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Affecting factors of consumer attitudes to using e-payment: Context of Saudi market

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Abstract: The demand for electronic payment (e-payment) systems in recent years has grown steadily, with a notable acceleration during the COVID-19 pandemic. Numerous studies have investigated user intentions and perceptions regarding the adoption of e-payment technologies. Building on this body of research, the present study proposes a conceptual model that integrates behavioral factors with the Technology Acceptance Model (TAM) to gain deeper insights into consumers' use of e-payment systems. This study aims to identify key factors that influence users' intention to use e-payment. The researcher designed the study to examine factors that influence consumers' attitudes toward using e-payment, including security, trust, ease of use, perceived usefulness, and e-payment rewards. A quantitative research approach was employed, utilizing an online survey completed by 215 Saudi citizens. The findings reveal that all the identified factors positively influence user attitudes and intentions toward e-payment usage. Notably, perceived usefulness and ease of use emerged as direct predictors of user behavior. Future research should broaden the range of influencing factors considered in assessing consumer attitudes, such as social influence, and should include control groups based on gender to explore potential demographic differences.

Keywords: *Attitude to e-payment, Easy of use, E-payment rewards, Intent to use e-payment, Trust, Security, Usefulness.*

1. Introduction

The rising popularity of digital and cashless payment methods has been notable worldwide, fueled by advancements in information and communication technology, as well as the widespread use of smartphones and internet services. Consumers' behavioral intentions to adopt e-payment systems have evolved significantly, largely due to the growing need for secure, efficient, and convenient transaction methods. The rapid growth in Internet usage and advances in information and communication technologies have significantly boosted the development and adoption of electronic commerce (e-commerce), and at the heart of this shift is the e-payment system. in recent report show that over 5.56 billion people use the Internet, and about 67.6% of the global population [1]. The e-payment refers to the electronic transfer of money over the internet, allowing individuals and businesses to conduct transactions easily and efficiently, without the need for actual cash or in-person transactions.

Several studies have explored several factors that influence users' willingness to engage with e-payment services. Much of the research is grounded in the Technology Acceptance Model (TAM) [2], focusing on key elements such as perceived ease of use and perceived usefulness. Additionally, researchers have incorporated other critical variables, including trust, perceived risk, security, and social influence, to offer a more comprehensive understanding of e-payment adoption [3, 4]. In line with these findings, this study develops a conceptual framework that integrates behavioral elements with TAM constructs to examine the main factors influencing consumers' acceptance and use of e-payment systems. This integrated model seeks to deliver a deeper insight into user behavior within the rapidly advancing digital economy.

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Many researchers have studied why e-payments are becoming more popular, with a focus on what drives people to use them and how important technology acceptance is in adopting new digital tools (e.g., Dahlberg, et al. [5]). Research indicates that incentives to use e-payments not only influence consumers' intentions but also directly impact their behavior. Factors such as perceived risk, trust, and convenience significantly affect consumers' attitudes toward online payment systems. Security concerns are a major barrier to the adoption of e-payment systems. Studies highlight the importance of improving trust, user education, and security features to encourage wider acceptance of digital payments. Although there are research studies investigating the influencing factors toward intent to use e-payment, such as Sarkam, et al. [6]. There is a lack of studies on the influence of the reward system and its attitude. This study will examine in depth the Saudi consumers.

2. Literature Review

The Technology Acceptance Model (TAM) [2] applies to the ease of use and usefulness in accepting modern technology, which is generated from the Theory of Reasoned Action (TRA). The research goes further to study other factors including trust and other factors. The current research conceptualizes the influencing factors include easy use, usefulness, trust, reward, and security on the intent to use e-payment and consumers' attitude toward e-payment.

2.1. Intention to use E-Payment

E-payment is a model of making transactions through the internet without needing to be in person or use actual money. It is considered an important element of e-commerce. However, several factors needed convincing consumers to use the e-payment system. That includes security, trust, easy use, and usefulness. That is not an online factor because this system gains a pig competition, so it becomes another factor in this context, which is the reward when using the services.

Several studies have demonstrated that consumers desire electronic payment technology that offers fast, secure, accessible, and effective services on a single platform. M-payment services are defined as any system that provides financial transactions via mobile phone devices and networks (e.g. [7, 8]). Users' perception of e-payment systems is interactively linked to their willingness to adopt them. The widespread acceptance of modern methods like Apple Pay illustrates how many consumers embrace modern technologies when they perceive clear benefits. Many researchers have demonstrated that online users are more likely to adopt innovative services when these services offer recognizable advantages and align with prior experiences. Mortimer, et al. [9] suggests that consumers prefer payment systems characterized by simplicity, speed, and minimal complexity. Incorporating user-friendly designs and offering multiple payment methods addresses the needs of diverse users and contributes to a positive impression of e-commerce platforms. The following will illustrate all significant factors that influence the intention to use e-payment.

2.2. Perceived Easy of Use

Perceived ease of use (EOU) is a critical factor influencing the adoption and continued use of electronic payment (e-payment) systems. According to the Technology Acceptance Model (TAM), EOU refers to the degree to which a person believes that using a particular system would be free from effort. A key element influencing the consumer attitude to use e-payment is ease of use. For an e-payment system to achieve widespread acceptance, it must offer a user-friendly interface, with intuitive icons and clear guidance, even for users who may not be highly proficient with technology. According to Alyabes and Alsalloum [10] the perceived easy to use of such systems significantly influences consumers' willingness to adopt them [8].

Ease of use is a critical factor that significantly affects the end-user experience. It plays a key role in the success of electronic payment systems, as users are more likely to adopt a system that is

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straightforward, time-efficient, and easy to navigate. When payment procedures are simple and clearly defined, consumers are more inclined to use the system [7]. It can be argued that if the process is complex and time-consuming, the likelihood of user adoption decreases, thereby reducing the system's overall effectiveness. Furthermore, ease of use plays a pivotal role in shaping the overall user experience. The simpler and faster the payment steps, the more likely consumers are to view the system favorably. On the other hand, systems that involve complex procedures or unclear instructions may deter users and ultimately hinder the success of the platform. Thus, the design and usability of the e-payment process are central to its adoption and long-term viability.

2.3. Perceived Usefulness

Perceived usefulness (USE) is a pivotal factor influencing the adoption and continued use of electronic payment (e-payment) systems. Defined within the Technology Acceptance Model (TAM) as "the degree to which a person believes that using a particular system would enhance their job performance," PU significantly shapes user attitudes and behavioral intentions toward technology adoption. Perceived usefulness can be defined as "the degree to which a user believes that using a particular technology would improve his or her job performance" [7]. This factor demonstrates that the perceived usefulness of modern technology plays a vital role in using e-payment. Several studies have found that perceived usefulness positively influences user acceptance of e-payment. This study examines the perceived usefulness factor and presents the relationship between perceived usefulness and consumer attitude toward e-payment [7]. Also, identifying the factors that influence users' acceptance of e-payment systems is essential for understanding consumer behavior [11]. This study specifically examines the perceived usefulness construct and analyzes its relationship with consumers' attitudes toward the adoption of e-payment. Hence, it can be argued that perceived usefulness influences consumer attitudes toward using e-payment.

2.4. Security

Security (SEC) refers to the extent to which a user perceives that a particular online payment channel is safe to use [12]. Security is understood as the extent to which users feel that using a specific online payment method is secure [13]. Since e-payment systems require the submission of sensitive data, concerns about unauthorized access and breaches are common. While some research highlights security as a major factor in users' decisions to adopt e-payment systems [11, 14]. Whereas e-payments involve entering sensitive personal information, users may worry about potential unauthorized access. Research indicates that security concerns are a significant barrier to the adoption of e-payment technologies (e.g. [15, 16]), while others did not raise this issue [7]. Other studies suggest that its impact may vary in different contexts. Nonetheless, due to the critical role of trust and data protection in online transactions, security concerns remain a vital issue to examine in this study, as this research believes that security concerns are an important factor to explore specifically in consumer attitudes when shopping online. It can be argued that having a highly secure system to protect online consumer information might encourage consumers' attitudes toward using e-payments.

2.5. Trust

Trust (TRU) is defined as the confidence one party has in the reliability and integrity of another in the context of an exchange. For users to adopt a new service, it is essential that they perceive it as secure, trustworthy, and low in risk. The trust is the confidence of an individual or organization that places in the reliability, consistency, and ethical conduct of another party within a relationship, along with the expectation that their actions will be beneficial and aligned with the trusted party's best interests [17]. Trust is a central element in online transactions, as it significantly influences the successful exchange of goods and services and is closely linked to customer satisfaction. In the context

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of online commerce, trust is widely regarded as a crucial factor that underpins effective transactions between buyers and sellers, ultimately shaping the customer's level of satisfaction [18]. A substantial body of research has consistently demonstrated that trust has a significant, positive impact on users' intentions to adopt e-payment systems (e.g. Akbar, et al. [18]). Trust is established when an individual believes in the reliability and integrity of their exchange partner. For users to adopt a new service, they must feel secure, comfortable, and experience minimal perceived risk. Numerous studies have confirmed that trust positively influences users' intentions to engage in electronic payment systems [7].

2.6. E-Payment Reward

Rewards (REW) can be defined as the expected advantages individuals perceive as resulting from performing certain actions [19]. To gain rewards or incentives, consumers are prepared to invest effort Kim and Han [20]. Malik and Annuar [21] found in their study that the reward has a positive effect on intention to use digital payment. The likelihood of consumers adopting e-payment over traditional methods increases when they perceive greater benefits, which are understood as the expected advantages derived from using the new system. Consumers are generally motivated by economic benefits, making rewards a critical factor in influencing their decision-making. Rewards can take various forms, such as promotional offers, incentives, discounts, exclusive deals, collecting points on a credit card, an extra discount when using e-payment, and cash back. These benefits play a significant role in encouraging consumer engagement and enhancing their willingness to adopt electronic payment systems. Therefore, it can be said that the e-payment reward influences consumers' attitudes towards using electronic payment.

2.7. Attitude

Attitude (ATT) refers to an individual's positive or negative feelings towards a particular behavior, especially when adopting new technology Svenningsson, et al. [22]. Davis [2] suggested that users' belief is directly related to technology's usefulness, attitude, and the intention to use a technology. Therefore, it can be argued that attitude significantly influences consumers' intentions to use e-payment systems, consistent with other researchers, which defines intention as an individual's propensity to adopt and engage with new technologies (e.g. [23, 24]) In the context of e-payment, numerous studies have established a strong relationship between attitude and behavioral intention [25].

In conclusion, this research argues that attitude is influenced by easy use, usefulness, trust, security, and reward influence the intent to use e-payment. Recent research finds that there is a statistically significant influence of perceived easy use and perceived usefulness on consumers' attitude [6] but did not examine whether other factors such as security, trust, and reward influence consumer attitude. In the same research, it was found that there is a strong influence between attitude and intent to use e-payment. Accordingly, based on theoretical foundations, the following hypotheses are proposed:

H_1: Perceived ease of use has a positive and significant effect on consumers' attitude.

H_2: Perceived usefulness has a positive and significant effect on consumers' attitude.

H_3: Trust has a positive and significant effect on consumers' attitude.

H_4: Security has a positive and significant effect on consumers' attitude.

H_5: E-payment reward has a positive and significant effect on consumers' attitude.

H_6: Consumers' attitude to e-payment system has a positive and significant influence on the consumers' intent to use e-payment.

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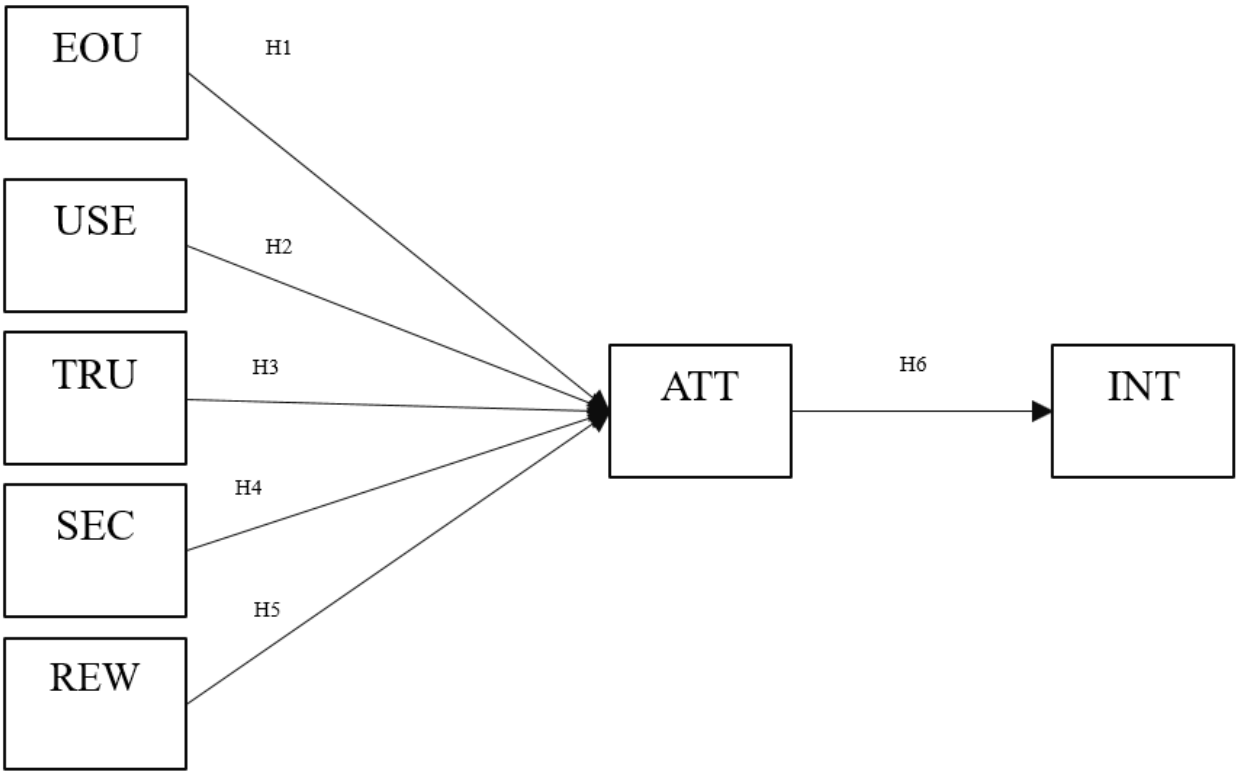

Figure 1.
Research model.

3. Methodology

3.1. Survey design

This study employed a quantitative research approach using a structured survey to evaluate the proposed model and validate the hypothesized interrelationships associated with consumers' adoption of electronic payment (e-payment) systems.

3.2. Instrument Development

The survey instrument consisted of a total of 38 items, divided into two primary sections. The first section collected demographic data from participants, including age, gender, and education level. The second section focused on constructions related to consumers' attitudes and behavioral intentions toward using e-payment systems. This section formed the core of the research, aiming to capture key variables influencing e-payment adoption. All items in the questionnaire were measured using a five-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

3.3. Measurement

The research adopts the scale from prior research. It has used six items to measure trust, which are adapted from [7]. It has used five items to measure security, which are adapted from [7]. It has used five items to measure perceived ease of use, which are adapted from Alswaigh and Aloud [7] and paraphrased it to fit the research context. It has used six items to measure perceived usefulness, which are adapted from Alswaigh and Aloud [7] and paraphrased it to fit the research context. It has used four items to measure e-payment reward, which are adapted from Purwandari, et al. [26] and

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paraphrased it to fit the research context. It has used five items to measure attitude to e-payment, which are adapted from Alswaigh and Aloud [7] and paraphrased it to fit the research context. Finally, it has used four items to measure intention to use e-payment, which are adapted from Alswaigh and Aloud [7] and paraphrased it to fit the research context.

3.4. Demographic Information

Table 1.
Demographic information.

Measure	Item	Frequency	Percentage
Gender	Female	104	48.4
	Male	111	51.6
Age	25-18	55	25.6
	35-26	72	33.5
	45-36	69	32.1
	More than 45	19	8.8
Education	High school or less	58	27
	Bachelor	143	66.5
	Higher education	14	6.5

This research gathers a total of 215 participants. The gender of the sample includes 48.4% female and 51.6 male, see Table 1. The age of the sample as appears in table1 has 33.5% (26-35), 32.1% (36-45), 25.6% (18-25), and about 8% morse tan 45 years. The education of the sample has more than 66% who hold bachelor's degree, about 6 % have higher education degree, and the remaining have high school or less degree.

3.5. Reliability

To assess the internal consistency of the constructs, a reliability test was conducted using Cronbach's alpha. As shown in Table 2, the Cronbach's alpha values for all constructs ranged from 0.945 (Perceived Usefulness - USE) to 0.830 (Rewards e-payment - REW). According to Nunnally (1978), a Cronbach's alpha value of 0.70 or higher is considered acceptable for psychological constructs, indicating a satisfactory level of reliability. Therefore, all constructs in this study met the required threshold, confirming the internal consistency of the measurement scales.

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Table 2.
Reliability test.

Variables	Items	Mean	Cronbach alpha
Ease of Use (EOU)	I believe step by step navigation of E-payment services are easy to understand (EOU1)	4.38	0.927
	I believe learning to use E-payment services is easy (EOU2)	4.32	
	I like the fact that payments done through E-payment services require minimum effort (EOU3)	4.27	
	I believe it is easy to transfer money through E-payment services as minimum steps are required (EOU4)	4.21	
	Overall, I think E-payment services is very easy to use (EOU5)	4.28	
Perceived Usefulness (USE)	I think using E-payment services would enable me to accomplish transactions more quickly. (USE1)	4.38	0.945
	I believe E-payment services would be useful for conducting online transactions (USE2)	4.27	
	I believe using E-payment services would improve my efficiency of online transactions (USE3)	4.23	
	I think using E-payment services would make it easier for me to make online payments (USE4)	4.27	
	I believe E-payment improves the quality of online transactions (USE5)	4.23	
	Overall, I think using an E-payment service would improve my performance (USE6)	4.24	
TRUST (TRU)	I trust transactions happening through E-payment service (TRU1)	3.80	0.865
	I trust the business providers of E-payment services will not mention any of my information to third party (TRU2)	3.48	
	I believe E-payment services keeps customer's interests best in mind (TRU3)	3.81	
	I believe E-payment services keep their promises and commitments (TRU4)	3.77	
	I believe that in case of any issue the service provider will provide me assistance (TRU5)	3.69	
	I believe that the E-payment service providers follow consumer laws (TRU6)	3.71	
SECURITY (SEC)	I will be confident in making payments through E-payment services (SEC1)	3.76	0.880
	I believe E-payment services such as credit cards have a potential to be safer than traditional payment options such as the cash (SEC2)	3.48	
	I believe technology used in E-payment is very secure (SEC3)	3.52	
	I believe that transactions conducted through E-payment are secure (SEC4)	3.66	
	I believe the chances of losing money stored in E-payment apps are low (SEC5)	3.37	
Rewards e-payment (REW)	The attractive offers of bonus points and cashback influenced me to switch to e-payment services (REW1)	4.16	0.830
	The existence of the promo influenced me to switch from cash-on-delivery to e-payment services. (REW2)	4.05	
	I enjoy the benefits of discounts, bonus points, and cashback offered by e-payment services. (REW3)	4.00	
	I think the administration fee for the e-payment service is cheaper than the cash-on-delivery service. (REW4)	3.81	
Attitude (ATT)	I feel using E-payment services is a good idea. (ATT1)	4.17	0.939
	I like the concept of using E-payment services (ATT2)	4.13	
	I feel pleasant about using E-payment services (ATT3)	3.97	
	I think using E-payment services is enjoyable (ATT4)	3.94	
	I value the benefits of E-payment services (ATT5)	4.11	
Intention (INT)	I would like to do transactions using E-payment services in the near future (INT1)	4.09	.0.935
	It is very likely that I will use my E-payment services to pay at the point of sale (INT2)	4.13	
	I will frequently use E-payment services in future (INT3)	4.12	
	I intend to recommend others to use E-payment services (INT4)	3.90	

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3.6. Correlation Test

Table 3 illustrates the correlations between the seven factors. The correlation between attitude and other factors (perceived easy of use, perceived usefulness, trust, security, and e-payment reward) has a statistically significant positive correlation. That is not only, but also the correlation between attitude and intent to use e-payment has a statistically significant positive correlation. Next will test the regression for all research hypotheses.

Table 3.
Correlation.

Factor	EOU	USE	TRU	SEC	REW	ATT
EOU	1.000					
USE	0.683	1.000				
TRU	0.427	0.485	1.000			
SEC	0.396	0.495	0.820	1.000		
REW	0.434	0.493	0.455	0.460	1.000	
ATT	0.536	0.700	0.583	0.594	0.674	1.000
INT	0.525	0.730	0.578	0.577	0.678	0.906

3.7. Regression Results

This study applied a simple regression methodology to test hypotheses. Table 4 presents the relationships between the factors and their significance, and the results indicate the strength of the relationship effects between the factors.

EOU – ATT

First, regarding perceived easy of use, the results show a significant and positive influence of attitude to e-payment (EOU→ATT: β 0.536; p-value 0.001); thus, H1 is supported and confirmed where perceived easy of use has a direct and positive relationship with attitude to e-payment.

USE – ATT

Second, about perceived usefulness, the results show a significant and positive influence of attitude to e-payment (USE→ATT: β 0.700; p-value 0.001); thus, H2 is supported and confirmed, where perceived usefulness has a direct and positive relationship with attitude to e-payment.

TRU – ATT

Regarding perceived trust, the results show a significant and positive influence of attitude to e-payment (TRU→ATT: β 0.583; p-value 0.001); thus, H3 is supported and confirmed, where perceived trust has a direct and positive relationship with attitude to e-payment.

SEC – ATT

Regarding perceived security, the results show a significant and positive influence of attitude to e-payment (SEC→ATT: β 0.594; p-value 0.001); thus, H4 is supported and confirmed, where perceived security has a direct and positive relationship with attitude to e-payment.

REW – ATT

Regarding e-payment reward, the results show a significant and positive influence of attitude to e-payment (REW→ATT: β 0.674; p-value 0.001); thus, H5 is supported and confirmed, where reward has a direct and positive relationship with attitude to e-payment.

ATT – INT

Finally, in terms of the effect of attitude to intent to use e-payment system, the results show a significant and positive influence of intent to use e-payment (ATT→INT: β 0.906; p-value 0.001); thus, H6 is supported and confirmed where consumer attitude has a direct and positive relationship with intent to use e-payment.

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3.8. Summary

Table 4.
Summary of Linear Regression & Correlation.

Hypothesis	Relationship	R^2	β	T	P-value	Correlation	Results
H1	(EOU)→(ATT)	0.287	0.536	9.261	0.001	0.536	Supported
H2	(USE)→(ATT)	0.489	0.700	14.287	0.001	0.700	Supported
H3	(TRU)→(ATT)	0.340	0.583	10.473	0.001	0.583	Supported
H4	(SEC)→(ATT)	0.353	0.594	10.789	0.001	0.594	Supported
H5	(REW)→(INT)	0.454	0.674	13.306	0.001	0.674	Supported
H6	(ATT)→(INT)	0.822	0.906	31.313	0.001	0.906	Supported

4. Discussion and Conclusion

This study aims to explore consumer attitudes and their intentions to adopt e-payment systems for e-commerce in Saudi Arabia from a marketing perspective. The significance of the research lies in the ongoing advancements in information and financial technologies, which have driven progress in e-commerce and the emergence of innovative digital payment solutions. Understanding consumer attitudes toward e-payments can inform business strategies and drive innovation. Insights from such studies can help businesses design more effective payment solutions and enhance customer satisfaction.

The results of current research also showed that perceived usefulness and ease of use have a positive and significant influence on consumers' attitudes toward using e-payments. These results confirm the analysis of other researchers, such as Alswaigh and Aloud [7] and Sarkam, et al. [6] Stated that perceived usefulness and easy use influence the attitude to use e-payment. In addition, the result Showed that trust has a positive and significant influence towards consumer attitudes to use e-payment are the result on this research. These results match the analysis of other researchers (e.g. [12, 27]) Stated that trust influences the intention to use e-payment. The result illustrated that consumers' attitude has a positive and significant influence towards the intention to use e-payment. These results match the analysis of other researchers, such as Alswaigh and Aloud [7] Stated that user attitude and intention are positively influenced by all of the factors. Also, Chaveesuk, et al. [28] have found that there is an influence of attitude toward consumer intention to use the e-payment system.

Studying e-payments and consumer attitudes is vital for the advancement of the digital economy. It helps in understanding consumer behavior, enhancing trust and security, informing policy decisions, promoting financial inclusion, and driving business innovation. However, this study has limitations, namely that it is conducted only on Saudi Arabian shoppers. Further research is expected to expand the scope of this research to study the influence of those factors, there is a gap in this domain, see Ramayanti, et al. [29] including social influence, and use a control group of different genders and ages.

Transparency:

The author confirms that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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