Central Community Development Journal
E-ISSN 3024-8302
P-ISSN 3025-1826
https://doi.org/10.55942/ccdj.v5i1.838

Volume 5
Issue 1
June Edition 2025

Adoption of e-commerce with UTAUT model approach: A case study of the millenial generation in Jakarta

Devina Margaretta* & Ryan Caesar Dwi Putra

Management Department, BINUS Online Learning, Bina Nusantara University, Jakarta 11480, Indonesia
e-mail: devina.margaretta@binus.ac.id

Received 16 May 2025
Revised 20 June 2025
Accepted 29 June 2025

ABSTRACT

The E-Commerce industry has experienced significant growth in recent years. The continued use of e-commerce to improve the quality of life depends on several factors. Trust and Payment Methods have emerged as important factors influencing E-Commerce Adoption. This study examines the UTAUT factors of millennial consumers' E-Commerce Adoption in Jakarta by focusing on the mediating role of trust and the mediating role of Payment Methods. This study used a path analysis method with a quantitative approach. The research data were collected using a questionnaire with 181 millennial respondents who had made purchase transactions in e-commerce. This research analysis tool uses SEM-PLS. This study revealed that of the six variables studied, three had no significant effect, while three had a significant effect on E-Commerce Adoption in Jakarta.

Keywords: E-Commerce Adoption, UTAUT, Millennial, Trust, Payment Method

1. INTRODUCTION

The rapid development of technology and the Internet has led to various digital business innovations, including e-commerce. The presence of e-commerce is a new phenomenon that has changed many lives today. The presence of e-commerce greatly facilitates its users with various facilities or features that are easy to use in the current technological era. Especially in the era of the COVID-19 pandemic, one of the alternative media that many people use in purchasing goods or daily necessities is e-commerce. During the difficult times of the COVID-19 pandemic, e-commerce is growing because many people cannot socialize and avoid public places or crowded areas due to social distancing (Taher, 2021). For many people, electronic commerce has now become one of the priorities (Nanehkaran, 2013).

Business activities that involve the use or application of electronic technology are referred to as e-commerce or e-business (Reynolds, 2000). Customers can purchase products or services remotely by using apps or technologies that offer the products (Khurana, 2019). In e-commerce, activities are completed online through the internet. Primarily, e-commerce uses websites, but other technologies such as email, etc., can also be used. The three main parts of e-commerce are electronic marketplaces, online retail, and online auctions.

According to a study by Google, Temasek, and Bain & Company, the e-commerce industry in Indonesia by 2022 will generate an economic value of US$59 billion (Annur, 2022). This value is equivalent to 76.62% of the overall value of Indonesia's digital economy, which reached US$77 billion. It can be concluded that there was an increase of 22% compared to the previous year with an economic value of US$ 48 billion. Under pre-pandemic conditions, Indonesia has experienced a 136% increase in the value of the e-commerce economy by 2022. Google, Temasek, and Bain & Company predict that Indonesia's e-commerce industry will experience an increase in economic value to US$95 billion by 2025 (Annur, 2022). This explains that the e-commerce industry in Indonesia has continued to increase in recent years with an economic value that exceeds the value before the COVID-19 pandemic.

There is interesting research from Kredivo and Katadata Insight Center which says that 48% of e-commerce transactions in Indonesia in 2021 are contributed by the 26-35 age group (Dihni, 2022). Followed by consumers aged 36-45 years and 18-25 years, which accounted for 23% of the total number of e-commerce transactions in Indonesia in 2021 (Dihni, 2022). This shows that millennials will be the biggest contributor to online shopping in e-commerce in 2021. Millennials are defined as people born between 1980 and 2000 (Dimock, 2019; Tolani et al., 2020). Other researchers define millennials as those born between 1982 and 1996 (Gurău, 2012; Reicher, 2018). Millennials have higher purchasing power, making understanding their online shopping behavior very important (Melović et al., 2021). In addition, millennials are almost always connected to the Internet, which makes them more likely to engage in online shopping. However, due to the ease of access to information required for offer analysis and comparison of products and services, their purchasing decisions are more complex and require more time (Melović et al., 2021).

E-commerce is growing according to the development of new technologies and attracts researchers from various fields such as business and technology to improve the process and make it more useful and profitable. However, this development also brings some challenges to the industry. Mishra et al.. (2022) explained that one of the challenges it faces is "cybersecurity concerns" in e-commerce which is one of the most critical and common issues it faces. Quoted by Maharani (2022) on Kompasiana explaining that in May 2022 there was an incident of one of the e-commerce Tokopedia experiencing a user data leak of 91 million data sold to the darkweb with a value of US $ 5,000 which can be downloaded freely on the internet. It can be concluded that the level of security systems used by many e-commerce companies and the digital industry in Indonesia is still considered very vulnerable, causing user data leaks that occur repeatedly. As a result, although e-commerce offers several advantages, the lack of trust in the system by users may hinder the diffusion and sustainable use of e-commerce (Maharani, 2022).

With this phenomenon, researchers are interested in knowing what are the driving factors that

influence e-commerce adoption using the UTAUT model approach in the millennial generation in Jakarta. One method that can be applied to measure the level of acceptance and use of e-commerce technology by consumers is the Unified Theory of Acceptance and Use of Technology (UTAUT) approach. UTAUT consists of four main concepts that directly affect user acceptance and user attitudes. The four concepts include Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions (Venkatesh et al., 2003).

Research states that the Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions factors have a significant positive effect on e-commerce adoption (Amofah & Chai, 2022). Only the Social Influence variable has a significant positive effect on a person's intention to use XYZ e-commerce, Performance Expectancy and Effort Expectancy were found to have no significant effect. (Mustaqim et al., 2018). Piarna & Fathurohman (2020) also found that Social Influence and Facilitating Conditions have a significant positive effect on E-Commerce Adoption, Performance Expectancy and Effort Expectancy were found to have no significant effect on E-Commerce Adoption.

The research literature on e-commerce adoption is vast; however, most studies focus on the challenges associated with e-commerce adoption. While this study offers insights into the e-commerce ecosystem in Jakarta, ignoring emerging issues such as Trust creates a policy imbalance for practitioners and platform managers. In Amofah & Chai (2022) explains that Trust significantly mediates the UTAUT and E-commerce Adoption variables. Payment Method was found to have no significant effect in moderating the relationship between Trust and E-Commerce Adoption. Consequently, this study complements and closes this gap by examining the mediating role of Trust (TR) and the moderating role of Payment Method (PM) in the UTAUT-Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC) factors affecting E-Commerce Adoption (AD) in millennials in Jakarta. With this research, it is hoped that it will be able to make a positive contribution and add to the scientific repertoire and becomisme a consideration for the government and e-commerce application service provider developer companies to improve implementation policies for the spread of e-commerce application usage.

2. METHOD

This research uses quantitative research methods with associative research types. By using research methods, the interaction between variables will be known to obtain conclusions that will clarify the image of the object under study. Research using Time-Horizon with Cross-Sectional, where research data is collected only once, possibly over several days, weeks or months to answer the researcher's questions. The sampling technique uses non-probability sampling through purposive (judgmental) sampling method. The hypothesis of this study was tested with a structural equation model, namely Partial Least Square (PLS) with SmartPLS 4.0 software. The data collection technique in this study used a survey method using a questionnaire as a data collection tool. The scale used in this study is a Likert scale. Measurement of variable indicators using a five-point Likert scale ranging from strongly disagree (STS), disagree (TS), neutral (N), agree (S), to strongly agree (SS). This study involved 181 respondents who were the population in this study, namely respondents who live in Jakarta with the age range of the millennial generation (27-42 years) and had made online transactions in e-commerce at least once.

2.1 Theoretical Background

2.1.1 Technology Acceptance Model (TAM)

TAM is a theoretical framework model developed by Davis (1986) to understand the information system user acceptance process. "This model is designed by measuring the relative importance of users' views of system usability and ease of use in their adoption behavior" (Davis, 1986). TAM is based on

Theory of Reasoned Action (TRA) (Ajzen, 1980; Fishbein & Ajzen, 1977) and Theory of Planned Behaviour (Ajzen, 1985), which have been applied to the explanation and prediction of user behavior in various areas. TAM in detail explains the acceptance of IT through certain dimensions that can affect the acceptance of IT by users. "The TAM system aims to provide a clear understanding of these determinants in accordance with the behavior of users towards the acceptance of information technology" (Davis, 1989). It can be concluded that TAM aims to understand the level of user acceptance of technology by describing the key factors of user behavior.

2.1.2 Millenial Generation

A generation can be defined as a group that can be recognized through similar birth years and important life events (Kupperschmidt, 2000). Millennials are defined as "people born between 1980 and 2000" (Dimock, 2019; Tolani et al., 2020). There are other researchers who define millennials as "people born between 1982 and 1996" (Gurău, 2012; Reicher, 2018). Millennials are considered the first high-tech generation, whose members are usually described as individualistic, highly educated, technologically savvy, less gullible and more knowledgeable than previous generations (Melović et al., 2021). Millennials are almost always connected to the internet, which makes them more likely to engage in online shopping (Melović et al., 2021). Millennials live with technological developments so they have a positive attitude towards online shopping which affects their intention to buy. Millennials will tend to research a product before making a purchase decision (Melović et al., 2021). From the above definition, it can be concluded that the millennial generation grew up in the era of technology and online communication. Millennials have characteristics that are flexible to new things and all the possibilities that will occur. This generation grew up in the era of internet development, making it a potential generation for the e-commerce market.

2.1.3 E-Commerce

Since the World Wide Web was invented and the internet was commercialized in the early 1990s, the term "electronic commerce", otherwise known as e-commerce, came into common use (Turban et al., 2018). According to Turban et al. (2018), e-commerce is "online buying and selling activities that include the process of buying, selling, transferring, exchanging products, services or information through computer/internet networks". According to VanHoose (2011), e-commerce is defined as the use of electronic networks used to transfer ownership or rights in using goods or services with computer media such as the internet. According to Jamsheer (2019), e-commerce is the use of telecommunication networks to automate business relationships and workflows. On the other hand, Bristol et al. (2001) emphatically claim that e-commerce is the conduct of trade in products and merchandise, under the aid of telecommunications and telecommunications-centered instruments. In addition, Taher (2021) argues that e-commerce refers to exchanging organizational data, maintaining business relationships, and conducting operational transactions through telecommunication systems. So, it can be concluded that e-commerce is a combination of technology, applications and business processes that can connect companies, consumers, and certain communities where goods are exchanged between retailers and consumers with a variety of commodities that occur on a large scale using electronic transactions.

2.1.4 Unified Theory of Acceptence and Use of Technology (UTAUT) Model

The UTAUT model is a model based on the theory developed by Vankatesh et al. in 2003. "This model describes the various factors that influence a person's acceptance of information technology (IT)" (Venkatesh et al., 2003). UTAUT was developed through an assessment of eight theoretical models of technology acceptance/adoption that have been commonly used in previous IT research. Vankatesh used existing theories and combined them into a new integrated model called the Unified Theory of Acceptance

and Use of Technology or what is called by its abbreviation, UTAUT (Venkatesh et al., 2003). There are four important constructs that are considered to have a role in direct influence on user acceptance and usage behavior. The four constructs include Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions (Venkatesh et al., 2003)

2.1.5 Performance Expectancy

Performance Expectancy is defined as "the extent to which an individual believes that using the system will help him to gain an advantage in job performance" (Venkatesh et al., 2003). The root construction of this component is "perceived usefulness, extrinsic motivation, job fit, relative advantage, and outcome expectations" (Venkatesh et al., 2003). In performance expectancy, there are 3 sub-variables consisting of "usefulness which means the usefulness obtained in using technology in everyday life, quickness which is the level of a technology that can speed up the work done, and productivity which is defined as an increase in productivity related to the user's work when using a technology" (Venkatesh et al., 2003). From this definition, it can be concluded that performance expectancy is one of the important factors in technology use that a person will tend to use a system when the system can help complete their work.

2.1.6 Effort Expectancy

Effort Expectancy is defined as "the level of ease associated with using the system" (Venkatesh et al., 2003). "Effort Expectancy is formulated based on 3 constructs in the previous theory, namely perceived ease of use (PEOU) from the TAM model, complexity from the model of PC utilization (MPCU), and ease of use from the diffusion of innovation theory (IDT)" (Venkatesh et al., 2003). Venkatesh & Davis (2000) explain that convenience is an important factor that influences a person's feelings about the usefulness and comfort of a technology. From the explanation above, it can be concluded that an information technology that is considered more flexible, easy to understand and easy to operate, will generate high interest from users to continue using it.

2.1.7 Social Influence

Social Influence is defined as "the extent to which an individual feels that important others believe he should use the new system" (Venkatesh et al., 2003). "Social influence is considered a determinant of behavioral goals in using information technology which is represented as subjective norms in TRA, TAM, TPB, social factors in MPCU, and image in the diffusion of innovation theory (IDT)" (Venkatesh et al., 2003). According to Venkatesh & Davis (2000), individual behavior can be influenced by social factors through three mechanisms, namely internalization, compliance, and identification. From the above definition, it can be concluded that the surrounding social environment has a very important role in influencing information technology users.

2.1.8 Facilitationg Conditions

According to Moorman et al. (1993) define trust as the desire to rely on a trusted exchange partner. Another definition of Rempel et al. (1985) say that trust is a person's level of confidence due to the wishes of others. (Morgan & Hunt, 1994) argue that trust includes a person's belief in others who have reliability and integrity in exchange. Trust is defined as positive expectations and attitudes towards others and the degree of confidence with which one can depend on others (Rousseau et al., 1998). Privacy, security and trust have been reported to be major factors in evaluating information systems (Hoffman et al., 1999). Hoffman et al. (1999) asserted that internet service providers should build their customers'

trust by ensuring their privacy and security, which are real and important issues on the internet. Trust in internet service providers can be determined by competence, sincerity, and benevolence (Bhattacherjee, 2000) From the above definition, it can be concluded that trust means a person's willingness, hope, and positive attitude towards others to depend on certain risks. Trust is one of the important factors in evaluating information systems so that its role is very important for internet service providers, one of which is e-commerce.

2.1.9 Payment Method

The utilization of technology in modern banking services, which we commonly know as electronic payment systems, makes banking performance more optimal, various activities can be carried out easily, efficiently, and quickly so that they have an impact on productivity (Fatonah et al., 2018). Electronic payment is "a payment mechanism using electronic media so that it does not involve cash" (Hascaryani, 2013). Yang et al. (2015) say that e-payment is a financial system or payment process that uses the internet as a transaction medium. Electronic payment systems consist of online credit card transactions, e-wallets, e-cash, online stored value systems, digital balance collection systems, wireless payment systems and digital check payment systems (Fatonah et al., 2018). Electronic payment tools commonly used in retail businesses are credit cards, card fees, debit cards, and e-money (Fatonah et al., 2018). The security that consumers feel will ultimately increase consumer purchasing opportunities and the use of e-payment systems. Consumers in e-commerce are very afraid of damage to their reputation and financial loss (Sproule & Archer, 2007). Morse & Raval (2008) say that in consumer protection from liability for unauthorized charges is one of the important dimensions of consumer trust.

3. RESULT AND DISCUSSION

3.1 Result

3.1.1 Characteristic of Respondents

From the data that has been collected, it states that of the 181 respondents who have filled out the questionnaire, all have met the research criteria, as follows: (a) Respondents who have used the e-commerce platform at least once; (b) Respondents who are millennials (aged 27-42 years); and (c) Respondents who live in Jakarta.

The following Table 1 is a description of the respondent characteristic data:

Tabel 1. Respondent Demographics

Variable		Frequency	Percentage
Gender	Male	90	49,72%
	Female	91	50,28%
Last Education	Junior High School / Equivalent	1	0,55%
	Senior High School / Equivalent	52	28,73%
	Diploma (D1 / D2 / D3)	19	10,50%
	Bachelor (D4 / S1)	103	56,91%
	Master (S2)	4	2,21%
	Doctoral (S3)	2	1,10%
Monthly Income	2.000.000 - 5.000.000	68	37,57%
	5.000.000-10.000.000	78	43,09%
	10.000.000-20.000.000	24	13,26%
	>20.000.000	11	6,08%

3.1.2 Convergent Validity

To test convergent validity using SEM, Confirmatory Factor Analysis (CFA) must be performed by analyzing the measurement model in which all indicators related to the measured construct and not directly related to the measured construct should not be measured (Fornell & Larcker, 1981). An indicator can be declared to meet convergent validity and have a high level of validity when the outer loadings value > 0.70, while the AVE value > 0.50 (Chin & Todd, 1995). Based on the loading factor values below (see Figure 1), there are two indicator items that have high convergent validity values, namely TS2, FR2 and AD2 items, these three indicator items need to be removed because they have values below 0,7 (see Figure 1).

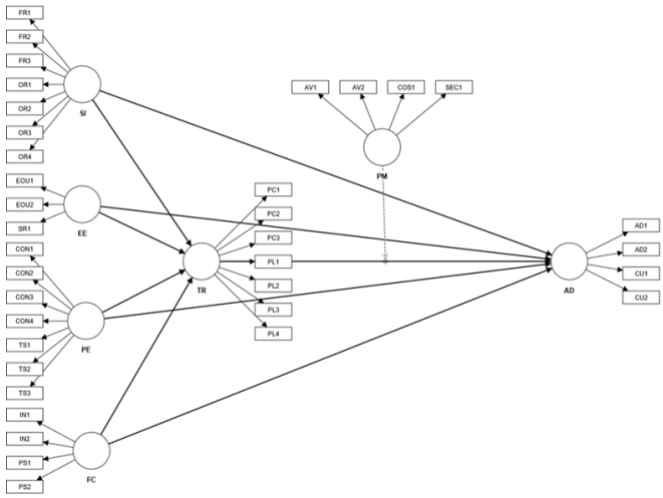

Figure 1. Outer Loadings

3.1.3 Discriminant Validity

In this study, the evaluation of discriminant validity uses the Fornell-Larcker criterion. The Fornell-Larcker criterion is carried out by comparing the root value of the AVE (square root AVE) with the correlations of latent variables. The root AVE value of each construct must be greater than the highest correlation with other constructs.

Table 2. Fornell-Larcker

Indicator	AD	EE	FC	PE	PM	SI	TR
AD	0,777						
EE	0,613	0,766					
FC	0,626	0,666	0,762				
PE	0,608	0,602	0,649	0,708			
PM	0,639	0,635	0,572	0,553	0,858		
SI	0,600	0,598	0,689	0,692	0,636	0,740	
TR	0,604	0,672	0,670	0,515	0,718	0,611	0,743

The Table 2 informs that based on the results of testing discriminant validity using the Fornell-Larcker criterion method, it is proven that all indicators in this study can be declared valid. The correlation value of each variable association construct is higher than other latent variables so that it can be said that the discriminant validity of the model above has good results.

3.1.4 Reliability

This reliability test uses the Composite Reliability method. Where the ideal Composite Reliability is when it has a value between 0.7-0.95. When the indicator value is appropriate, it can be said that a variable has passed the reliability test. In the table below, it is known that all variables have a composite reliability value between 0.7 - 0.95 so that it can be said that all variables in the research model have passed the reliability test and can be tested further (see Table 3).

Table 3. Reliability

Variabel	Composite Reliability
PE	0,857
EE	0,808
SI	0,878
FC	0,846
AD	0,820
TR	0,896
PM	0,918

3.1.5 Model Feasibility

Table 4. Coefficient Determination

Variable	R-Square	Description
AD	0,553	Strong
TR	0,560	Strong

The Table 4 explains that the E-Commerce Adoption variable which can be explained by the Payment Method variable is 0.553 or 55.3%. The largest R-square result is in the Trust variable which is influenced by the Payment Method variable which has an R-square value of 0.560 or 56.0%, so it can be said that the AD and TR variables are quite strong.

3.1.6 Inner Model

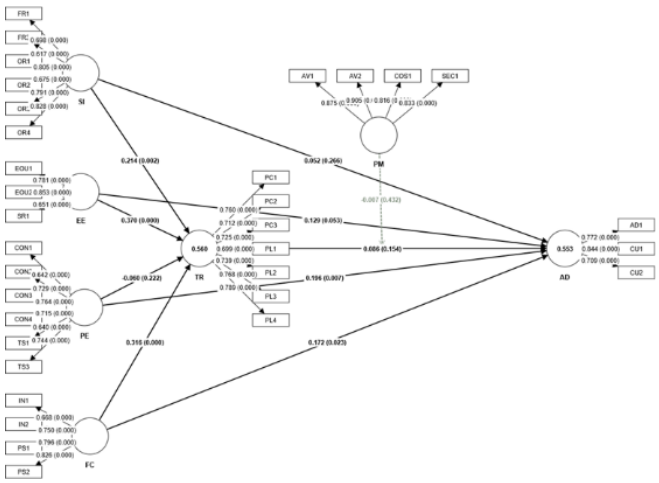

Figure 2. Bootstrapping

The following Table 5 is the results of hypothesis testing for the dependent and independent variables.

Table 5. Path Analysis

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-value	Result
PE → AD	0,196	0,198	0,080	2,447	**0,007**	Accepted
EE → AD	0,129	0,125	0,080	1,616	**0,049**	Accepted
SI → AD	0,052	0,054	0,084	0,624	0,266	Rejected
FC → AD	0,172	0,174	0,086	1,999	**0,023**	Accepted
TR → AD	0,086	0,086	0,084	1,018	0,154	Rejected
PE → TR → AD	-0,005	-0,005	0,011	0,487	0,313	Rejected
EE → TR → AD	0,032	0,031	0,032	0,998	0,159	Rejected
SI → TR → AD	0,018	0,019	0,021	0,865	0,194	Rejected
F → TR → AD	0,027	0,027	0,028	0,956	0,170	Rejected
PM x TR → AD	-0,007	-0,010	0,038	0,172	0,432	Rejected

From the table above, it can be seen that the test results of each hypothesis are explained that: Hypothesis 1 is the first hypothesis tests whether Performance Expectancy has a positive effect on E-Commerce Adoption. The results showed a p-value of 0.007. From these results it can be stated that Performance Expectancy is proven to have a positive and significant effect on E-Commerce Adoption because the p-value < 0.05. Therefore, H1 is accepted and H0 is rejected.

Hypothesis 2 is the second hypothesis tests whether Effort Expectancy has a positive effect on E-Commerce Adoption. The results showed a p-value of 0.049. From these results, it can be stated that Effort Expectancy is proven to have a positive and significant effect on E-Commerce Adoption because the p-value is < 0.05. Therefore, H2 is accepted and H0 is rejected.

Hypothesis 3 is the third hypothesis tests whether Social Influence has a positive effect on E-Commerce Adoption. The results showed a p-value of 0.266. From these results it can be stated that Social Influence has a positive and insignificant effect on E-Commerce Adoption because the p-value > 0.05. Therefore, H3 is rejected and H0 is accepted.

Hypothesis 4 is the fourth hypothesis tests whether Facilitating Conditions have a positive effect on E-Commerce Adoption. The results showed a p-value of 0.023. From this result, it can be stated that Facilitating Conditions is proven to have a positive and significant influence on E-Commerce Adoption because the p-value < 0.05. Therefore, H4 is accepted and H0 is rejected.

Hypothesis 5 is the fifth hypothesis tests whether Trust has a positive effect on E-Commerce Adoption. The results showed a p-value of 0.154. From these results it can be stated that Trust has a positive and insignificant effect on E-Commerce Adoption because the p-value > 0.05. Therefore, H5 is rejected and H0 is accepted.

Hypothesis 6 is the sixth hypothesis tests whether Trust has a positive effect in mediating Performance Expectancy on E-Commerce Adoption. The results showed a p-value of 0.313. From these results it can be stated that Trust has a positive and insignificant effect in mediating Performance Expectancy on E-Commerce Adoption because the p-value > 0.05. Therefore, H6 is rejected and H0 is accepted.

Hypothesis 7 is the seventh hypothesis tests whether Trust has a positive effect in mediating Effort Expectancy on E-Commerce Adoption. The results showed a p-value of 0.159. From these results it can be stated that Trust has a positive and insignificant effect in mediating Effort Expectancy on E-Commerce Adoption because the p-value > 0.05. Therefore, H7 is rejected and H0 is accepted.

Hypothesis 8 is the eighth hypothesis tests whether Trust has a positive effect in mediating Social Influence on E-Commerce Adoption. The results showed a p-value of 0.194. From these results it can be stated that Trust has a positive and insignificant effect in mediating Social Influence on E-Commerce Adoption because the p-value > 0.05. Therefore, H8 is rejected and H0 is accepted.

Hypothesis 9 is the ninth hypothesis tests whether Trust has a positive effect in mediating Facilitating Conditions on E-Commerce Adoption. The results showed a p-value of 0.170. From these results it can be stated that Trust has a positive and insignificant effect in mediating Social Influence on E-Commerce Adoption because the p-value > 0.05. Therefore, H9 is rejected and H0 is accepted.

Hypothesis 10 is the tenth hypothesis tests whether Payment Method has a positive effect in moderating the relationship between Trust and E-Commerce Adoption. The results showed a p-value of 0.432. From these results, it can be stated that Payment Method has a positive and insignificant effect in moderating the relationship between Trust and E-Commerce Adoption because the p-value > 0.05. Therefore, H10 is rejected and H0 is accepted.

3.2 Discussion

The statistical results above explain that there are accepted and rejected hypotheses. It was found that Performance Expectancy, Effort Expectancy, and Facilitating Conditions have a positive and significant influence on E-Commerce Adoption on millennials in Jakarta. This shows that e-commerce users, namely millennials, feel the convenience of buying goods or services through e-commerce anytime and anywhere. Users also have more time with the help of e-commerce, so that e-commerce users can do other activities related to that person's abilities and do their job better because of more time. Millennial users have found it easy to use e-commerce applications because of the easy-to-use e-commerce interface and services. However, it was found that Social Influence has a positive and insignificant influence on E-Commerce Adoption. The results of this study indicate that social factors, especially friends and family, do not have a significant influence in influencing millennials in adopting e-commerce in Jakarta. Millennials in Jakarta are considered to have known the importance of using e-commerce in purchasing goods because of the advantages and benefits obtained without having to be influenced by their surrounding friends. It was also found that Trust has a positive and insignificant effect on E-Commerce Adoption. The role of Trust and Payment Method as mediating and moderating variables also did not find significant results on E-Commerce Adoption. This shows that the characteristics of millennial consumers have differences in terms of e-commerce usage. Millennial users have the characteristic that they are satisfied and confident that the e-commerce platform has offered safe and convenient services in conducting online buying and selling transactions. They do not think too much about the level of security and their level of trust in the e-commerce system that affects their decisions in online purchases. Millennials consider the ease and convenience provided by e-commerce in its use has become the main factor that makes them use e-commerce in making online purchases.

4. CONCLUSION

The results of this study found that Performance Expectancy, Effort Expectancy, and Facilitating conditions have a significant positive effect on E-Commerce Adoption by millennials in Jakarta. Social Influence was found to have no significant effect. Meanwhile, Trust was found to have no significant effect on E-Commerce Adoption and no effect in mediating between UTAUT factors on E-Commerce Adoption. Payment method was also found to have no significant effect in moderating the relationship between Trust and E-Commerce Adoption.

The results of this research are expected to be used as input for the e-commerce companies to identify the things that still need to be improved and then create a competitive advantage in the midst of

drastic changes in consumer behavior, especially the millennial generation. E-commerce companies must prioritize convenience and comfort that supports consumer performance in their work and does not take a long time to make buying and selling transactions. Companies must also ensure that the innovations made do not interfere with or harm consumers. Companies can innovate in improving interface services and features in e-commerce applications so that users increasingly feel the convenience of shopping online. E-commerce companies can also try to create marketing activities through social media because it can reach more consumers, especially the millennial generation. This can be done by creating useful and interesting content for consumers, establishing interactions and building relationships with consumers, using available technology and social media features.

Ethical Approval
Not Applicable

Informed Consent Statement
Not Applicable

Author's Contributions
DM contributed to the conceptualization of the study, development of the research framework, data analysis, and overall supervision of the manuscript preparation. She also served as the corresponding author. RCDP contributed to the data collection process, preparation of research instruments, and drafting of the literature review and discussion sections.

Disclosure Statement
The Authors declare that they have no conflict of interest

Data Availability Statement
The data presented in this study are available upon request from the corresponding author for privacy.

Funding
This study did not receive any external funding.

Notes on Contributors

Devina Margaretta
Devina Margaretta is affiliated with Management Department, BINUS Online Learning, Bina Nusantara University

Ryan Caesar Dwi Putra
Ryan Caesar Dwi Putra is affiliated with Management Department, BINUS Online Learning, Bina Nusantara University

REFERENCES

Ajzen, I. (1980). Understanding attitudes and predictiing social behavior. *Englewood Cliffs*.
Ajzen, I. (1985). *From intentions to actions: A theory of planned behavior*. Springer. https://doi.org/10.1007/978-3-642-69746-3_2

Amofah, D. O., & Chai, J. (2022). Sustaining Consumer E-Commerce Adoption in Sub-Saharan Africa: Do Trust and Payment Method Matter? *Sustainability*, *14*(14), 8466. https://doi.org/10.3390/su14148466

Annur, C. (2022, October 28). *Google Prediksi E-commerce Indonesia Terus Menguat sampai 2025*. Databoks. https://databoks.katadata.co.id/datapublish/2022/10/28/google-prediksi-e-commerce-indonesia-terus-menguat-sampai-2025

Bhattacherjee, A. (2000). Acceptance of e-commerce services: the case of electronic brokerages. *IEEE Transactions on Systems, Man, and Cybernetics-Part A: Systems and Humans*, *30*(4), 411–420. https://ieeexplore.ieee.org/abstract/document/852435/

Bristol, M. A., Policy, R. T., & Secretariat, C. (2001). The impact of electronic commerce on tax revenues in the Caribbean community. *Being a Paper Prepared as Part of the Graduate Internship Program*. https://caricom.org/documents/9782-e-commerce_tax_revenues_bristol.pdf

Chin, W. W., & Todd, P. A. (1995). On the use, usefulness, and ease of use of structural equation modeling in MIS research: A note of caution. *MIS Quarterly*, 237–246. https://www.jstor.org/stable/249690

Davis, F. D. (1986). A technology acceptance model for empirically testing new end-user information systems. *Cambridge, MA*, 17. https://dspace.mit.edu/bitstream/handle/1721.1/15192/14927137-MIT.pdf

Davis, F. D. (1989). Technology acceptance model: TAM. *Al-Suqri, MN, Al-Aufi, AS: Information Seeking Behavior and Technology Adoption*, 205–219. https://quod.lib.umich.edu/b/busadwp/images/b/1/4/b1409190.0001.001.pdf

Dihni, V. (2022, June 3). *Riset: Milenial Paling Gemar Belanja Online Saat Pandemi*. Databoks. https://databoks.katadata.co.id/datapublish/2022/06/03/riset-milenial-paling-gemar-belanja-online-saat-pandemi

Dimock, M. (2019). Defining generations: Where Millennials end and Generation Z begins. *Pew Research Center*, *17*(1), 1–7. http://tony-silva.com/eslefl/miscstudent/downloadpagearticles/defgenerations-pew.pdf

Fatonah, S., Yulandari, A., & Wibowo, F. W. (2018). A review of e-payment system in e-commerce. *Journal of Physics: Conference Series*, *1140*(1), 012033. https://iopscience.iop.org/article/10.1088/1742-6596/1140/1/012033/meta

Fishbein, M., & Ajzen, I. (1977). *Belief, attitude, intention, and behavior: An introduction to theory and research*.

Fornell, C., & Larcker, D. F. (1981). Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. *Journal of Marketing Research*, *18*(3), 382. https://doi.org/10.2307/3150980

Gurău, C. (2012). A life-stage analysis of consumer loyalty profile: comparing Generation X and Millennial consumers. *Journal of Consumer Marketing*, *29*(2), 103–113. https://www.emerald.com/insight/content/doi/10.1108/07363761211206357/full/html

Hascaryani, T. D. (2013). Analisis Faktor Yang Mempengaruhi Preferensi dan Aksesibilitas Terhadap Penggunaan Kartu Pembayaran Elektronik. *Jurnal Ilmiah Mahasiswa FEB*, *2*(2). https://jimfeb.ub.ac.id/index.php/jimfeb/article/view/1331

Hoffman, D. L., Novak, T. P., & Peralta, M. (1999). Building consumer trust online. *Communications of the ACM*, *42*(4), 80–85. https://dl.acm.org/doi/abs/10.1145/299157.299175

Jamsheer, K. (2019). *Impact Of E-Commerce On Society: Advantages And Disadvantages*. https://acowebs.com/impact-ecommerce-society/

Khurana, A. (2019). Did You Know That There Are 4 Types Of Ecommerce? *The Balance Small Business. New York, NY: Dotdash.*

Kupperschmidt, B. R. (2000). Multigeneration employees: strategies for effective management. *The Health Care Manager*, *19*(1), 65–76. https://journals.lww.com/healthcaremanagerjournal/abstract/2000/19010/Multigeneration_Employees_Strategies_for.11.aspx

Maharani, B. (2022, May 11). *Cybercrime Kian Meningkat, Puluhan Juta Data E-Commerce Bocor di Internet*. Kompasiana. https://www.kompasiana.com/berlianarani/627be5128d947a295d47bc02/cybercrime-kian-meningkat-puluhan-juta-data-e-commerce-bocor-di-internet

Melović, B., Šehović, D., Karadžić, V., Dabić, M., & Ćirović, D. (2021). Determinants of Millennials' behavior in online shopping–Implications on consumers' satisfaction and e-business development. *Technology in Society*, *65*, 101561. https://www.sciencedirect.com/science/article/pii/S0160791X21000361

Mishra, A., Alzoubi, Y. I., Gill, A. Q., & Anwar, M. J. (2022). Cybersecurity enterprises policies: a Comparative study. *Sensors*, *22*(2), 538. https://www.mdpi.com/1424-8220/22/2/538

Moorman, C., Deshpande, R., & Zaltman, G. (1993). Factors affecting trust in market research relationships. *Journal of Marketing*, *57*(1), 81–101. https://journals.sagepub.com/doi/abs/10.1177/002224299305700106

Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing*, *58*(3), 20–38. https://journals.sagepub.com/doi/abs/10.1177/002224299405800302

Morse, E. A., & Raval, V. (2008). PCI DSS: Payment card industry data security standards in context. *Computer Law & Security Review*, *24*(6), 540–554. https://www.sciencedirect.com/science/article/pii/S0267364908000976

Mustaqim, R. N., Kusyanti, A., & Aryadita, H. (2018). Analisis faktor-faktor yang memengaruhi niat penggunaan e-commerce XYZ menggunakan model UTAUT (Unified Theory Acceptance and Use of Technology). *Jurnal Pengembangan Teknologi Informasi Dan Ilmu Komputer E-ISSN*, *2548*.

Nanehkaran, Y. A. (2013). An introduction to electronic commerce. *International Journal of Scientific & Technology Research*, *2*(4), 190–193.

Piarna, R., & Fathurohman, F. (2020). Adopsi E-commerce oleh konsumen milenial pada produk UMKM di kota subang menggunakan model UTAUT in consumer contex. *Jurnal Teknologi Informasi Dan Ilmu Komputer*, *7*(5), 1021–1028. https://www.academia.edu/download/76596072/pdf.pdf

Reicher, R. Z. (2018). *Hungarian millennials' attitudes on being online. Forum Scientiae Oeconomia, 6 (1), 5–18*. DOI.

Rempel, J. K., Holmes, J. G., & Zanna, M. P. (1985). Trust in close relationships. *Journal of Personality and Social Psychology*, *49*(1), 95. https://psycnet.apa.org/record/1985-30794-001

Reynolds, J. (2000). eCommerce: a critical review. *International Journal of Retail & Distribution Management*, *28*(10), 417–444. https://www.emerald.com/insight/content/doi/10.1108/09590550010349253/full/html

Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, *23*(3), 393–404.

Sproule, S., & Archer, N. (2007). Defining identity theft. *Eighth World Congress on the Management of EBusiness (WCMeB 2007)*, 20. https://ieeexplore.ieee.org/abstract/document/4285319/

Taher, G. (2021). E-commerce: advantages and limitations. *International Journal of Academic Research in Accounting Finance and Management Sciences*, *11*(1), 153–165. https://www.researchgate.net/profile/Alhamzah-Alnoor-2/publication/350235862_E-Commerce_Advantages_and_Limitations/links/6056ef5a299bf17367594d02/E-Commerce-Advantages-and-Limitations.pdf

Tolani, K., Sao, R., Bhadade, P., & Chandak, S. (2020). Money and generations: Financial choices made by Gen X and Gen Y. *International Journal of Management (IJM)*, *11*(4), 657–672.

Turban, E., Outland, J., King, D., Lee, J. K., Liang, T.-P., & Turban, D. C. (2018). *Electronic commerce 2018: a managerial and social networks perspective*. Springer.

VanHoose, D. (2011). *Ecommerce economics*. Taylor & Francis. https://www.taylorfrancis.com/books/mono/10.4324/9780203830369/ecommerce-economics-david-vanhoose

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, *46*(2), 186–204. https://pubsonline.informs.org/doi/abs/10.1287/mnsc.46.2.186.11926

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 425–478. https://www.jstor.org/stable/30036540

Yang, Q., Pang, C., Liu, L., Yen, D. C., & Tarn, J. M. (2015). Exploring consumer perceived risk and trust for online payments: An empirical study in China's younger generation. *Computers in Human Behavior*, *50*, 9–24.