Journal of Management Analytical and Solution (JoMAS)
Journal homepage: https://talenta.usu.ac.id/jomas

Generation Y and Digital Transformation: Determinants of Intention to Adopt E-Payment

Heri Faisal Harahap[1*], Mutia Fitri Chania[2]
[1]*Department of Agricultural Business, Politeknik Pertanian Negeri Payakumbuh, Lima Puluh Kota Regency, 26271, Indonesia*
[2]*Faculty of Economic and Business, Universitas Sumatera Utara, Medan, 20155, Indonesia*
[*]Corresponding Author: mutiafitri@usu.ac.id

ARTICLE INFO
Article history:
Received: 8 October 2024
Revised: 20 December 2024
Accepted: 6 January 2025
Available online: 31 January 2025

E-ISSN: 2776-6276
P-ISSN: -

How to cite:
Chania, M.F., Harahap, H.F, "Generation Y and Digital Transformation: Determinants of Intention to Adopt E-Payment," Journal of Management Analytical and Solution (JoMAS), Vol. 5, No. 1, Jan. 2025, doi: doi.org/10.32734/jomas.v5i1.19535

ABSTRACT
This study examines the factors influencing Generation Y's intention to adopt e-Payment services, using the Technology Acceptance Model (TAM) framework. The study involved 200 Generation Y respondents. The variables tested include perceived usefulness, perceived ease of use, perceived risk, and subjective norms. Structural Equation Modeling-Partial Least Square (SEM-PLS) analysis revealed that all variables significantly influence the intention to adopt e-Payment. The findings indicate that perceived usefulness and ease of use have the most substantial impact, reflecting the importance of efficient and accessible systems for users. Conversely, perceived risk, particularly concerning security and privacy, acts as a primary barrier, highlighting the need for more secure system development. Subjective norms also influence user intentions through social pressures from family, friends, and other significant figures. This study underscores the importance of addressing perceived risks, enhancing system usability, and leveraging social influence to promote e-Payment adoption among Generation Y. The findings offer strategic insights for technology developers, policymakers, and marketers to optimise e-Payment implementation and user engagement.
Keyword: Generation Y, e-Payment, Perceived Usefulness, Perceived Risk, Subjective Norms

1. INTRODUCTION

The digital transformation that has occurred over the past two decades has brought about fundamental changes in the global economic landscape, with the information and communication technology sector becoming the main driving force behind national economic development. This phenomenon, as revealed by Toader et al. (2018), not only reflects technological evolution but also marks a paradigm shift in how society interacts with economic and financial systems. The information and communication technology sector's expansion exhibit multiple significant indicators, encompassing widespread mobile device adoption, rapid proliferation of e-commerce platforms, evolving consumer service demands, and substantial governmental and regulatory frameworks. However, despite this global trend, digital financial adoption in various regions, including Indonesia and specifically Sibolga, remains underexplored, highlighting a research gap that necessitates further investigation[1], [2].

This development, according to Horner and Cunnane (2017), has created a digital ecosystem conducive to innovation across various sectors, particularly in the financial industry. Gai et al. (2018) emphasize that the information and communication technology sector has paved the way for a paradigmatic transformation in the financial industry, which subsequently gave birth to the Financial Technology (FinTech) phenomenon. In recent years, the FinTech industry has shown rapid development, bringing about a revolution in the provision of online banking services that are not only simple and secure but also meet high-quality

standards, as noted by Kang (2018). Nonetheless, the penetration and adoption of FinTech services, particularly electronic payment (e-payment) systems, exhibit varying levels of success across different demographic and geographic regions. In Indonesia, particularly in smaller cities like Sibolga, empirical research on the factors influencing digital payment adoption remains limited, thereby justifying the need for this study[3]–[5].

FinTech, as a manifestation of technology and financial convergence, represents more than mere technological innovation. Thakor (2020) and Chandler and Krajcsák (2021) define FinTech as a comprehensive innovation ecosystem, encompassing innovative financial products, cutting-edge technological applications, and disruptive business models. This innovation not only changes the landscape of financial service provision and the trajectory of financial industry development but also creates new dynamics in market competition and reputation building among service providers. While major cities in Indonesia have embraced FinTech services, regional disparities persist. Understanding the behavioral intentions of Generation Y in Sibolga toward adopting e-payment services provides insights into how digital financial inclusion can be expanded beyond metropolitan areas, contributing to national economic growth[6], [7].

One of the most significant manifestations of the FinTech revolution is electronic payment services (e-payment), also known by various terminologies such as e-wallet or e-money. Kang (2018) explains that this system serves as a bridge integrating traditional financial institutions with FinTech payment innovations. Karthikeyan (2013) further elaborates that electronic payment is a fund transfer mechanism utilizing mobile devices as a transaction medium between payers and payees. The transformation brought about by electronic payments has exceeded initial expectations, fundamentally changing public perception about the function of mobile devices. Devices that were originally viewed merely as tools for communication, entertainment, and internet access have now evolved into powerful financial instruments. This change has introduced a new paradigm in consumer-merchant interactions, creating a simpler, more efficient, and real-time transaction ecosystem. However, despite the clear advantages of e-payment adoption, previous research has largely focused on urban and developed markets, leaving a research gap in understanding adoption patterns in smaller cities such as Sibolga. Investigating this gap is critical to formulating targeted financial policies and technological interventions to enhance financial inclusion[8], [9].

An empirical study conducted by Leong et al. (2017) in China provides interesting insights into the dynamics of FinTech adoption. Through an in-depth qualitative approach, the research reveals the characteristics and behavior of borrowers in the context of FinTech lending services. These findings provide strategic implications for start-up companies in designing sustainable business models. The success case highlighted in the research demonstrates how a FinTech company in China achieved exponential growth by targeting the student segment—a group that typically faces access constraints to conventional banking services due to their non-bankable status. Further analysis reveals interesting consumption patterns, where loans were initially largely allocated for tertiary needs such as smartphones and laptops. Although this pattern indicates relatively high credit risk given the depreciative nature of these goods and minimal productive value, the company successfully mitigated risks through product diversification. This strategy includes the development of investment and trading services that enable borrowers, particularly from the student population, to manage their financial stability more effectively. While these insights are valuable, their applicability to Indonesia, particularly Sibolga, remains uncertain due to differing socio-economic and regulatory environments, further emphasizing the need for localized research[10]–[12].

The evolution of understanding about electronic payment adoption has attracted many researchers' attention, as evidenced in studies conducted by Abrahão et al. (2016), de Luna et al. (2019), Kim et al. (2010), Liébana-Cabanillas et al. (2020), Cao et al. (2016), Shankar and Datta (2018), and Singh et al. (2020)[5], [13]–[18]. This research itself is a development of Daragmeh et al.'s (2021) study examining factors influencing Generation X's intention in Hungary to adopt mobile payments. The significant difference lies in the geographical and demographic context, where this research focuses on Generation Y in Sibolga. Scholars have formulated numerous theoretical frameworks to examine the determinants of consumer behavioral intention regarding technology adoption. These theoretical underpinnings encompass Hill et al.'s (1977) Theory of Reasoned Action (TRA), Davis's (1989) Technology Acceptance Model (TAM), Ajzen's (1991) Theory of Planned Behaviour (TPB), and Rogers's (1995) Innovation Diffusion Theory (IDT). For this investigation, TAM serves as the primary theoretical foundation to investigate e-payment adoption intentions among Generation Y consumers in Sibolga. This selection is based on TAM's position as a proven model in technology adoption research, particularly in the context of e-commerce and the FinTech sector, as validated by Stewart and Jürjens (2018). Zhang et al. (2018) and Ajibade (2019) also confirm TAM's reliability in technology adoption studies at the individual level [19]-[25].

The TAM model has undergone significant evolution since its initial introduction. Although the original version of TAM did not include subjective norms as variables, its focus on perceived ease of use and perceived usefulness has proven robust in explaining technology acceptance. The model's development into TAM2 by Venkatesh and Davis (2000) brings a new dimension by integrating subjective norms as factors influencing intention both directly and indirectly through perceived usefulness, as validated in studies by Rondan-Cataluña et al. (2015) and Varannai et al. (2017). The validity of TAM components has been proven in various technology research contexts. Koch et al. (2020) explored the interaction between hedonic, utilitarian, and normative motives with German society's intention to adopt online shopping during curfew restrictions. Sreelakshmi and Prathap (2020) found that perceived usefulness acts as a mediator between perceived health threats and consumers' continued intention to use mobile-based payments. Similar findings were also confirmed by Aji et al. (2020) in the context of e-wallets. Based on these theoretical and empirical foundations, this research aims to contribute to the development of the TAM model by integrating risk perception into TAM2 variables (subjective norms, perceived ease of use, and perceived usefulness) to analyze the determinants of Generation Y's intention to adopt mobile payments. By doing so, this study provides valuable insights that can aid policymakers and financial service providers in enhancing digital financial adoption in Sibolga and other similar regions, ultimately contributing to Indonesia's broader financial inclusion goals [26]-[31].

1.1 The Impact of Perceived Usefulness on Generation Y's Intention to Adopt e-Payment

Perceived usefulness represents the degree to which individuals believe that utilising a particular system can enhance their work performance (Jogiyanto, 2007). This concept is reinforced by Davis (1989), who emphasises that perceived usefulness reflects an individual's conviction that adopting specific technology will optimise their work performance. The level of perceived usefulness is directly proportional to the effectiveness of the medium employed. Wibowo (2008) categorises the utility dimensions of information technology into two primary aspects: benefits and effectiveness. The benefits aspect encompasses task facilitation, utility value, and productivity enhancement, whilst the effectiveness aspect includes optimisation of effectiveness and performance development.

A synthesis of these various definitions indicates that technology adoption by individuals heavily depends on their perception of the benefits and potential improvements in performance and productivity offered. Numerous empirical studies have validated the significant relationship between perceived usefulness and intention to use e-payment, as demonstrated by Rahmatsyah (2011), Rahayu (2012), Sari (2012), Candraditya (2013), Miliani (2013), Halim (2014), de Luna et al. (2019), Lara-Rubio et al. (2020), Liébana-Cabanillas et al. (2020), and Singh et al. (2020) [32]-[38].

Perceived usefulness has proven to be a key determinant in shaping usage intention, due to its ability to articulate the utilitarian value of e-payment systems. Users identify that the benefits of e-payment primarily lie in the efficiency and speed of conducting payment transactions. Based on this theoretical and empirical foundation, the researcher proposes the following alternative hypothesis:

H1: Perceived usefulness has a significant influence on Generation Y's intention to adopt e-Payment.

1.2 The Impact of Perceived Ease of Use on Generation Y's Intention to Adopt e-Payment

Perceived ease of use denotes the degree to which individuals believe that utilising specific technology demands minimal exertion (Jogiyanto, 2007). Davis (1989) further substantiates this conceptualisation, asserting that perceived ease of use encompasses an individual's assessment of the straightforward nature of information technology implementation, requiring minimal cognitive and physical effort. These perceptual judgements regarding ease of use reflect users' conviction that system utilisation remains predominantly error-free.

Previous studies have shown that perceived ease of use significantly influences the intention to use e-payment. These studies include Vankatesh and Davis (2000), Rahmatsyah (2011), Rahayu (2012), Sari (2012), Halim (2014), Abrahão et al. (2016), Kim et al. (2010), Nguyen et al. (2016), as well as Shankar and Datta (2018). These findings align with the benefits offered by e-payment systems to consumers, such as ease of use, simplicity in understanding, practicality, and flexibility [39]-[44]. Based on this explanation, the researchers formulated the following alternative hypothesis:

H2: Perceived Ease of Use Influences Generation Y's Intention to Use E-Payment.

1.3 The Impact of Perceived Risk on Generation Y's Intention to Adopt e-Payment

Perceived risk is defined as the uncertainty associated with the outcome of a decision (Sitkin and Pablo, 1992). According to Bauer (1960), perceived risk influences consumer behaviour in their decision-making process when purchasing a product. Research literature indicates that perceived risk serves as a significant determinant of technological adoption intention (Hu et al., 2019). Within digital payment contexts, empirical investigations predominantly identify privacy and security concerns as the paramount risk factors influencing consumer adoption of mobile payment systems (Abrahão et al., 2016; El Haddad et al., 2018; Liébana-Cabanillas et al., 2020; Sinha et al., 2019). Based on this explanation, the researchers formulated the following alternative hypothesis:

H3: Perceived Risk Influences Generation Y's Intention to Use E-Payment.

1.4 The Impact of Subjective Norms on Generation Y's Intention to Adopt e-Payment

According to Kazemi (2013), subjective norms refer to an individual's perception based on the opinions of people they consider significant role models regarding whether a particular action should or should not be performed. Consequently, the influence of family, friends, neighbours, colleagues, or other key individuals in someone's life can shape their behaviour. This social influence can drive an individual's interest in using e-payment services. Studies by Yudhi, Arthana, and Rukhviyanti (2015), as well as Safeena et al. (2013), have demonstrated that subjective norms positively affect the intention to use information systems. Based on the above explanation, the hypothesis proposed in this research is as follows:

H4: Subjective Norms Influence Generation Y's Intention to Use E-Payment.

2. METHODS

2.1 Population and Sample

Population in a research context refers to a group of subjects or objects possessing specific characteristics and qualities predetermined by researchers for study and analysis to generate research conclusions (Sugiyono, 2008). In this research, the target population comprises all residents of Sibolga City who belong to Generation Y, specifically those born between 1981 and 1995. According to data from the Statistics Indonesia (BPS) of Sibolga City, the total Generation Y population in the region amounts to 20,500 individuals. This research employs a non-probability sampling method with a judgmental sampling approach for respondent selection. The established inclusion criteria for sample selection encompass: Sibolga City residents aged 29-43 years who possess knowledge of and experience in using e-payment services. Based on these criteria, the sample size determined for this research is 200 respondents.

2.2 Data Collection Technique

Data collection in this research was conducted through a digital questionnaire distributed via the Google Form platform to maximise distribution efficiency to respondents. The questionnaire instrument was designed in two main segments: the first segment contains questions regarding respondents' demographic information, which is guaranteed confidential, whilst the second segment comprises a series of indicators to measure research variables using the Likert scale. The Likert scale is a measurement instrument designed to evaluate opinions, perceptions, or attitudes of individuals or groups through specific value ranges, and is commonly applied in survey research. Each indicator in the questionnaire was assessed using a five-point scale, ranging from 1 representing "Strongly Disagree" to 5 indicating "Strongly Agree".

2.3 Data Analysis Technique

The data for this study were obtained through an online questionnaire distributed to participants who met the research criteria. The collected data included information about participants' backgrounds and their perspectives on the variables being studied. Subsequently, the data were analysed using descriptive analysis to illustrate the characteristics of the variables and the profile of the participants within the study.

Hypothesis testing was conducted using Structural Equation Modelling (SEM) with the Partial Least Square (PLS) approach. SEM PLS was chosen due to the relatively small sample size in this study. According to Wold in Ghozali (2014), PLS is a robust and flexible analytical tool based on a soft modelling approach. It does not require the assumptions of Ordinary Least Squares (OLS) regression, meaning the data do not need to follow a normal distribution, and the required sample size can be smaller (Ghozali, 2014).

The SEM PLS analysis aims to evaluate predictive relationships between constructs by examining whether there are associations or impacts among them. Additionally, this method does not necessitate a strong theoretical foundation, disregards many assumptions, and evaluates the model's predictive accuracy based on the determination coefficient (Ghozali, 2014). The PLS-SEM analysis involves two stages:

a. Measurement Model (Outer Model): To evaluate whether the observed variables adequately represent the latent variables being measured.

b. Structural Model (Inner Model): To assess the strength of the predictive relationships between latent variables.

3. RESULTS AND DISCUSSION

3.1 Validity Test

Validity testing was conducted to evaluate the accuracy of research variables in measuring the intended constructs. This study employed two approaches to validity testing: convergent validity and discriminant validity.

1. Convergent Validity

   The analysis presented in Table 1 demonstrates that all indicators meet the convergent validity criteria. This is evidenced by outer loading values for each indicator reaching the minimum threshold of 0.6 and Average Variance Extracted (AVE) values for each variable exceeding 0.5. According to Ghozali and Latan (2015), reflective indicators demonstrate convergent validity when their outer loading values are ≥ 0.6 and AVE values are ≥ 0.5.

Tabel 1 ***Convergent Validity***

No.	Indicator		Outer Loadings	AVE
Perceived Usefulness				
1	I believe that e-Payment services as a payment tool will enable me to pay more quickly.	PM1	0.858	0.738
2	I believe that e-Payment services will make it easier for me to make payments.	PM2	0.879	
3	I believe that using e-Payment services will be more advantageous than traditional payment methods (cash payments).	PM3	0.823	
4	I will find e-Payment as a useful possibility for making payments.	PM4	0.875	
Perceived Ease of Use				
1	Learning to use e-Payment services is easy for me.	PKP1	0.856	0.743
2	I can quickly understand the procedures for using e-Payment services as a payment method.	PKP2	0.871	
3	It will be easy for me to become proficient in using e-Payment services.	PKP3	0.858	
Perceived Risk				
1	I am concerned that the e-Payment services I use as a payment tool may not function properly.	PR1	0.921	0.894
2	I feel insecure when transacting using e-Payment services as a payment tool.	PR2	0.944	
3	I find many risks when conducting transactions using e-Payment services as a payment tool.	PR3	0.978	
4	I am worried about disruptions when conducting transactions using e-Payment services as a payment tool.	PR4	0,938	
Subjective Norm				
1	People who are important to me (e.g., family, friends, celebrities, and experts) believe that I should use e-Payment.	NS1	0.796	0.736
2	People whose opinions I value prefer me to use e-Payment.	NS2	0.790	
3	People whose opinions I value prefer me to use e-Payment.	NS3	0.898	
4	People who are important to me support me in using e-Payment.	NS4	0,922	
5	People who are important to me would recommend that I use e-Payment.	NS5	0,875	
Generation Y Intention				
1	Assuming I have access to e-Payment, I intend to use it.	NI1	0.734	0.723
2	I will always try to use e-Payment or electronic payments as a transaction tool in my daily life.	NI2	0.904	

3	In the future, I intend to pay for purchase transactions using mobile phones/smartphones.	NI3	0.902

2. Discriminant Validity

Discriminant validity adheres to the principle that measurements of different variables should demonstrate low correlation. The assessment of discriminant validity for reflective indicators involves analysing cross-loading values, where each construct must exhibit values greater than 0.70 (Ghozali & Latan, 2012).

Tabel 2 *Discriminant Validity*

	Generation Y Intention	Subjective Norm	Perceived Ease of Use	Perceived Usefulness	Perceived Usefulness	*MAX* *)
Generation Y Intention	**0.850**					**0.850**
Subjective Norm	0.592	**0.858**				**0.858**
Perceived Ease of Use	0.411	0.268	**0.862**			**0.862**
Perceived Usefulness	0.543	0.345	0.600	**0.859**		**0.859**
Perceived Risk	0.263	0.313	0.134	0.356	**0.945**	**0.945**

3.2 Reliability Test

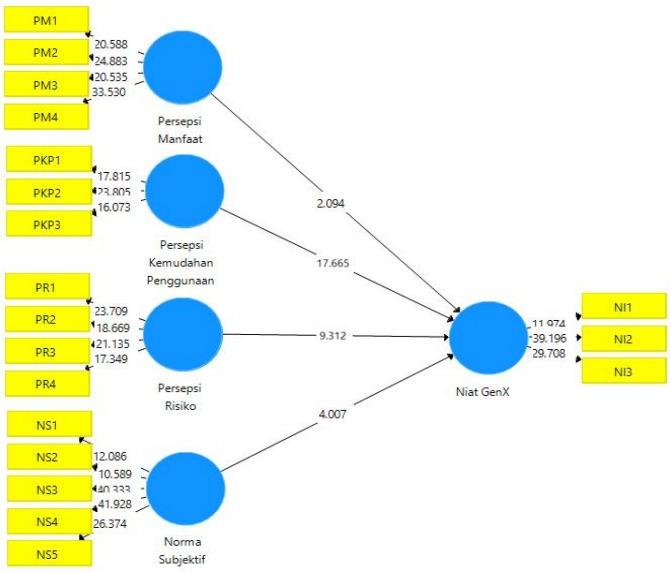
In PLS analysis, reliability testing was conducted by evaluating composite reliability values. The analysis reveals that all variables demonstrate composite reliability and Cronbach's alpha values exceeding 0.6. These findings confirm that all variables in the research model meet the required reliability standards. According to Ghozali and Latan (2015), a variable is considered reliable when its composite reliability value exceeds 0.6-0.7.

Tabel 3 Realibility Test

Variabel	*Composite Reliability*	*Cronbach Alpha*
Generation Y Intention	0.886	0.807
Subjective Norm	0.933	0.910
Perceived Ease of Use	0.896	0.827
Perceived Usefulness	0.918	0.882
Perceived Risk	0.971	0.960

3.3 Hypothesis Test

Hypothesis testing in Partial Least Square (PLS) analysis is conducted through two stages, with the first stage calculating the direct effect of independent latent variables on dependent latent variables. The research hypothesis testing results (H1 through H4) were obtained through the PLS bootstrapping procedure, which generated the following output.



Gambar 1 Inner Model Results

The next test is to see the significance of the influence between constructs on the path coefficients. The results of data processing are presented in the following table.

Tabel 4 Path Coefficients

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values
Perceived Usefullness -> Generation Y Intention	0.337	2.094	0.034
Perceived Ease of Use -> Generation Y Intention	0.806	17.665	0.000
Perceived Risk -> Generation Y Intention	0.631	9.312	0.000
Subjective Norm -> Generation Y Intention	0.456	4.007	0.000

Analysis of Hypothesis One, examining perceived usefulness's influence on Generation Y's e-Payment adoption intention, yielded a beta coefficient of 0.337 ($t = 2.094$, $p = 0.034$). The observed t-statistic exceeded the critical value ($2.094 > 1.660$) with $p < 0.05$, substantiating the hypothesis that perceived usefulness significantly influences Generation Y's e-Payment adoption intention. The examination of Hypothesis Two, concerning perceived ease of use's impact on Generation Y's e-Payment adoption intention, revealed a beta coefficient of 0.806 ($t = 17.665$, $p < 0.001$). Statistical significance was established as the t-statistic surpassed the threshold value ($17.665 > 1.660$) with $p < 0.05$, confirming perceived ease of use's substantial influence on adoption intention.

Investigation of Hypothesis Three, regarding COVID-19 risk perception's effect on Generation Y's e-Payment adoption intention, demonstrated a beta coefficient of 0.631 ($t = 9.312$, $p < 0.001$). The analysis yielded statistical significance with the t-statistic exceeding the critical value ($9.312 > 1.660$) and $p < 0.05$, validating COVID-19 risk perception's significant impact on adoption intention. Assessment of Hypothesis Four, exploring subjective norms' influence on Generation Y's e-Payment adoption intention, produced a beta coefficient of 0.456 ($t = 4.007$, $p < 0.001$). Statistical significance was confirmed as the t-statistic exceeded the threshold ($4.007 > 1.660$) with $p < 0.05$, establishing subjective norms' significant effect on e-Payment adoption intention.

3.4 Discussion

1. The Impact of Perceived Usefulness on Generation Y's Intention to Adopt e-Payment

The findings of this study reveal that perceived benefits have a significant influence on Generation Y's intention to use e-Payment. These findings align with previous research, which indicates that perceived benefits are a key factor in the adoption of electronic payment technology (Rahmatsyah, 2011; Rahayu, 2012; Sari, 2012; Candraditya, 2013; Halim, 2014; de Luna et al., 2019; Lara-Rubio et al., 2020; Liébana-Cabanillas et al., 2020; Singh et al., 2020). In this context, perceived benefits refer to an individual's belief that using digital payment technology can enhance the efficiency and effectiveness of their financial transactions.

Davis (1989), in the Technology Acceptance Model (TAM), explains that perceived benefits represent a person's level of confidence that using a particular technology will improve task performance. In this study, the higher the perceived benefits of e-Payment, the greater the individual's intention to adopt the technology. Several factors contribute to the increase in perceived benefits, including ease of access, transaction speed, and the reduction of costs and time spent on payments.

Furthermore, this study highlights that the effectiveness and efficiency of a technology directly contribute to increasing perceived benefits. For instance, in the context of online shopping, e-Payment services offer various advantages such as high accessibility, ease of transaction completion, and integration with multiple digital platforms (Liébana-Cabanillas et al., 2020; Vijayasarathy, 2004). As a result, individuals who recognize that digital payment systems provide tangible benefits in their daily lives are more likely to use them regularly.

Additionally, this study provides practical implications for e-Payment service providers and relevant stakeholders. Enhancing perceived benefits can be achieved by optimizing innovative features that add value for users, such as loyalty programs, cashback incentives, and improved transaction security. The more benefits users perceive, the higher the likelihood that they will continue using the service.

From a broader perspective, the adoption of e-Payment by Generation Y is also linked to an increasingly digitalized lifestyle. This generation tends to prioritize efficiency in their daily activities and has a higher level of digital literacy compared to previous generations.

2. The Impact of Perceived Ease of Use on Generation Y's Intention to Adopt e-Payment

The research findings demonstrate a significant influence of perceived ease of use on Generation Y's intention

to adopt e-Payment services. These findings corroborate previous research that confirmed the relationship between perceived ease of use and the intention to utilise e-Payment systems. Research conducted by Ezeh & Nwankwo (2018) revealed that the perceived ease of use of digital payment systems has a substantial impact on consumers' intention to adopt such systems. Kwon and Chidambaram (2000) emphasise that the perceived ease of use of a product is directly proportional to consumers' interest in adopting it. The implementation of e-Payment aims to enhance accessibility to financial services, transaction efficiency, and financial literacy amongst the public. Electronic payment systems characterised by ease of understanding, operation, and measurable added value tend to achieve higher levels of user trust. Based on these findings, it can be interpreted that Generation Y views the adoption of e-Payment as a means to optimise efficiency, both in terms of time and effort, in understanding and adapting to payment technology systems. The intensity of interaction with technology systems is directly proportional to their ease of use. High frequency of usage indicates system familiarity and operational simplicity for users.

3. The Impact of Perceived Risk on Generation Y's Intention to Adopt e-Payment

The empirical evidence from this investigation demonstrates that perceived risk significantly influences Generation Y's e-Payment adoption intentions. This finding aligns with Bauer's (1960) seminal work, which established that perceived risk fundamentally shapes consumer purchasing behaviour. Contemporary scholarship has further substantiated this relationship, with Hu et al. (2019) documenting perceived risk's considerable impact on technological adoption intentions. Specifically within the digital payment domain, extensive research has consistently identified privacy and security concerns as the predominant risk factors affecting consumer adoption of electronic payment systems (Abrahão et al., 2016; El Haddad et al., 2018; Liébana-Cabanillas et al., 2020; Sinha et al., 2019).

4. The Impact of Subjective Norms on Generation Y's Intention to Adopt e-Payment

The empirical evidence demonstrates that subjective norms significantly influence Generation Y's intention to adopt e-Payment services. These findings align with Peniarsih and Andriandi's (2018) research, which established that subjective norms exhibit a positive, albeit non-significant, effect on mobile payment service adoption intentions. Within the electronic payment context, subjective norms constitute the degree to which an individual's social sphere—encompassing family members, peers, domain experts, and influential figures—shapes their perception of mobile payment desirability (Flavian et al., 2020). This social influence manifests through various communicative channels, including direct interpersonal interactions and social media engagement (Al Nawayseh, 2020; Oliveira et al., 2016).

4. CONCLUSIONS

This study highlights that Generation Y's intention to adopt e-Payment services is significantly influenced by perceived usefulness, perceived ease of use, perceived risk, and subjective norms. The findings reveal that perceived usefulness plays a crucial role, as Generation Y values the efficiency, convenience, and performance improvements offered by e-Payment systems, aligning with prior research that emphasizes the importance of added value in technology adoption. Similarly, perceived ease of use is found to have a strong impact, with e-Payment systems being viewed as simple and accessible, underscoring the need for user-friendly designs. On the other hand, perceived risk, particularly concerns over security and privacy, affects the willingness to adopt these services, indicating the importance of robust safety features. Lastly, subjective norms, including social influences from family, friends, and other significant figures, also shape adoption intentions, highlighting the power of social dynamics.

From a practical perspective, these findings offer important implications for regulators, businesses, and e-Payment users. Regulators must establish and enforce stringent security and privacy policies to mitigate perceived risks and build consumer trust. Businesses and e-Payment providers should focus on enhancing system usability, offering intuitive interfaces, seamless transaction processes, and strong customer support to ensure a positive user experience. Moreover, marketing strategies should leverage social influences by using endorsements from trusted figures and encouraging peer-to-peer recommendations to accelerate adoption. For users, awareness programs on secure digital transactions can help minimize security concerns and enhance confidence in using e-Payment services.

While this study provides key insights, further research could explore additional factors that influence e-Payment adoption, such as digital literacy, financial incentives, and government policies. Investigating cross-generational differences in adoption behavior could also offer a broader understanding of how different age groups interact with e-Payment systems. Additionally, future studies could examine the role of emerging

technologies, such as artificial intelligence and blockchain, in enhancing security and user experience within digital payment ecosystems.

References

[1] A. Manurung, Y. Batara, P. Siriongoringo, and J. L. Marpaung, "Satisfaction Analysis of The Establishment of a Website-Based Rank System Using Customer Satisfaction Index (CSI) And Importance Performance Analysis (IPA) Methods," *Sink. J. dan Penelit. Tek. Inform.*, vol. 8, no. 2, pp. 1233–1240, 2024, doi: https://doi.org/10.33395/sinkron.v8i2.13599.

[2] Tulus, Sutarman, M. R. Syahputra, and T. J. Marpaung, "Computational analysis of stability of wave propagation against submerged permeable breakwater using hybrid finite element method," *AIP Conf. Proc.*, vol. 3029, no. 1, pp. 1–3, 2024, doi: 10.1063/5.0192099.

[3] A. S. Lubis and Alfi Amalia, "Employee Performance Assessment With Human Resources Scorecard And AHP Method (Case Study : PT PLN (PERSERO) North Sumatra Generation)," *J. Manag. Anal. Solut.*, vol. 1, no. 2, pp. 72–79, 2021, doi: 10.32734/jomas.v1i2.6287.

[4] P. Gultom, E. S. M. Nababan, J. L. Marpaung, and V. R. Agung, "Balancing Sustainability and Decision Maker Preferences in the Palm Oil Supply Chain : A Multi- Criteria Supplier Selection Approach with Analytical Hierarchy Process and Fuzzy Goal Programming," *Kexue Tongbao/Chinese Sci. Bull.*, vol. 69, no. 05, pp. 2079–2095, 2024, [Online]. Available: https://www.kexuetongbao-csb.com/article/balancing-sustainability-and-decision-maker-preferences-in-the-palm-oil-supply-chain-a-multi-criteria-supplier-selection-approach-with-analytical-hierarchy-process-and-fuzzy-goal-programming.

[5] S. Sy, K. A. Sugeng, R. Simanjuntak, and J. L. Marpaung, "Fibonacci Noise Modification on Data Encryption," *Kexue Tongbao/Chinese Sci. Bull.*, vol. 69, no. 05, pp. 2145–2155, 2024, [Online]. Available: https://www.kexuetongbao-csb.com/article/fibonacci-noise-modification-on-data-encryption.

[6] S. Sinulingga, V. A. Nasution, A. Meutia, and S. Indra, "Automated and Measured Managerial Systems in the Management of Independent Tourism Villages : A Case Study of Parsingguran II Village , Polung Subdistrict , Humbang Hasundutan Regency," vol. 3, no. 9, pp. 527–540, 2024.

[7] A. S. Silalahi, A. S. Lubis, and P. Gultom, "International Journal of Energy Production and Management Impacts of PT Pertamina Geothermal Sibayak ' s Exploration on Economic , Social , and Environmental Aspects : A Case Study in Semangat Gunung Village , Karo District," vol. 9, no. 3, pp. 161–170, 2024.

[8] S. Sinulingga, J. L. Marpaung, and H. S. Sibarani, "International Journal of Sustainable Development and Planning Sustainable Tourism Development in Lake Toba : A Comprehensive Analysis of Economic , Environmental , and Cultural Impacts," vol. 19, no. 8, pp. 2907–2917, 2024, [Online]. Available: https://www.iieta.org/journals/ijsdp/paper/10.18280/ijsdp.190809.

[9] F. R. Sofiyah, A. Dilham, and A. S. Lubis, "Mathematical Modelling of Engineering Problems The Impact of Artificial Intelligence Chatbot Implementation on Customer Satisfaction in Padangsidimpuan : Study with Structural Equation Modelling Approach," vol. 11, no. 8, pp. 2127–2135, 2024, [Online]. Available: https://iieta.org/journals/mmep/paper/10.18280/mmep.110814.

[10] Tulus, Semin, M. R. Syahputra, T. J. Marpaung, and J. L. Marpaung, "Mathematical Study Simulating Hydroelectric Power as a Renewable Green Energy Alternative," *Math. Model. Eng. Probl.*, vol. 11, no. 7, pp. 1877–1884, 2024, doi: 10.18280/mmep.110717.

[11] Tulus, Sutarman, M. R. Syahputra, and T. J. Marpaung, "Computational analysis of stability of wave propagation against submerged permeable breakwater using hybrid finite element method," *AIP Conf. Proc.*, vol. 3029, no. 1, 2024, doi: 10.1063/5.0192099.

[12] P. Gultom, E. Sorta, M. Nababan, and J. L. Marpaung, "Mathematical Modelling of Engineering Problems Balancing Sustainability and Decision Maker Preferences in Regional Development Location Selection : A Multi-criteria Approach Using AHP and Fuzzy Goal Programming," vol. 11, no. 7, pp. 1802–1812, 2024.

[13] F. R. Sofiyah, A. Dilham, A. Q. Hutagalung, Y. Yulinda, A. S. Lubis, and J. L. Marpaung, "The chatbot artificial intelligence as the alternative customer services strategic to improve the customer relationship management in real-time responses," *Int. J. Econ. Bus. Res.*, vol. 27, no. 5, pp. 45–58, 2024, doi: 10.1504/IJEBR.2024.139810.

[14] Erwin, C. D. Hasibuan, D. A. S. Siahaan, A. Manurung, and J. L. Marpaung, "Stability Analysis of Spread of Infectious Diseases COVID-19 Using SEIAR-V1V2Q Model for Asymptomatic Condition

with Runge-Kutta Order 4," *Math. Model. Eng. Probl.*, vol. 11, no. 5, pp. 1348–1354, 2024, doi: 10.18280/mmep.110526.

[15] Tulus, S. Sy, K. A. Sugeng, R. Simanjuntak, and J. L. Marpaung, "Improving data security with the utilization of matrix columnar transposition techniques," *E3S Web Conf.*, vol. 501, 2024, doi: 10.1051/e3sconf/202450102004.

[16] Tulus, T. J. Marpaung, and J. L. Marpaung, "Computational Analysis for Dam Stability Against Water Flow Pressure," *J. Phys. Conf. Ser.*, vol. 2421, no. 1, 2023, doi: 10.1088/1742-6596/2421/1/012013.

[17] Tulus, M. M. Rahman, Sutarman, M. R. Syahputra, T. J. Marpaung, and J. L. Marpaung, "Computational Assessment of Wave Stability Against Submerged Permeable Breakwaters: A Hybrid Finite Element Method Approach," *Math. Model. Eng. Probl.*, vol. 10, no. 6, pp. 1977–1986, 2023, doi: 10.18280/mmep.100607.

[18] Tulus, J. L. Marpaung, T. J. Marpaung, and Suriati, "Computational analysis of heat transfer in three types of motorcycle exhaust materials," *J. Phys. Conf. Ser.*, vol. 1542, no. 1, 2020, doi: 10.1088/1742-6596/1542/1/012034.

[19] Abrahão, R., Moriguchi, S. N., & Andrade, D. F. (2016). Intention of adoption of mobile payment: An analysis in the light of the Unified Theory of Acceptance and Use of Technology (UTAUT). *RAI Revista de Administração e Inovação*, *13*(3), 221-230.

[20] Aji, H. M., Berakon, I., & Riza, A. F. (2020). The effects of subjective norm and knowledge about riba on intention to use e-money in Indonesia. *Journal of Islamic Marketing*.

[21] Ajibade, P. (2018). Technology acceptance model limitations and criticisms: Exploring the practical applications and use in technology-related studies, mixed-method, and qualitative researches. *Library Philosophy and Practice*.

[22] Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, *50*(2), 179-211.

[23] Candraditya, H. 2013. *Analisis Penggunaan Uang Elektronik*. Skripsi. Semarang: Jurusan Manajemen Fakultas Ekonomika dan Bisnis Universitas Diponegoro.

[24] Cao, T. K., Dang, P. L., & Nguyen, H. A. (2016). Predicting consumer intention to use mobile payment services: Empirical evidence from Vietnam. *International Journal of Marketing Studies*, *8*(1), 117-124.

[25] Chandler, N., & Krajcsák, Z. (2021). Intrapreneurial Fit and Misfit: Enterprising Behavior, Preferred Organizational and Open Innovation Culture. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(1), 61.

[26] Daragmeh, A., Lentner, C., & Sági, J. (2021). FinTech payments in the era of COVID-19: Factors influencing behavioral intentions of "Generation X" in Hungary to use mobile payment. *Journal of Behavioral and Experimental Finance*, *32*, 100574.

[27] Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

[28] de Luna, I. R., Liébana-Cabanillas, F., Sánchez-Fernández, J., & Munoz-Leiva, F. (2019). Mobile payment is not all the same: The adoption of mobile payment systems depending on the technology applied. *Technological Forecasting and Social Change*, *146*, 931-944.

[29] Deloitte. (2020). Impact of the COVID-19 crisis on short and medium-term consumer behaviour.

[30] Ezeh, P. C., & Nwankwo, N. (2018). Factors that influence the acceptance of mobile money in Nigeria. *Journal of Research in Marketing*, *8*(2), 684-697.

[31] Gai, K., Qiu, M., & Sun, X. (2018). A survey on FinTech. *Journal of Network and Computer Applications*, *103*, 262-273.

[32] Gurung, Anil. 2006. *Empirical Investigation of the Relationship of Privacy, Security, and Trust with Behavioral Intention to transact in E-Commerce*. The University of Texas at Arlingon.

[33] Halim, F. 2014. *The Intention to Use E-Money Transaction: The Moderating Effect of Security in Conceptual Framework.* American-Eurasian Journal of Sustainable Agriculture. ISSN: 1995-0748.

[34] Hill, R.J., Fishbein, M., Ajzen, I. (1977). Belief, attitude, intention, and behavior: An introduction to theory and research. *Philosophy and Rhetoric*, *10*(2).

[35] Horner, S., & Cunnane, P. (2017). Value of Fintech.

[36] Hu, Y., Kwon, Y., Chidambaram, V., & Witchel, E. (2017). From crash consistency to transactions. In *Proceedings of the 16th Workshop on Hot Topics in Operating Systems* (pp. 100-105).

[37] Jogiyanto, H. M. (2007). Sistem informasi keperilakuan. *Yogyakarta: Andi Offset*.

[38] Kang, J. (2018). Mobile payment in Fintech environment: trends, security challenges, and services. *Human-centric Computing and Information sciences*, *8*(1), 1-16.

[39] Karthikeyan, S. R. (2013). Mobile Payments: A Comparative study between European and Non-European Markets.

[40] Keat, T. K., & Mohan, A. (2004). Integration of TAM based electronic commerce models for trust. *Journal of American Academy of Business*, *5*(1/2), 404-410.

[41] Koch, J., Frommeyer, B., & Schewe, G. (2020). Online shopping motives during the COVID-19 pandemic—lessons from the crisis. *Sustainability*, *12*(24), 10247.

[42] Königstorfer, F., & Thalmann, S. (2020). Applications of Artificial Intelligence in commercial banks–A research agenda for behavioral finance. *Journal of behavioral and experimental finance*, *27*, 100352.

[43] Liébana-Cabanillas, F., Sánchez-Fernández, J., & Muñoz-Leiva, F. (2014). Antecedents of the adoption of the new mobile payment systems: The moderating effect of age. *Computers in Human Behavior*, *35*, 464-478.

[44] Miliani, Lani. 2013. *Adoption Behavior of E-Money Usage*. Journal Information Management and Business Review. Vol.5, No 7, pp. 369-378.