importance of e-wallets by examining various payment methods, such as mobile payments, decentralized finance (DeFi), and traditional banking systems. Fareed discusses the main characteristics of e-wallets, such as improved security, usability, and compatibility with other financial technology, which make them a popular option. The study also considers the drawbacks of e-wallets, such as the requirement for broad adoption, cybersecurity threats, and regulatory issues. The study offers important insights into how e-wallets are influencing future financial transactions and advancing the digital finance revolution by examining recent developments and trends.

Digital wallet technology was examined by Uysal (2023) in the context of a safe and economical infrastructure architecture. The study outlines the advantages of e-wallets in terms of user experience, data security, and economic rewards, highlighting how they streamline financial transactions, improve security, and offer a more affordable option than traditional payment methods. e-wallets lower the risks associated with conventional methods, such as carrying cash or using physical cards, while increasing the security of financial transactions through the use of encryption and authentication measures. The study concludes by recommending that e-wallets be viewed as a strategic solution that advances both technology and the economy in addition to being a safe way to make payments.

A thorough explanation of the concept of digital finance as a contemporary financial sector is given by Şahin (2022). The study looks at how digitalization has changed traditional financial institutions, highlighting the contribution of innovations in technology, including fintech, blockchain, and electronic payment systems. Şahin emphasizes how digital finance improves transaction efficiency, lowers expenses, and makes money more accessible globally.

The objective of this study was to identify the factors that affect the acceptance and adoption of e-wallet usage. In this context, items such as perceived usefulness, perceived ease of use, intention to use, system security, cultural congruity, social image, and system quality factors were examined within the research model. The hypotheses based on this research model were tested, and the relationships between the factors were examined.

Conceptual Framework

It is important to distinguish between technology adoption and acceptance. Technology adoption begins with individuals becoming aware of the technology and ends with them fully utilizing it.

Acceptance, on the other hand, is an attitude toward technology that is influenced by various factors. An individual who purchases a new technological product has not yet adopted it. There are additional stages beyond purchasing, and acceptance plays a crucial role. If a user buys a product but later does not accept it, the product is not fully adopted (Renaud & van Biljon, 2008). Therefore, the extent to which individuals can adapt to the ever-changing and developing technology of the present is a significant area of research. This is because many factors influence the adoption and use of new technologies. Various theories and models have been developed to identify these factors (Erdem, 2011). *Diffusion of Innovations Theory* (Rogers, 1962) is one of the most well-known theories that explain how new technologies gradually spread throughout a social system. According to this hypothesis, people are divided into five adopter groups: laggards, innovators, early adopters, early majority, and late majority. The *Theory of Planned Behavior* (TPB) (Ajzen, 1991) is another popular paradigm that contends that three factors—attitudes, subjective standards, and perceived behavioral control—influence a person's intention to utilize technology. According to TPB, people are more inclined to embrace technology if they have a positive attitude toward it, believe they can use it, and feel that others approve of them. Performance expectancy, effort expectancy, social influence, and facilitating conditions are the four main factors that determine technology acceptance, according to the *Unified Theory of Acceptance and Use of Technology* (UTAUT) (Venkatesh, Morris, Davis & Davis, 2003), which incorporates components from several models. This paradigm is especially helpful for comprehending how social and organizational factors affect the adoption of technology. The most popular and well-researched framework among these models is the *Technology Acceptance Model* (TAM) (Davis, 1989). In contrast to more general ideas like Diffusion of Innovations, TAM focuses exclusively on people's perceptions and how they affect how they embrace and use technology. Its simplicity and efficacy in describing the adoption of technology in various industries make it very helpful. The perceived usefulness (PU) and perceived ease of use (PEoU) are the two main pillars on which TAM is built. The degree to which an individual believes that a specific technology will improve their performance is known as perceived usefulness. How simple users think the technology is to use is reflected in the perceived ease of use. These elements influence a person's attitude toward technology, which influences their intention to use it behaviorally. This goal eventually results in the system being used. Through models such as TAM2 and TAM3, TAM has been extended over time to include other elements, such as facilitating conditions and social impact. All things considered, TAM is still an essential paradigm for examining technology adoption, particularly in a time when digital transformation is drastically altering how people and businesses use technology.

Technology Acceptance Model (TAM)

The most frequently used model in research on the adoption of rapidly developing technologies is Technology Acceptance Model (TAM). This model was developed by Davis (1989) based on the Theory of Reasoned Action (TRA). The foundation of this model lies in the variables of perceived usefulness and perceived ease of use. It is also proposed that these variables affect users' intention to use. While perceived usefulness and perceived ease of use are influenced by external variables, the intention to use affects the actual usage outcome (Davis, Bagozzi & Warshaw, 1989). External variables are those that are beyond an individual's control. Examples of external variables include individuals' demographic characteristics. Additionally, factors such as an individual's social and cultural environment, work experience, and personal abilities can also be cited (Davis, 1989). Because external factors can vary in different situations, applications, and regions, attitudes toward the adoption of new technologies also vary. Therefore, TAM is continuously developed by researchers.

TAM is widely used in information technology research and was created in line with important factors related to technology use. The proposed model is illustrated in Figure 1. Identifying the points where users exhibit resistance to adopting new technologies and making these points suitable for users are crucial steps for technology developers. Therefore, predicting the adoption of new technologies is crucial (Davis, 1989).
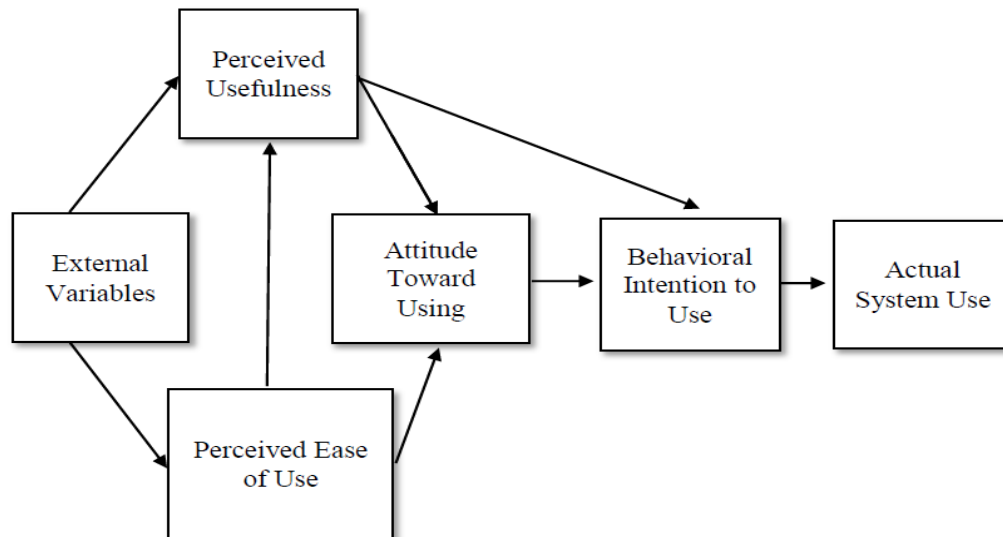
Figure 1. *TAM* (Davis, 1989)

Definition and Features of E-Wallets

An e-wallet is a software program or web service that allows users to control and store their online shopping information in a single center, such as login details, passwords, identification information, credit card details, health cards, driver's licenses, and delivery addresses. An e-wallet digitally stores a user's cards for online payments made via an electronic device. If something is digital, it exists entirely in electronic form (Kandimalla & Mari, 2020), and an e-wallet is an easy-to-use and secure "*electronic payment system*" (Uddin & Akhi, 2014). Fintech, derived from "financial" and "technology," refers to innovations like digital wallets, which replicate traditional wallets in digital form (Chellappan, Elanchselvan, & Abu-Samah, 2025).

An e-wallet system/program attempts to be a person's virtual representation on the internet by combining all the functions of a traditional wallet on a single smart card. In other words, an e-wallet, which can be accessed from any internet access point, becomes the authorized representative of its owner for electronic transactions (Clark, 2001). With an e-wallet, transactions, such as person-to-person money transfers, e-commerce, virtual discount coupons or gift certificates, and payments, can be performed within a single application without bank intermediation. E-wallets give users the freedom to transact from anywhere with just a click of a button, without any security concerns. The time-consuming transactions are completed in seconds (Salodkar, Morey & Shirbhate, 2015).

In a study on the adoption of e-wallet usage by customers in India, TAM was used to explain consumers' intentions to use e-wallets. The variables of the study are risk, cost, compatibility, usefulness, ease of use, and behavioral intention to use. A standardized scale was used in this research, and data were collected using a survey that included variables on external factors, perception, preference, and usage. Structural equation modeling was used to check the model fit, and path analysis revealed the correlations between the internal and external variables of the study (Singh & Ghatak, 2021).

Another recent study investigated e-wallet usage among the millennial generation (1980-2000) in Surabaya within the TAM framework. The variables used in the study were perceived ease of use (PEoU), perceived usefulness (PU), and intention to use (IU), with data collected through an online survey. The findings revealed that PEoU and PU positively and significantly affected behavioral IU, which in turn significantly influenced usage intention. PEoU also positively impacted PU. PU had a positive and significant effect on e-wallet usage among the millennial generation (Pertiwi, Suprapto & Pratama, 2020).

Recent studies have focused on factors affecting the adoption of information systems during the COVID-19 pandemic using various technology acceptance models. Daragmeh, Sagi , and Zeman (2021) analyzed e-wallet usage using the Health Belief Model (HBM) and Continuance Technology Theory (CTT). The study was conducted at three different universities in Hungary, and 1,080 individuals who used e-wallets during the COVID-19 pandemic were surveyed electronically, and data were analyzed by using structural equation modeling (SEM). The results indicated that the pandemic strongly influenced current e-wallet usage, with consumer self-efficacy being the most critical factor affecting continuous use

intentions, explaining 55.9% of the variance in continuous e-wallet usage intentions (Alwi, Salleh, Alpandi, Ya'acob & Abdullah, 2021). On the other hand, Rahi, Alghizzawi, and Ngah (2024) examines how consumers behave regarding e-wallet usage, focusing on how pandemic risk influences user choices. To investigate how elements like perceived utility, usability, trust, and security affect people's propensity to accept digital payment solutions, the study incorporates a number of theoretical viewpoints. According to the findings, the COVID-19 pandemic sped up the adoption of e-wallets by raising concerns about in-person interactions and endorsing online transactions as a safer substitute. The study also reveals that people are more likely to utilize e-wallets for everyday transactions if they believe there is a greater chance of pandemics. The study gives useful advice for financial institutions and legislators seeking to improve the usability and security of e-wallet technologies by shedding light on the behavioral factors influencing the uptake of digital payments.

Tombaş & Çelik (2022) investigated the factors influencing the use of electronic payment methods by young consumers through a field investigation. Their study examines young consumers' choices, motives, and worries about digital payment systems, considering factors including technological familiarity, security perceptions, and convenience of use. According to the survey, adoption is greatly influenced by elements such as prior experiences with electronic payments, trust in digital platforms, and the convenience these systems provide. Concerns about security threats and data privacy are also noted as possible obstacles to broader use. According to the data, young consumers' opinions regarding electronic payments are greatly influenced by their level of financial literacy and digital awareness.

The moderating effect of perceived technological innovativeness is the main subject of an empirical study by Shetu, Islam & Promi (2022) that examines the factors influencing consumers' intention to continue using digital wallets. This study investigates how users' trust, satisfaction, and general involvement with digital wallet services are influenced by their perceptions of technological progress. The results show that users' intentions to continue using digital wallets are strongly influenced by perceived usefulness, security, and convenience of use, while their confidence in adopting and sticking with digital wallets is increased by perceived technological innovation. Users are more likely to stick with digital wallets when they incorporate cutting-edge features like biometric authentication and AI-powered security safeguards, according to the study.

In her analysis of digital identification and digital surveillance in Türkiye, Kavut (2023) emphasizes the important ramifications for e-wallets. Since e-wallets, which enable people's financial transactions, are closely related to digital identities, their use raises questions about privacy, data security, and individual liberties. E-wallets allow governments and commercial businesses to keep an eye on financial activity while also tracking users' purchasing patterns, which helps to create massive data sets. The rise in digital surveillance poses questions regarding privacy and financial independence even as it improves financial openness. As a result, the way people handle their digital identities and the systems they trust become important considerations when using e-wallets. Decentralized systems like blockchain provide people more control, whereas centralized organizations result in increased surveillance. Therefore, taking into account digital identification and surveillance in connection to e-wallet technologies is crucial in light of Kavut's assessments to guarantee that users can safely conduct financial transactions while protecting their privacy.

Prawira, Prakoso, Handayani, & Harahap (2024) investigate how information security considerations affect the persistence of e-wallet use. Their research investigates how consumer trust and sustained use of e-wallet systems are impacted by security issues such as data privacy, encryption standards, and fraud prevention techniques. According to the research, people are more inclined to stick with digital wallets if they believe they are safe and dependable. Consumer confidence is also greatly influenced by elements like multi-factor authentication, regulatory compliance, and clear data protection rules. In order to improve user retention and encourage broader adoption of electronic wallets in the digital economy, the study highlights the significance of bolstering security measures.

In a recent study, Amron, Mohamad, and Noh (2024) use Technology Continuance Theory (TCT) to examine how young customers use e-wallet payments. The study looks into the main elements that affect e-wallet users' continued use, such as perceived utility, usability, satisfaction, and trust. According to research, if young customers regard e-wallets to be efficient, secure, and convenient, they are more inclined to stick with them. Furthermore, habit formation and social impact are important factors that support long-term adoption. According to the study, in order to guarantee sustained engagement, service

providers should concentrate on improving the user experience, security features, and customer assistance. Through the use of TCT, the study delivers insightful information about the habits of young consumers as well as tactical suggestions for companies looking to boost e-wallet use and retention.

E-Wallet Functions

The fundamental information and functions that an e-wallet system may include are summarized as follows (Çölkesen & Kipman, 2008):

- The e-wallet system should include e-money (virtual money), e-documents (securities), or e-checks (virtual checks).

- The e-wallet system should incorporate bank and credit cards.

- The system should allow for all types of individual and corporate money transfers.

- The e-wallet system should feature a user-friendly interface.

- The e-wallet should provide all functional features of a physical wallet.

- The e-wallet system should ensure user privacy.

In a study carried out by Olsen et al. (2011), the goal was to contribute to the existing e-wallet design, which includes features such as traditional wallet notes, coins, photos, plastic cards, loyalty cards, etc. The study involved four different user groups: teenagers, young adults, mothers, and businessmen, to determine, develop, and evaluate the functional and design features of e-wallets. The initial results identified the following features:

- *Efficiency:* Making payments with an e-wallet should not exceed seven steps, like making a payment with a card today.

- *Security:* Accidental payments should not be possible.

- *Utility:* The e-wallet should provide a suitable set of functions for making payments in the way users want to make payments from a physical wallet.

- *Learnability:* It should be possible for users to learn how to use the e-wallet by exploring the interface, as people do not want to spend a long time learning how to use a new system.

Advantages and Disadvantages of E-Wallet Usage

Electronic payment systems are argued to have many advantages, such as accessibility, convenience, speed, privacy, and control, and are preferred for routine service transactions. Furthermore, it is argued that these systems should not include complex procedures and that PIN codes should be preferred for identity and authentication (Olsen et al. 2011). Upadhayaya (2012) listed the significant advantages of e-wallet usage as follows:

- Payments can be sent and received to and from anywhere in the world with an e-wallet.

- Unlimited transfer transactions, including e-wallet-to-e-wallet transfers, can be conducted without sharing personal information.

- The system can be managed via mobile phones.

- The system is entirely under the user's control.

- Email or SMS notifications can be received after transactions.

- Money can be withdrawn from any bank to the e-wallet.

When it comes to the disadvantages, e-wallet usage is not without its challenges. Security threats are still a big worry because if users' accounts are not adequately secured, they could be the subject of financial fraud, phishing scams, or hacking. A reliable internet connection and a compatible gadget are also necessary because our reliance on technology, which makes transactions challenging in places with inadequate connectivity. The fact that not all retailers or geographical areas accept e-wallet payments is another disadvantage, which restricts its applicability in some circumstances. Because financial data is frequently gathered, monitored, and perhaps shared by businesses or other parties, privacy issues also

surface. E-wallets are nonetheless becoming more and more popular because of their efficiency and ease, even with these disadvantages.

Method

The scales in the studies of Davis (1989) and Venkatesh & Bala (2008) were used in the research model, PU and PEoU, respectively. Additionally, in their study, the intention to use (IU) scale consisting of the items *"I prefer to use e-wallet"*, *"I will continue to use e-wallet in the future"* and *"I would recommend my friends and family to use e-wallet"* (Evanschitzky et al. 2012) are used in the research. The system security (SS) scale was adapted from the study of Nochai & Nochai (2013). It consists of 5 items which are *"Personal information is kept securely in the e-wallet"*, *"Payments made with the e-wallet are kept securely"*, *"Using the e-wallet is reliable"*, *"When using the e-wallet, I feel safe"*, and *"I can always control the payments I make with my e-wallet"*. The cultural congruity (CC) scale, which is thought to affect the use of e-wallet and consists of 5 items, was adapted for e-wallet by the authors, based on the study of Gloria & Robinson-Kurpius (1996). Similarly, the social image (SI) scale consisting of 3 measured items from (Venkatesh, Morris, Davis & Davis, 2003), and the system quality (SQ) scale consisting of 5 items, based on the study of Cheng & Huang (2013), were adapted. The scales of all variables used in the research model were translated into Turkish since the originals were in English. During the translation process, the expressions were first translated into Turkish and then back into English and checked through a double translation process. Additionally, the question items of the variables were adapted according to the e-wallet expression. Furthermore, in the study, IU was considered as the dependent variable, and SS, SQ, SI and CC were considered as independent variables.

Sample

The sample group of the study consists of individuals living in Türkiye. From June 6, 2021, until July 18, 2021, an online survey was disseminated. The study was conducted with 330 participants. 300 of the surveys were included in the analysis. The data were evaluated by the SPSS 23 package program.

Survey

Online survey method (Malhotra, 2010) was used as a data collection tool. To examine the demographic characteristics of the participants, the survey included five questions for gender, age, marital status, education level and income level. In addition to demographic questions, there are four questions measuring the devices the participants use to access the internet, the duration of their internet use, their e-commerce usage status and their preferred payment type in e-commerce. Finally, there are 29 questions measuring the 7 factors in the research model. PU (perceived usefulness – 4 items), PEoU (perceived ease of use – 4-items), IU (intention to use – 3 items), SS (system security – 5 items), CC (cultural congruity – 5 items), SI (social image – 3 items), and SQ (system quality – 5 items). These items in the survey were measured using a 5-point Likert type scale as *1-Strongly Disagree, 2-Disagree, 3-Neither Agree nor Disagree, 4-Agree, 5-Strongly Agree*. In total, the questionnaire consists of a total of 38 questions.

Hypothesis development

For today's people, e-wallets are a technology that stores a lot of information in a single center and allows this information to be controlled from a single center. There are many studies about TAM in literature. However, there are few studies analyzing e-wallet usage with TAM. In this context, it is of great importance to analyze the factors affecting the use of e-wallet with TAM to fill the gap in literature. As a result, it is aimed to understand the tendency to use e-wallet in Türkiye. The variables used in the research model are defined as follows:

Perceived Ease of Use (PEoU): The degree to which people believe that using technology does not require physical and mental effort. PEoU has a positive effect on PU and IU (Davis, 1989).

Perceived Usefulness (PU): People's tendency to believe that using technology will positively affect their work performance. Easy learning of new technologies can make their use more beneficial (Venkatesh et al. 2003). PU directly affects IU (Davis et al. 1989).

Intention to Use (IU): It is the degree to which people consider doing or not doing a certain behavior soon (Warshaw & Davis, 1985). According to TAM, two most important factors affecting IU are PEoU and PU.

System Security (SS): Security is defined as being free from danger, risk or doubt. This concept includes physical security, financial security and privacy (Nochai & Nochai, 2003).

Cultural Congruity (CC): It is the degree to which, people perceive new technologies as compatible with socio-cultural values (Rogers, 1983).

Social Image (SI): It refers to how people are perceived by other people when using new technology (Moore & Benbasat, 1991). People may perceive that using new technologies can improve their status or prestige within the company. By achieving this, they can impress their superiors, which may lead to new career opportunities in the future. Various studies have also shown that the impact of SI on PEoU and PU is positive (Lu, Yao & Yu, 2005).

System Quality (SQ): DeLone & McLean (2003) defined SQ as an evaluation of information system quality. They also stated that SQ is evaluated in terms of ease of use, reliability, data quality, integration and importance. The results obtained in the study showed that SQ had a positive effect on PU and IU.

In this study, which is based on the first TAM, PEoU and PU positively affect the IU. PEoU also positively affects PU (Kwahk & Lee, 2008). Thus, hypotheses H_1, H_2 and H_3 were formed. On the other hand, SS positively affects PU, PEoU and IU. Accordingly, hypotheses H_4, H_5 and H_6 were generated. External variables include SQ, CC and SI positively affect PEoU and PU. Thus, hypotheses H_7, H_8, H_9, H_{10}, H_{11} and H_{12} were introduced. In line with the proposed model (Figure 2), the hypotheses of the research are listed as follows:

H_1: *PEoU of e-wallet usage has a positive effect on PU.*

H_2: *PEoU of e-wallet has a positive effect on IU e-wallet.*

H_3: *PU of e-wallet use has a positive effect on IU e-wallet.*

H_4: *SS regarding e-wallet use has a positive effect on PU.*

H_5: *SS regarding e-wallet use has a positive effect on IU e-wallet.*

H_6: *SS regarding e-wallet use has a positive effect on PEoU.*

H_7: *The expected SI effect in adapting to e-wallet use has a positive effect on PU.*

H_8: *The expected SI effect in adapting to e-wallet use has a positive effect on PEoU.*

H_9: *CC has a positive effect on PU.*

H_{10}: *CC has a positive effect on PEoU.*

H_{11}: *The SQ regarding e-wallet use has a positive effect on PU.*

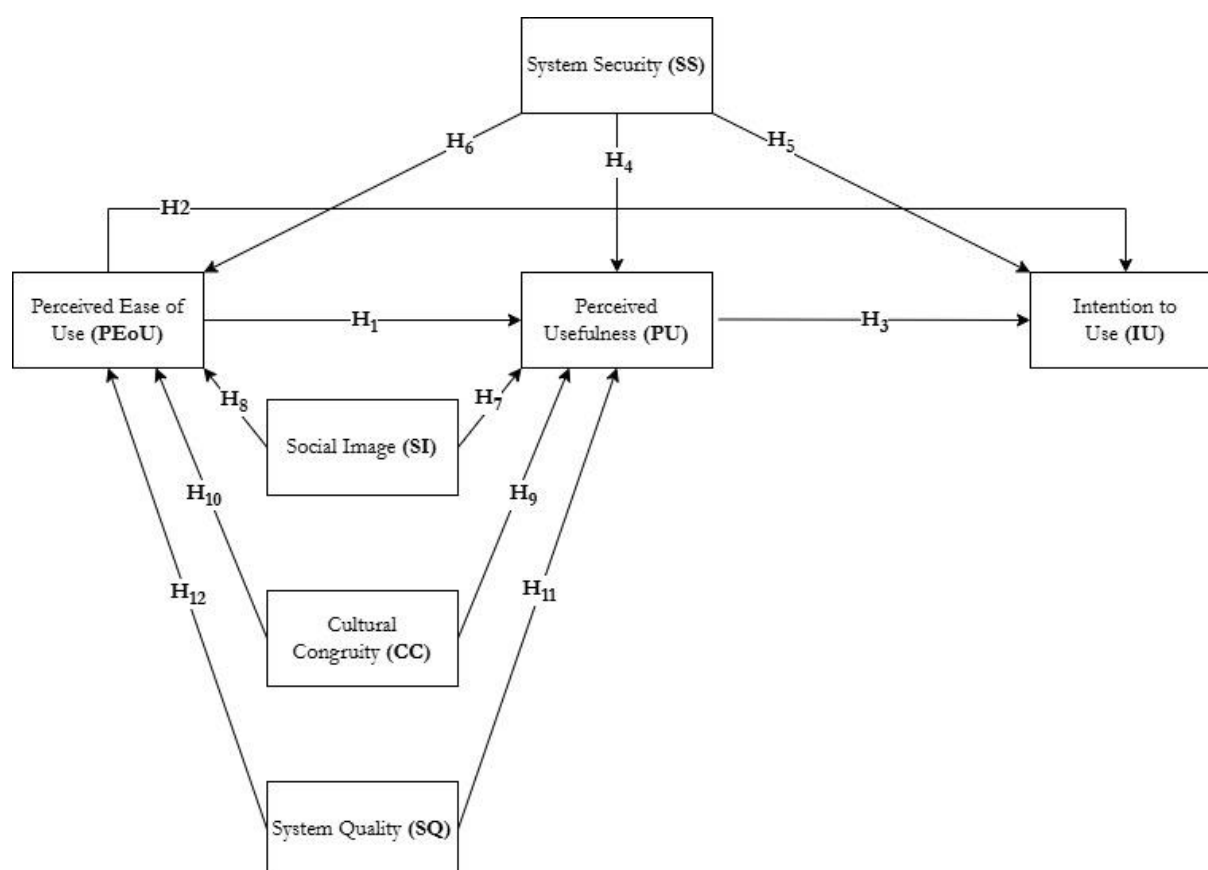H_{12}: *The SQ regarding e-wallet use has a positive effect on PEoU.*

Figure 2. *Research Model*

Findings

Demographic Profile

65.5% of the participants in the research are women and 35.5% are men. Four categories are determined for the age analysis of the respondents: 18 – 29, 30 – 39, 40 – 49, 50 and above. More than half of the participants (51.2%) are between the ages of 18 and 29. It is also seen that 36.1% of the participants are between 30 and 39, 7.9% are between 40 and 49, and 4.8% are 50 and over. Considering the marital status data of the participants, 63.9% are single and 36.1% are married. Secondary education (high school or lower degree), associate degree, bachelor's degree, master's degree and doctorate categories are determined for the educational status analysis of the participants. Approximately half of the respondents (48.8%) have a bachelor's degree, while 18.2% have an associate degree, 15.2% have a master's degree, 9.4% have a doctorate degree and 8.5% have a secondary education degree. In terms of income status of participants; it is seen that 104 participants have an income between 0 and 2,000 TL. Those with an income between 2,001 – 4,000 TL are 80 people, those with an income between 4,001 – 6,000 TL are 69 people, those with an income between 6,001 – 8,000 TL are 42 people, and finally, those with an income of 8,001 TL and above are 35 people.

Participants are asked, *"Which device do you usually connect to the Internet with?"* and when the answers to the question are examined, 79.7% selected smart phones, 17.0% selected computers, and 3.3% selected tablets. Four categories are created to determine the daily internet usage time of the participants: Less than 1 hour, 1 – 3 hours, 4 – 6 hours and more than 7 hours. 37.0% of the participants stated their daily internet usage time as 1 - 3 hours. This is followed by 36.7% of those whose daily internet usage time is 4 - 6 hours. While 20.9% stated their daily internet usage time as more than 7 hours, 5.5% stated their daily internet usage time as less than 1 hour. Participants are asked, *"Do you shop by e-commerce?"* and when the answers to the question are examined, 95.5% stated that they use e-commerce and 4.5% stated that they do not use e-commerce. Therefore, the data of those who do not use e-commerce are not included in further analysis of the study. The last question about demographic characteristics aims to determine which payment system the participants use when using e-commerce. In the light of the answers given, it is

determined that most of the participants (80.3%) used credit cards. While money transfer/EFT users are 12.7%, e-wallet users are 7%.

Findings Regarding Normal Distribution Test of Data

When the literature is examined, different methods are encountered to evaluate normality (Büyüköztürk, 2007). In evaluating the findings in this research, skewness and kurtosis values were analyzed. In this method, values are expected to be between –1 and +1 (Hair, Black, Babin & Anderson, 2014). Since the skewness and kurtosis values are between –1 and +1, the data show a normal distribution. Also, the Kolmogorov-Smirnov test is run for normality and its results are reported below. In this context, Table 1 was presented.

Table 1. *Check for Normal Distribution*

Items	Mean	Median	Standard Deviation	Skewness	Kurtosis	Kolmogorov -Smirnov p value
PEoU 1	3.358	3.0	1.0	-.430	-.127	.000
PEoU 2	3.600	4.0	1.0	-.480	-.440	.000
PEoU 3	3.590	4.0	1.0	-.530	.072	.000
PEoU 4	3.555	4.0	1.0	-.592	.183	.000
PU 1	3.634	4.0	1.0	-.599	.372	.000
PU 2	3.600	4.0	1.0	-.530	.115	.000
PU 3	3.434	4.0	1.0	-.416	-.171	.000
PU 4	3.387	3.0	1.0	-.344	-.231	.000
IU 1	3.238	3.0	1.0	-.298	-.397	.000
IU 2	3.371	3.0	1.0	-.394	-.207	.000
IU 3	3.231	3.0	1.0	-.340	-.273	.000
SS 1	3.203	3.0	1.0	-.274	-.293	.000
SS 2	3.279	3.0	1.0	-.351	-.140	.000
SS 3	3.266	3.0	1.0	-.292	-.272	.000
SS 4	3.219	3.0	1.0	-.196	-.191	.000
SS 5	3.523	4.0	1.0	-.545	.079	.000
CC 1	3.028	3.0	1.2	-.201	-.744	.000
CC 2	2.619	3.0	1.1	.184	-.721	.000
CC 3	2.660	3.0	1.2	.166	-.783	.000
CC 4	3.368	3.0	1.0	-.347	-.126	.000
CC 5	3.307	3.0	1.0	-.350	-.222	.000
SI 1	2.742	3.0	1.2	.031	-.840	.000
SI 2	2.647	3.0	1.2	.085	-.938	.000
SI 3	2.641	3.0	1.2	.106	-.974	.000
SQ 1	3.485	3.0	1.0	-.325	-.165	.000
SQ 2	3.425	3.0	1.0	-.128	-.074	.000
SQ 3	3.428	3.0	1.0	-.216	-.249	.000
SQ 4	3.273	3.0	1.0	-.283	.187	.000
SQ 5	3.238	3.0	1.0	-.164	-.370	.000

Factor Analysis and Reliability Test Findings

Kaiser-Mayer-Olkin (KMO) Test and Bartlett Test were performed for factor analysis. The KMO test provides information about the size and adequacy of the sample volume. The acceptable lower limit for the obtained value is .50. The Bartlett Test is applied to determine whether the relationships between items are significant. A Bartlett Test value of p < .05 indicates that there is a sufficient level of relationship for factor analysis (Sipahi, Yurtkoru & Çinko, 2010).

According to the factor analysis results, factor loadings, explained variance, and common variance values of the question items were interpreted to determine whether some question statements could be removed from the research. In this context, the factor-loading values of the question items must be over .60. When question items with low factor loadings are removed from the research, the explained variance value increases. Common variance values must exceed .50. Question items below this value were removed from the analysis (Kalaycı, 2010).

The Cronbach's alpha values were interpreted for reliability analysis. Reliability refers to the consistency between the research questions and to what extent the research scale reflects the question wording. Therefore, the reliability of each factor is calculated. In this context, it is necessary to investigate whether each question statement represents the whole homogeneously with the Cronbach Alpha value. As

a result of this research, Cronbach's alpha coefficients are expected to be between 0 and 1. The lower limit for scale reliability should be .70 (Güriş & Astar, 2014).

The result of the KMO test of the PEoU factor was .819 and was calculated as p<0.05. In this context, the data structure of the PEoU variable was found to be sufficient for the factor analysis. In addition, the factor loading for each question item was found to be greater than .60. It is seen that the explained variance is 78.218% , and the Cronbach Alpha value is .905. Therefore, we conclude that the scale of the PEoU variable is reliable and consistent.

The KMO value of the PU variable was calculated as .823 and p < .05. Accordingly, the data structure of the PU variable was found sufficient for factor analysis. The factor loading of each question item in the PU variable is greater than .60. The explained variance is 76.672%. The Cronbach's alpha value was calculated as .896. Accordingly, the scale is reliable and consistent.

The KMO value of the IU variable was calculated as .758. The Bartlett test statistic of the IU variable provided by the factor analysis is p < .05. These results are found to be suitable for factor analysis. In addition, the factor loading of each question item is greater than .60. It is seen that the explained variance is 88.993% and the Cronbach Alpha value is .938. As a result, the scale of the IU variable was evaluated as reliable and consistent.

The KMO test result of the SS factor provided is .885 and the Bartlett test statistic is p < 0,05. This result demonstrates that the data structure of the SS variable is sufficient for factor analysis. In addition, the factor loading of each question item is greater than .60. The explained variance value was calculated as 83.131%. Cronbach Alpha value was found to be .948. Analysis results show that the scale of the SS variable provided is reliable and consistent.

The KMO value for the CC variable is .945 and p < .05; that is, it is suitable for factor analysis. The factor loadings of the question statements *"CC 2"* and *"CC 3"* are greater than .60. Cronbach Alpha value was calculated as .801. It can be said that the CC scale is reliable and consistent.

Table 2. *Factor Analysis and Reliability Test Results*

Factor	Item	Loading	Cronbach Alpha	Variance Explained (%)	KMO	Barlett Testi (p)
Perceived ease of use	PEoU 1	.945	.905	78.218	.819	.000
	PEoU 2	.907				
	PEoU 3	.867				
	PEoU 4	.814				
Perceived usefulness	PU 1	.913	.896	76.672	.823	.000
	PU 2	.912				
	PU 3	.869				
	PU 4	.803				
Intention to use	IU 1	.954	.938	88.993	.758	.000
	IU 2	.959				
	IU 3	.927				
System security	SS 1	.960	.948	83.131	.885	.000
	SS 2	.951				
	SS 3	.939				
	SS 4	.915				
	SS 5	.782				
Cultural congruity	CC 1	.548	.801	46.265	.628	.000
	CC 2	.635				
	CC 3	.693				
	CC 4	.504				
	CC 5	.548				
Social image	SI 1	.986	.981	96.257	.772	.000
	SI 2	.985				
	SI 3	.973				
System quality	SQ 1	.938	.948	83.030	.889	.000
	SQ 2	.927				
	SQ 3	.925				
	SQ 4	.884				
	SQ 5	.882				

As a result of factor analysis, the KMO value of the SI variable was found to be .772 and p < .05. Therefore, the data structure of this factor is sufficient for factor analysis. In addition, the factor loadings

of the items are greater than .60. The explained variance value was obtained as 96.257%. The Cronbach's alpha value was .981. In this regard, the scale of the SI variable is reliable and consistent.

The KMO value for the SQ factor is .889, and the Bartlett test statistic is p < .05. In addition, the factor loading of each question item in this factor is greater than .60. The explained variance is 83.030%, and the Cronbach's alpha value was .948. Therefore, the scale used for the SQ variable is reliable and consistent. The related data are summarized in Table 2.

Findings Regarding the Test of Relationships Between Variables

Regression analysis is used to explain the relationship between dependent and independent variables and to interpret the severity, shape, and direction of the relationship between the dependent variable and independent variables (Kılıç, 2013). Regression analysis is categorized into two types based on the number of independent variables used: univariate regression analysis and multivariate regression analysis. Multivariate regression analysis is used when there are multiple independent variables, whereas univariate regression analysis is used when there is only one independent variable (Altunışık, Coşkun, Bayraktaroğlu & Yıldırım, 2017).

In the study, *"H₆: SS regarding e-wallet use has a positive effect on PEoU"* is tested by regression analysis, and SS was found to affect PEoU positively ($\beta = .287$) and significantly (p < .05), thus H₆ is supported. The regression analysis of the hypothesis *"H₈: The expected SI effect in adapting to e-wallet use has a positive effect on PEoU"* showed that SI affects PEoU negatively ($\beta = -.260$) and significantly (p < .05), therefore, there is a significant effect, but in the negative direction, H₈ is partially supported. For *"H₁₀: CC has a positive effect on PEoU"*, the regression analysis results of the hypotheses showed that the CC variable did not affect the PEoU statistically significantly (p > .05). Therefore, hypothesis H₁₀ is not supported. And *"H₁₂: The SQ regarding e-wallet use has a positive effect on PEoU"*, regression analysis showed that SQ affects PEoU positively ($\beta = .578$) and significantly (p < .05), thus, H₁₂ is supported.

Table 3. *Hypothesis Test Results of the Research Model*

Hypothesis	Path	Standardized Beta Coefficient (β)	p	Decision
H₁	PEOU → PU	.172	.005	Supported
H₂	PEOU → IU	-.030	.537	Not Supported
H₃	PU → IU	.382	.000	Supported
H₄	SS → PU	.143	.011	Supported
H₅	SS → IU	.576	.000	Supported
H₆	SS → PEOU	.287	.000	Supported
H₇	SI → PU	.157	.000	Supported
H₈	SI → PEOU	-.260	.000	Partially Supported
H₉	CC → PU	-.123	.001	Partially Supported
H₁₀	CC → PEOU	-.003	.940	Not Supported
H₁₁	SQ → PU	.574	.000	Supported
H₁₂	SQ → PEOU	.578	.000	Supported

"H₁: PEoU of e-wallet usage has a positive effect on PU", according to the test results, PEoU affects PU positively ($\beta = .172$) and significantly. *"H₄: SS regarding e-wallet use has a positive effect on PU"*, regression test results showed that SS affects PU positively ($\beta = .143$) and statistically significantly (p < .05). *"H₇: The expected SI effect in adapting to e-wallet use has a positive effect on PU"*, the results of the regression analysis performed to test the hypothesis showed that SI affects PU positively ($\beta = .157$) and significantly (p < .05). *"H₉: CC has a positive effect on PU"*, the regression test of this hypothesis showed that CC affects PU negatively ($\beta = -.123$) and significantly (p < .05). *"H₁₁: The SQ regarding e-wallet use has a positive effect on PU,"* according to the regression analysis test results, SQ affects PU positively ($\beta = .574$) and significantly (p < .05). In this context, hypotheses H₁, H₄, H₇, and H₁₁ are supported, whereas H₉ is partially supported.

"H₂: PEoU of e-wallet has a positive effect on IU e-wallet", the regression analysis results of the hypotheses show that PEoU does not affect the IU statistically significantly (p > .05). Therefore, hypothesis H₂ is not supported. *"H₃: PU of e-wallet use has a positive effect on IU e-wallet"*, according to the regression test results, PU affects the IU positively ($\beta = .382$) and significantly (p < .05). For the hypothesis *"H₅: SS regarding e-wallet use has a positive effect on IU e-wallet"*, SS affects the IU positively ($\beta = .576$) and significantly (p < .05). Therefore, hypotheses H₃ and H₅ are supported. These results are summarized in Table 3.

Conclusion and Discussion

In today's world, in which digitalization is unstoppable, electronic payment systems represent the latest trend in all business sectors. These systems, which have a great impact on purchasing goods, products, and services over a wider area, are still in their early days in some countries, but are widely used in others (Kandimalla & Mari, 2020).

In this study, a model was developed and tested, including user experience and demographic characteristics, using theoretical perspectives grounded in the literature. In this context, with the help of TAM, the relationships between PEoU, PU, IU, SS, CC, SI, and SQ variables regarding e-wallet usage were investigated.

The findings obtained from the research, the hypotheses, and the variables in the model have shown that they are compatible with other studies in literature. In studies aiming to improve TAM, PEoU has been shown to have a positive effect on PU (Davis, 1989). Similar to the classic TAM model, in this study, the PEoU variable was found to affect PU positively. According to the research findings, PEoU does not directly affect IU, but it can be said that it has an indirect effect on PU. Wu and Wang (2005) emphasized that PEoU does not directly affect IU, but exerts an indirect effect through PU. In line with the literature results, PEoU did not affect the IU variable. However, PU affects IU positively. Therefore, in parallel with the findings in the literature, PEoU affects IU indirectly via PU. The results also demonstrated that SS significantly affected the participants' e-wallet UI.

The Technology Acceptance Model (TAM) has been extensively used in research to understand user acceptance of various technologies, particularly in relation to system quality and security perceptions. Findings from numerous studies indicate that both system quality and security perceptions significantly influence user intentions to adopt and use such technologies. The privacy and security aspects positively affect the usage intention of e-wallet users. Therefore, it is one of the prerequisites that e-wallet system providers should focus on. Consequently, strengthening users' privacy and security perceptions and making electronic payment systems more technically open may contribute to the use of e-wallets. Similarly, Faizah et al. emphasized that system quality plays a vital role in user satisfaction and intention to use, reinforcing the idea that users are more likely to adopt systems they perceive as high-quality (Faizah et al., 2023). Moreover, the integration of system quality into the TAM framework enhances the predictive power of the model. For example, studies by Jiang et al. and Wibisono et al. demonstrate that incorporating system quality into the TAM significantly improves the model's ability to explain user acceptance of e-learning and mobile applications (Jiang et al., 2022; Wibisono et al., 2024). The body of research on the technology acceptance model reveals a clear consensus on the importance of system quality and security perceptions in influencing technology acceptance. The integration of these factors into the TAM framework enhances its applicability and predictive power, providing valuable insights for researchers and practitioners seeking to improve user acceptance of various technologies.

SI has a positive impact on PU. The strong relationship between SI and PU is an important indicator that users care about how they are perceived by others in their social circle. The Technology Acceptance Model (TAM) has been extensively used to understand the factors influencing technology acceptance, particularly in the context of social image and social influence. Social image, which pertains to how individuals perceive the acceptance and approval of technology use by their peers, plays a critical role in shaping users' attitudes and intentions towards adopting new technologies. This aspect of TAM has been explored in various studies (Zaid, 2024; Zaineldeen et al., 2020), highlighting the significance of social factors in technology acceptance. The findings suggest that individuals who are more socially connected and supported are more inclined to adopt new technologies, because they perceive a favorable social image associated with such behaviors. Social image and social influence are also investigated in other context suxh as educational settings (Al-Rahmi et al., 2022), social media (Bashir et al., 2022), and e-learning (Sukendro et al., 2020; Rahman and Hidayat, 2019). In summary, the findings of TAM highlight the critical role of social image in technology acceptance. Social influence, perceived social norms, and individual attitudes towards technology creates a complex landscape that shapes users' intentions and behaviors. As technology continues to evolve, understanding these social dynamics is essential for fostering widespread acceptance and effective utilization of new technologies.

There appears to be a significant relationship between CC and PU. This result shows that users perceive the use of e-wallet as compatible with the cultural values of the society in which they live. Cultural congruity within the context of the Technology Acceptance Model (TAM) has garnered significant

attention in recent research, particularly as it relates to user acceptance of technology across diverse cultural backgrounds. The concept of cultural congruity refers to the alignment between an individual's cultural values and the technological environment they are engaging with. This alignment can significantly influence technology acceptance, as evidenced by various studies that integrated cultural dimensions into the TAM framework (e.g. Cahill & Cummings, 2023; Baptista & Oliveira, 2015). The integration of cultural congruity into TAM research provides significant insights into how cultural factors influence technology acceptance. The evidence suggests that aligning technology with users' cultural values can enhance acceptance and engagement, thereby improving the overall effectiveness of technology implementations. Future research should explore the nuanced relationships between cultural congruity and technology acceptance, particularly in emerging technologies and diverse cultural contexts.

During the COVID-19 pandemic, the use of electronic payment systems has increased. COVID-19 has affected every aspect of life and the financial world (Rahi, Alghizzawi, & Ngah, 2024). Electronic payment systems are expected to continue to be used in the future. New electronic payment systems are expected in the future, depending on technological developments. For these new electronic payment systems to be accepted and adopted, it is necessary to eliminate the lack of information by promoting e-wallet users, emphasize their benefits, prioritize electronic payments and make them available to users from all segments of society.

The sample group for this research consists of people living in Türkiye. Therefore, data were collected from a certain region over a certain period, which may limit the generalizability of the findings. For future studies, the survey should be prepared in both Turkish and English to accommodate a more diverse group of participants, including foreign users. Expanding the scope to different geographic regions and cultural contexts can provide a more comprehensive understanding of e-wallet adoption and usage patterns. In addition, conducting longitudinal studies without strict time constraints would allow for the observation of evolving consumer behaviors and technological advancements . Future research could also incorporate qualitative methods, such as interviews or focus groups, to gain deeper insights into user experiences and preferences. Furthermore, collaboration with international researchers or institutions could facilitate cross-country comparisons, enabling a broader analysis of trends, regulatory frameworks, and market dynamics that influence e-wallet adoption on a global scale.

Ethical Declaration

"*During the writing process of the study titled "Factors Affecting E-Wallet Usage: A Study in Türkiye"*, all scientific, ethical, and citation rules were followed. No falsification was performed on the collected data, and this study has not been submitted to any other academic venue for evaluation. Additionally, ethical approval for the research was obtained from the Bursa Technical University Ethics Committee for Research in Science, Engineering, and Social Sciences (Date: 07/05/2021, Decision No: 2021-6-3)..

Etik Beyan

"E-Cüzdan Kullanımını Etkileyen Faktörler: Türkiye'de Bir Araştırma" başlıklı çalışmanın yazım sürecinde bilimsel, etik ve atıf kurallarına uyulmuş; toplanan veriler üzerinde herhangi bir oynama yapılmamış ve bu çalışma değerlendirilmek üzere başka bir akademik dergiye gönderilmemiştir. Ayrıca araştırmanın yürütülebilmesi için Bursa Teknik Üniversitesi, Fen, Mühendislik ve Sosyal Bilimleri Araştırmaları Etik Kurulu'ndan izin alınmıştır (Tarih: 07/05/2021 ve Karar No: 2021-6-3).

Statement of Contribution Rate of Researchers

The contribution rates of the authors in the study are equal.

Araştırmacıların Katkı Oranı Beyanı

Yazarların çalışmadaki katkı oranları eşittir.

Declaration of Conflict

There are no potential conflicts of interest in the study.

Çatışma Beyanı

Bu .çalışmada herhangi bir potansiyel çıkar çatışması söz konusu değildir.

Notes

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Not

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References

Ajzen, I. (1991). *The Theory of planned behavior. Organizational Behavior and Human Decision Processes.*

Al-Rahmi, A., Shamsuddin, A., Wahab, E., Al-Rahmi, W., Alismaiel, O., & Crawford, J. (2022). Social media usage and acceptance in higher education: a structural equation model. *Frontiers in Education, 7*. https://doi.org/10.3389/feduc.2022.964456

Altunışık, R., Coşkun, R., Bayraktaroğlu, S., & Yıldırım, E. (2017). *Sosyal bilimlerde araştırma yöntemleri SPSS uygulamalı*. Sakarya: Sakarya Yayıncılık.

Altuntaş, C. (2011). Elektronik ticaretin muhasebeleştirilmesi ve vergilendirilmesi sorunları: bir uygulama (Yüksek Lisans Tezi). *İstanbul Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.*

Alwi, S., Salleh, M. N. M., Alpandi, R. M., Ya'acob, F. F., & Abdullah, S. M. M. (2021). Fintech as financial inclusion: factors affecting behavioral intention to accept mobile e-wallet during covid-19 outbreak. *Turkish Journal of Computer and Mathematics Education (TURCOMAT), 12*(7), 2130-2141. doi: 10.17762/turcomat.v12i7.3356

Amron, M. T., Mohamad, M. A., & Noh, N. H. M. (2024). E-Wallet Payment Usage Among Young Consumers Using Technology Continuance Theory. *Information Management and Business Review, 16*(2 (I) S), 189-197.

Baptista, G. & Oliveira, T. (2015). Understanding mobile banking: the unified theory of acceptance and use of technology combined with cultural moderators. *Computers in Human Behavior, 50*, 418-430. https://doi.org/10.1016/j.chb.2015.04.024

Büyüköztürk, Ş. (2007). Sosyal bilimler için veri analiz el kitabı: istatistik araştırma deseni, SPSS Uygulamaları ve Yorum. Ankara: Pegem Akademi.

Cahill, T. & Cummings, J. (2023). Effects of congruity on the state of user presence in virtual environments: results from a breaching experiment. *Frontiers in Virtual Reality, 4*. https://doi.org/10.3389/frvir.2023.1048812

Chellappan, K., Elanchselvan, T., & Abu-Samah, A. (2025). E-wallet Delivery Technology Architecture Adoption: A Review. *Jurnal Kejuruteraan, 37*(1), 219-232. https://doi.org/10.17576/jkukm-2025-37(1)-14

Cheng, H. H., & Huang, S. W. (2013). Exploring antecedents and consequence of online group-buying intention: an extended perspective on theory of planned behavior. *International Journal of Information Management, 33*(1), 185-198. doi: 10.1016/j.ijinfomgt.2012.09.003

Clark, B. (2001). Electronic wallets: past, present and future. *Gpayments*. https://www.gpayments.com/Portals/0/pdfs/GPayments_eWallet_Whitepaper.pdf

Çölkesen, R., & Kipman, E. (2008). Mobil se-cüzdan mimari tasarımı ve uygulaması. X. Akademik Bilişim Konferansı 2008 (pp. 517-522). Çanakkale: Çanakkale Onsekiz Mart Üniversitesi.

Daragmeh, A., Sági, J., & Zéman, Z. (2021). Continuous intention to use e-wallet in the context of the covıd-19 pandemic: integrating the Health Belief Model (HBM) and Technology Continuous Theory (TCT). *Journal of Open Innovation: Technology, Market, and Complexity, 132*(7), 1-23. doi: 10.3390/joitmc7020132

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-340. doi: 10.2307/249008

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science, 35*(8), 982-1003. doi: 10.1287/mnsc.35.8.982

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of Management Information Systems, 19*(4), 9-30. doi: 10.1080/07421222.2003.11045748

Erdem, H. K. (2011). *Kurumsal kaynak planlama sistemlerinin kullanımında etkili olan faktörlerin genişletilmiş teknoloji kabul modeli ile incelenmesi (Doktora Tezi).* İstanbul Teknik Üniversitesi: İstanbul.

Evanschitzky, H., Ramaseshan, B., Woisetschläger, D. M., Richelsen, V., Blut, M., & Backhaus, C. (2012). Consequences of customer loyalty to the loyalty program and to the company. *Journal of the Academy of Marketing Science, 40*(5), 625-638. doi: 10.1007/s11747-011-0272-3

Faizah, S., Dina, L., Kartiko, A., Ma`arif, M., & Hasan, M. (2023). Student acceptance study of PHET simulation with an expanded technology acceptance model approach. *Journal of Applied Engineering and Technological Science (JAETS), 5*(1), 279-290. https://doi.org/10.37385/jaets.v5i1.3041

Fareed, T. (2023). A Systemic Review of Payment Technologies with a Special Focus on Digital Wallets. *Financial Technologies and DeFi: A Revisit to the Digital Finance Revolution, 89-97.*

Gloria, A. M., & Robinson-Kurpius, S. E. (1996). The validation of the cultural congruity scale and the university environment scale with chicano/a students. *Hispanic Journal of Behavioral Sciences, 18*(4), 533-549. doi: 10.1177/0739986396018

Güriş, S., & Astar, M. (2014). *Bilimsel araştırmalarda SPSS ile istatistik.* İstanbul: Der Yayınları.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis.* Essex: Pearson Education Limited.

Jiang, Q., Gu, C., Yan, F., Wei, W., & Tsai, W. (2022). Study on the continuance intention in using virtual shoe-try-on function in mobile online shopping. *Kybernetes, 52*(10), 4551-4575. https://doi.org/10.1108/k-12-2021-1346

Juniper Research (2022), Digital Wallet Users to Exceed 5.2 Billion Globally by 2026, https://www.juniperresearch.com/press/digital-wallet-users-exceed-5bn-globally-2026/

Kalaycı, Ş. (2010). *SPSS uygulamalı çok değişkenli istatistik teknikleri.* Ankara: Asil Yayınları.

Kandimalla, N. V., & Mari, V. (2020). *Digital wallet payments (Doctoral Dissertation).* Politecnico Milano, Italy.

Kavut, S. (2023). Türkiye'de dijital kimlik ve dijital gözetim üzerine bir değerlendirme. *Dijital Çağda Medya, 67.*

Kılıç, S. (2013). Doğrusal regresyon analizi. *Journal of Mood Disorders, 3*(2), 90-93. doi: 10.5455/jmood.20130624120840

Kwahk, K. Y., & Lee, J. N. (2008). The role of readiness for change in ERP implementation: theoretical bases and empirical validation. *Information and Management, 45*(7), 474-481. doi: 10.1016/j.im.2008.07.002

Lu, J., Yao, J. E., & Yu, C. S. (2005). Personal innovativeness, social influences and adoption of wireless internet services via mobile technology. *Journal of Strategic Information Systems, 14*(3), 245-268.

Malhotra, N. K. (2010). *Marketing research: an applied orientation.* New Jersey: Pearson Education Inc.

Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research, 2*(3), 192-222. doi: 10.1287/isre.2.3.192

Nochai, R., & Nochai, T. (2013). The impact of internet banking service on customer satisfaction in Thailand: a case study in Bangkok. *International Journal of Humanities and Management Sciences, 1*(1), 1001-105.

Olsen, M., Hedman, J., & Vatrapu, R. (2011). *E-wallet properties.* 10th International Conference on Mobile Business (pp. 158-165). Como, Italy: IEEE.

Pertiwi, D., Suprapto, W., & Pratama, E. (2020). Perceived usage of e-wallet among the Y generation in Surabaya based on technology acceptance model. *Jurnal Teknik Industri, 1*(22), 17-24.

Prawira, F. R., Prakoso, N. T., Handayani, P. W., & Harahap, N. C. (2024). The influence of information security factors on the continuance use of electronic wallet. *Procedia Computer Science, 234*, 1467-1475.

Rahman, H. and Hidayat, R. (2019). Influencing factors in the depth-usage of social media as the business platform by student entrepreneurs. *Amar (Andalas Management Review), 3*(1), 19-54. https://doi.org/10.25077/amar.3.1.19-54.2019

Renaud, K., & van Biljon, J. (2008). *Predicting technology acceptance and adoption by the elderly: a qualitative study.* The 2008 annual research conference of the South African Institute of Computer Scientists and Information Technologists (pp. 210-219). Wilderness, South Africa.

Rogers, E. M. (1962, 1983). Diffusion of innovations. New York: Free Press.

Salodkar, A., Morey, K., & Shirbhate, M. (2015). Electronic wallet. *International Research Journal of Engineering and Technology, 2*(9), 975-977.

Shetu, S. N., Islam, M. M., & Promi, S. I. (2022). An empirical investigation of the continued usage intention of digital wallets: The moderating role of perceived technological innovativeness. *Future Business Journal, 8*(1), 43.

Singh, S., & Ghatak, S. (2021). Investigating e-wallet adoption in India: extending the TAM model. *International Journal of E-Business Research, 3*(17), 42-54. doi: 10.4018/IJEBR.2021070103

Sipahi, B., Yurtkoru, E. S., & Çinko, M. (2010). *Sosyal bilimlerde SPSS'le veri analizi.* İstanbul: Beta Yayıncılık.

Sukendro, S., Habibi, A., Khaeruddin, K., Indrayana, B., Syahruddin, S., Makadada, F., A. & Hakim, H. (2020). Using an extended technology acceptance model to understand students' use of e-learning during covid-19: indonesian sport science education context. *Heliyon, 6*(11), e05410. https://doi.org/10.1016/j.heliyon.2020.e05410

Tombaş, H., & Çelik, A. A. (2022). Genç tüketicilerin elektronik ödeme yöntemi kullanımlarının belirleyicilerine dair alan araştırması. *Abant Sosyal Bilimler Dergisi, 22*(1), 47-63.

Uddin, M. S., & Akhi, A. Y. (2014). E-wallet system for Bangladesh an electronic payment system. *International Journal of Modeling and Optimization, 3*(4), 216-219.

Upadhayaya, A. (2012). Electronic commerce and e-wallet. *International Journal of Recent Research and Review, 1*(1), 37-41.

Uysal, F. M. (2023). Dijital Cüzdan: Güvenli ve Maliyet Etkin Bir Altyapı Yaklaşımı. *Orclever Proceedings of Research and Development, 3*(1), 490-501.

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences, 39*(2), 273-315. doi: 10.1111/j.1540-5915.2008.00192.x

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: toward a unified view. *MIS Quarterly, 27*(3), 425-478. doi: 10.2307/30036540

Warshaw, P. R., & Davis, F. (1985). Disentangling behavioral intention and behavioral expectation. *Journal of Experimental Social Psychology, 21*(3), 213-228. doi: 10.1016/0022-1031(85)90017-4

Wibisono, N., Rafdinal, W., & Setiawati, L. (2024). Tourism in the virtual age: predicting the adoption of virtual reality applications in tourism. *International Journal of Applied Sciences in Tourism and Events, 8*(1), 9-23. https://doi.org/10.31940/ijaste.v8i1.9-23

Wu, J. H., & Wang, S. C. (2005). What drives mobile commerce? an empirical evaluation of the revised technology acceptance model. *Information & Management, 42*(5), 719-729. doi: 10.1016/j.im.2004.07.001

Zaid, M. (2024). The effect of revisiting technology acceptance model on the behavioral targeting declaration. *Journal Dimensie Management and Public Sector, 5*(1), 45-61. https://doi.org/10.48173/jdmps.v5i1.260

Zaineldeen, S., Li, H., Koffi, A., & Hassan, B. (2020). Technology acceptance model concepts, contribution, limitation, and adoption in education. *Universal Journal of Educational Research, 8*(11), 5061-5071. https://doi.org/10.13189/ujer.2020.081106

GENİŞ ÖZET

Dijital devrim, ekonomi, ticaret, pazarlama ve tüketici davranışı gibi pek çok alanda önemli dönüşümlere yol açmıştır. Dijital cihazlar, alışveriş alışkanlıklarını kökten değiştirmiş ve süreci büyük ölçüde dijital hale getirmiştir. Bu durum, alternatif ödeme yöntemlerine olan arayışı da beraberinde getirmiştir. Elektronik ticaretin evrimi, elektronik para, sanal kredi kartları, ticari banka parası, elektronik çekler, akıllı kartlar, e-cüzdanlar ve mobil ödemeler gibi elektronik ödeme türlerinin benimsenmesiyle hız kazanmıştır (Altuntaş, 2011). COVID-19 pandemisi sonrası "*yeni normal*", tüketicileri e-cüzdan kullanımına teşvik etmiştir. Geleneksel ödeme yöntemleri varlığını sürdürse de temassız ödeme ve e-cüzdan kullanımında belirgin bir artış gözlemlenmiştir. *World Payments Report 2020* verilerine göre, 2019 yılında dünya genelinde 2,3 milyar olan e-cüzdan kullanıcı sayısının 2024 yılında 4 milyara ulaşması beklenmektedir. Araştırmalar, tüketicilerin %41'inin pandemi döneminde ilk kez temassız ödeme sistemlerini kullandığını ortaya koymaktadır (MediaCat, 2021). E-cüzdan, birçok bilgiyi tek bir dijital merkezde depolayan bir teknolojidir. Literatürde Teknoloji Kabul Modeli (TAM) çerçevesinde birçok çalışma yer alsa da e-cüzdan kullanımını TAM ile analiz eden çalışmalar sınırlıdır. Bu bağlamda, e-cüzdan kullanımını etkileyen faktörlerin incelenmesi bu alandaki boşluğun doldurulması açısından önem taşımaktadır. Bu doğrultuda araştırma soruları şu şekilde belirlenmiştir: *Sistem kalitesi, kültürel uyum, sosyal imaj ve güvenlik algısı, e-cüzdanların algılanan faydası ve kullanım kolaylığı üzerinde nasıl bir etkiye sahiptir? Bu faktörlerin tümü, e-cüzdan kullanım niyeti üzerinde ne gibi etkiler yaratmaktadır?* Teknoloji benimseme (adoption) ile kabul (acceptance) arasında bir ayrım bulunmaktadır. Teknoloji benimseme, bireylerin bir teknolojiyi fark etmesiyle başlayıp, onu tam anlamıyla kullanmalarıyla sonuçlanan bir süreçtir. Teknoloji kabulü ise, bireylerin teknolojiye yönelik tutumları olup, çeşitli faktörlerden etkilenir. Örneğin, yeni bir teknoloji ürünü satın almak, onu benimsemek anlamına gelmez; çünkü satın almanın ötesinde çeşitli aşamalar bulunmaktadır ve bu noktada kabul kavramı önemli bir rol oynamaktadır. Bir kullanıcı, bir ürünü satın aldıktan sonra onu kabul etmezse, ürün tam anlamıyla benimsenmiş sayılmaz. Dolayısıyla, bireylerin sürekli değişen ve gelişen günümüz teknolojilerine uyum sağlama düzeyi önemli bir araştırma alanı oluşturmaktadır. Yeni teknolojilerin benimsenmesini ve kullanımını etkileyen birçok faktör bulunmaktadır ve bu alanda en sık kullanılan model TAM'dir. Dijitalleşmenin durdurulamaz bir hâl aldığı günümüzde, elektronik ödeme sistemleri tüm iş sektörlerinde son trendi temsil etmektedir. Bu sistemler, daha geniş bir alanda mal, ürün ve hizmet satın alımlarını büyük ölçüde etkilemektedir. Ancak, bazı ülkelerde bu sistemler hâlâ başlangıç aşamasında iken, diğerlerinde yaygın bir şekilde kullanılmaktadır (Kandimalla & Mari, 2020). Bu çalışmada, TAM modeli ile algılanan kullanım kolaylığı, algılanan fayda, kullanım niyeti, sağlanan güvenlik, kültürel uyum, sosyal imaj ve mahremiyet/güvenlik değişkenleri arasındaki ilişkiler e-cüzdan kullanımı bağlamında incelenmiştir. Bulgular, algılanan kullanım kolaylığının kullanım niyeti üzerinde doğrudan bir etkisi olmadığını, ancak algılanan fayda aracılığıyla dolaylı bir etkisi olduğunu ortaya koymaktadır. Benzer şekilde, Wu ve Wang (2005) çalışmalarında, algılanan kullanım kolaylığının kullanım niyeti üzerinde dolaylı bir etkiye sahip olduğunu belirlemiştir. Araştırma ayrıca, algılanan kullanım kolaylığı, algılanan fayda ve sistem güvenliğinin katılımcıların e-cüzdan kullanım niyeti üzerinde önemli bir etkisi olduğunu göstermiştir. Mahremiyet ve güvenlik algıları, e-cüzdan kullanıcılarının kullanım niyetini olumlu yönde etkilemektedir. Dolayısıyla, kullanıcıların mahremiyet/güvenlik algılarını güçlendirmek ve elektronik ödeme sistemlerini teknik açıdan daha şeffaf hale getirmek, e-cüzdan kullanımını artırmaya katkı sağlayabilir. Ayrıca, sosyal imajın algılanan fayda üzerindeki olumlu etkisi, kullanıcıların sosyal çevrelerindeki algılara önem verdiğini göstermektedir. Kültürel uyum ile algılanan fayda arasındaki ilişki incelendiğinde, aralarında anlamlı bir ilişki olduğu görülmektedir. COVID-19 pandemisi, elektronik ödeme sistemlerinin kullanımını artırmıştır. Teknolojik gelişmelere bağlı olarak gelecekte yeni elektronik ödeme sistemlerinin ortaya çıkacağı düşünülmektedir. Bu yeni ödeme sistemlerinin kabul edilmesi ve benimsenmesi için e-cüzdan kullanıcılarına yönelik tanıtımlar yapılması, bilgi eksikliklerinin giderilmesi, faydaların vurgulanması, elektronik ödemelere öncelik verilmesi ve sistemlerin her kesimden kullanıcıya ulaştırılması gerekmektedir.