

The Impact of Perceived Risk and Technology Acceptance Model on Gen Z's Adoption of Digital Banking

LEDIS JULIA, PRITI SIWA LINGGAM, RAFIADRI HIBATULLAH, JERRY S. JUSTIANTO

Faculty of Digital Business,
Bina Nusantara University,
Jl. Hang Lekir 1 No 6, Jakarta,
INDONESIA

Abstract: - This study examines the effect of perceived usefulness, perceived ease of use, and perceived risk on Gen Z's attitude toward using digital banking. Furthermore, this study examines whether the attitude toward digital banking influences their intention to use it. This research applied a quantitative approach, with the sample study being Gen Z between the ages of 18 and 25. With a total sample size of 148 respondents, an online questionnaire was distributed through Google Forms to gather the data. Structural Equation Modelling (SEM) with SmartPLS 4.0 software is the method of data analysis employed. It was found that perceived usefulness and perceived risk have a significant effect on attitude toward digital banking, whereas perceived ease of use does not have a significant effect. Perceived ease of use is positively significant towards perceived usefulness. Lastly, attitude toward the use of digital banking has a positive effect on the intention to use digital banking. Novelty/value- One characteristic of Generation Z is their familiarity with technology. Gen Z is the Generation that will continue to utilize technology; thus, it is crucial to understand their decisions about the usage of digital banking. This study sheds light on previously understudied aspects affecting attitudes and intentions toward digital banking in Indonesia.

Key-Words: - Perceived Usefulness, Perceived Ease of use, Perceived Risk, Intention to use, Digital banking, Technological Acceptance Model

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1 Introduction

Fintech has increased due to the impact of rapid information technology development on mobile devices. Consumers, notably members of Generation Z, will benefit from this new technology, which is anticipated to simplify user transactions. The Internet generation may spend more than seven hours per day online. As the latest Generation, Generation Z is distinguished by their familiarity with technology as they have grown up and been exposed to it. This generation has lots of innovation, so they can use technology to innovate everything. In modern digital life, digital literacy is crucial, particularly for Generation Z. Furthermore, the millennial generation's loyalty is minimal, so millennials will reject it without hesitation when a superior product is available. Additionally, changes in societal lives have been affected by the advancement of information technology and the usage of electronic currencies. This new technology was intended to benefit customers by making consumer transactions more convenient and straightforward, [1]. The rapid growth of information technology has transformed the

businesses. The development of information technology has affected the banking industry by placing information technology.

One of the factors that support this transformation are smartphone adoption and massive internet penetration in Indonesia. Indonesia has the opportunity to become the country with the largest digital economy development in the Southeast Asian region. One interesting phenomenon in Indonesia is the accelerated adoption of digital banking by Generation Z, born between the mid-1990s and early 2010s. This phenomenon reflects a massive transformation in the way Generation Z interacts with financial services. However, despite the huge potential of digital banking, there are elements that attract attention, namely the influence of risk perception and the Technology Acceptance Model (TAM) in the adoption processes. Many Generations Z in Indonesia may face dilemmas regarding the security and privacy of using digital banking, as well as the extent to which this technology is convenient and useful to them. This

phenomenon illustrates the importance of understanding the psychological complexities and risk factors involved in Generation Z's decision to adopt digital banking, and how the influence of technology can help ease this uncertainty. This is highlighted in order to develop better strategies to increase digital financial literacy and encourage the growth of digital banking in Indonesia.

Governments have tightened laws in response to the COVID-19 pandemic to account for the "New Normal." Due to the lack of physical contact in service interactions, such as banking and financial services, there has been a rise in customer demand, [2]. Financial industries should innovate by completely digitizing their goods and services to conform to this new norm. Despite its perks and convenience, digital banking customers must perform a risk-benefit analysis. Regardless of the distribution mode, digital banks must provide the same degree of reliability and service to their customers. A sizable consumer base still refuses to employ these services due to uncertainty and security concerns. Therefore, it would be beneficial for bank managers to comprehend the reasons for this reluctance when formulating strategies to increase digital banking usage. Consumers, financiers, and policymakers, among others, began to devote much attention to digital banking. The distribution of financial goods by the finance sector and other businesses is most effectively done via the Internet and mobile applications. Without the need to invest in or build infrastructure, digital banking gives residents of developing regions access to financial services, [3]. Through digital technology, banks can provide their customers with higher-quality goods and services while saving time, cutting operating costs, and improving supervision, risk management, and security controls.

Furthermore, Ease-of-Use and Usefulness is a key hurdle to promoting the distribution of services among younger users, such as Generation Z (Gen Z), who appreciate experimenting with new technologies, including digital institutions. Banks' tremendous expenditure and effort to deliver these services will be useless if customers do not accept or use digital banking services. There are several previous studies that refer to the technological acceptance model and also perceived risk regarding attitude and intention to adopt technology. The technological acceptance model and perceived risk have been studied for attitude and intention to adopt technology. Financial services adoption perceived usefulness improves client attitudes and usage intentions, [4]. There is no evidence that

perceived ease of use and perceived risk affect customer behavior and intention to use. According to, [5] perceived risk and usefulness both negatively and favorably affect intention. Perceived ease of use influences perceived usefulness, which increases internet banking acceptance, but not intention to use. Furthermore, the previous research surveys are mainly taken from age 18 – 50. Therefore, By balancing the measurement of ease-of-use with user barriers and creating a more detailed survey, this feature is expected to offer novelty, especially for Generation Z. This study will primarily employ the technology acceptance model and perceived risk, but it differs from earlier studies in that it models perceived risk as a single construct rather than considering its true characteristics or elucidating why customers reject such banking services. We undertake a more thorough analysis of the features of the perceived risks to better understand its correlation to adopting digital banking. To evaluate which risk factors are more important in this sector, we classified perceived risk into two categories, Financial Risk and Security Risk, as proposed by, [6].

The primary demographic for digital banking in Indonesia consists of tech-savvy individuals with a minimum age requirement of 18–25 years. By 2021 and 2025, the proportion of Generation Z using digital-only banks without local branches is projected to increase steadily. In fact, by 2025, 45.4 million members of Generation Z will use digital banking, up from 27.1 billion this year, [7]. Therefore, this study concentrates on Gen Z consumers aged 18-25. Thus, this paper investigates whether perceived risk and TAM impact customer attitudes toward the intention to adopt digital banking, especially in Gen Z.

2 Literature Review

2.1 Technological Acceptance Model

TAM is an acronym for Technology Acceptance Model, which was first introduced in 1989, [8]. According to, [9] TAM believes that the use of information systems can enhance the performance of an individual or organization and facilitate the completion of tasks by its users. It is anticipated that TAM will assist in predicting a person's attitude and acceptance of technology and can provide the necessary fundamental information regarding the factors that are driving the individual's attitude, [10]. TAM's primary purpose is to provide a foundation for comparing user beliefs, attitudes, and objectives to external factors.

TAM believes that two individual beliefs, perceived usefulness and perception of ease of use are the main influences on technology acceptance behavior. Perceived Usefulness describes the level of a person's confidence that in the use of the system will improve its performance. Perceived ease of use describes a person's degree of confidence that the use of an information system is easy and does not require hard work, [11]. Technology Acceptance Model (TAM) is used in research aimed at identifying and explaining the influence of benefits and ease on the attitude of the generation Z in adopting the use of digital banking, [12].

2.2 Perceived Ease of Use

Perceived ease of use is defined by, [13] as a person's belief that utilizing technology is effortless. According to the customer's perception of digital technologies, ease of use when using them might be more challenging than not using them, [14]. The perceived ease of use of an invention or service is determined by people's preferences and perceptions of the effort necessary to get it. The perceived ease of use may impact a customer's impression of service, causing them to buy a homogenous product rather than one with regional variations. If users think a service or innovation will be difficult to understand and takes time, they will not purchase it. Customers prefer options that essentially offer the same activities with less time to study them, [15].

2.3 Perceived Usefulness

The potential to employ technology to improve the customer's capability to achieve goals is emphasized by the concept of perceived usefulness. Alternatively, perceived usefulness is how a consumer perceives cloud computing may be advantageous. Customers define perceived usefulness as the amount of advantage received through the use of the technology, [16]. [8], stated that individuals are motivated to use data systems more effectively when perceived usefulness is alluded to with a level of certainty. People appear to be more likely to adopt digitalization if less effort is required. People's judgments of early testing and their decision to use the new tech for maximized work quality are considered as perceived usefulness. Perceived usefulness is another way to describe how users benefit from using technology, [17]. Hence, individuals are willing to adopt cashless transactions within Internet commerce if they perceive advantages from the banking systems.

2.4 Perceived Risk

Perceived risk is individuals' understanding and assessment of their decisions' uncertainty and potentially harmful consequences, [18]. It represents an individual's subjective expectation of prospective loss rather than the likelihood of negative outcomes, [19], [20]. As a result, even people in the same context will likely perceive risk sources differently and risk assessments for each source, [21]. The present study examined two forms of perceived risk, security, and financial risk, and these five risks associated with online banking are explained below:

Security Risk: This is described as a potential loss brought on by fraud or a hacker jeopardizing an online bank user's security. By seeming to be a reliable person in an electronic contact, phishers try to fraudulently obtain sensitive information, such as usernames, passwords, and credit card numbers, [22]. A phishing attack occurs when a user clicks on a link in a fraudulent email that claims to be from a reputable source and directs them to a similarly fraudulent website where their personal information is collected, [23]. Both fraud and hackers cause consumers to lose money but also violate their privacy, which is a main concern for many Internet users, and using online banking services makes them susceptible to identity theft, [24].

Financial Risk: The risk of financial loss resulting from transaction errors or bank account abuse is known as. Many customers are concerned about losing money when purchasing or transferring money via the Internet. Currently, the assurance offered in conventional settings through official processes and receipts is unavailable in online banking transactions. Hence, customers struggle to get compensated when there are transactions errors, [25].

2.5 Attitude

Attitude is a person's good or negative mental state about a particular activity, [26]. In terms of adoption or refusal to utilize the technology, divides such as views, attitudes, and consumer imaginations around crucial digital banking elements have become more relevant than the personal, psychological utilitarian components, [27]. [28], demonstrate that trait-based customer differentiation has a stronger influence on the establishment of consumer attitudes and behavioral intents than demographic and psychological elements. Numerous research in the area of e-business has discovered that a person's attitude directly and significantly affects their behavioral

intention to use a certain e-business application, [29].

2.6 Intention to Adopt

[8], defined intention as a measurement to assess how strongly an individual perceives their intention in connection to engaging in the desired activity. [30], use intention as a factor to figure out how likely it is that an action will happen in the future. [31], says that people's intentions are thought to show what motivates them to do something. Intentions demonstrate a person's effort and willingness to put into their intended course of action. [8], found that "perceived usefulness" and "perceived ease of use" have a direct effect on purpose which a person believes that employing a system will increase his productivity at work. This variable is pertinent to the study as the digital banking application is regarded as innovative, and the benefits offered are strongly associated with usability. According to several research, there is a direct connection between attitude and intent to use and perceived usefulness and attitude, [32].

3 Research Model and Hypothesis

3.1 Hypothesis Development

Perceived usefulness, which convinces people that technology will improve their jobs, is a crucial part of the TAM model, [8]. Perceived usefulness is the degree to which an individual thinks that employing technology will enhance their performance. In other words, individual beliefs on whether Internet banking services are more beneficial than conventional banking services vary, [33]. It suggests that consumers will use online banking services, which might reduce waiting times and increase output. Perceived usefulness is a key indicator of technology acceptance. Technology is more likely to be used the higher its perceived usefulness. Technology is more likely to be used if people believe it is useful. The above discussion, therefore, supports our initial hypothesis.

Numerous IT fields that are used to evaluate how well people perform in their profession, personal lives, and academic pursuits have adopted perceived usefulness, which relates to the original TAM paradigm, [34]. According to, [8] perceived usefulness is the extent to which a person believes that employing a system will increase his productivity at work. This variable is pertinent to the study as the digital banking application is

regarded as innovative, and the benefits offered are strongly associated with usability.

One of the key factors in the adoption of novel technology is perceived usefulness, which raises consumer satisfaction and loyalty. According to, [35] perceived usefulness is the most important factor in determining whether digital banking will be adopted. As opposed to this, [36], discovered that perceived utility had no appreciable impact on attitudes toward or desires to use digital banking. As the usefulness of technology increases, customers will be happier, and it positively impacts their attitude, making them highly adopt the technology. Therefore, the hypothesis created is as follows:

H1: Perceived usefulness has a positive effect on customer attitude towards the adoption of digital banking

Perceived ease of use is the degree to which an individual feels utilizing a system or technology would be effortless. Perceived ease of use also refers to the degree to which clients are at ease when learning to utilize online banking services. Therefore, the greater the perceived ease of use of a program, the greater the likelihood people will adopt it, [37], [38], argue, in a similar vein, that the simplicity of use also encourages users to adopt digital banking services. [39], found that people are more likely to adopt online banking services if they are convenient, user-friendly, and simple to manage.

Perceived ease of use has a substantial positive influence on attitudes toward usage, [40]; the perception of ease of use has a substantial impact on the perceived usefulness of, [41]. A consumer with a good attitude toward mobile banking, for instance, will exhibit positive behavior toward mobile banking use, [42]. Additionally, customers who find mobile banking beneficial and simple will have a good attitude toward its utilization, [43]. As the ease of use of technology increases, the customer will be happier, and it positively impacts their attitude, making them highly adopt the technology, [44]. Therefore, the hypothesis created is as follows:

H2: Perceived ease of use has a positive effect on customer attitude towards the adoption of digital banking

Perceived ease of use refers to the user's perception of how easy it is to use or operate that technology. However, perceived usefulness is the user's perception of how the technology can enhance their performance to make life easier. As to this concept, it would be how much the users believe that using digital banking would be

beneficial for their financial transactions. In the model, perceived ease of use and perceived usefulness directly influences a person's attitude towards using digital banking which in turn influences their intention to use. If users find digital banking easy to use, they are more likely to believe and use it without much effort, which positively affect their attitude towards using digital banking.

Similarly, when users perceived digital banking as useful, this positive perception will contribute to their attitude. Ultimately, the more positive attitude than the greater their intention to use digital banking services. The direct correlation between the two variables is when users perceived technology as easy to use, they are more likely to find it useful. This is because a straightforward user experience makes it easy for user to realize the benefit and value of the technology. When a service is simple to use, consumers feel certain that it will give them freedom and comfort, [8], [17]. Customers find it more challenging to use and obtain traditional counter services than digital banking services. The usability of a service affects customers' perceptions of its utility and their attitude toward it, [17], [44]. According to TAM, perceived ease of use and perceived usefulness both contribute to the development of positive associations with using technology, which, together with perceived usefulness, leads to people's increased tendency to use it. Additionally, perceived ease of use is anticipated to positively impact people's perceptions of technology usefulness. When technology gets easier to use, customers will likely have an image of usefulness from the technology. Therefore, the hypothesis created is:

H3: Perceived ease of use has a positive effect on consumers' perceived usefulness towards the use of Digital banking.

Perceived risk has been used to explain consumer behavior. Perceived risk is the expectation of loss by an online or digital banking user. Perceived risk has several dimensions; however, in this study, two dimensions are used: Financial risk and Security Risk. Financial risk is the possibility of financial loss due to wrong transactions or erroneous account usage. Many consumers are hesitant to use digital banking because they worry about such losses, [25]. Offline banks often have qualified personnel for verification of the payee's account number and transfer amount. However, lacking such protections in digital banking can lead to insecurity and uncertainty. Security is defined as a threat that creates a "circumstance, condition, or event that has

the potential to cause financial damage to data or network resources in the form of destruction, disclosure, modification of data, denial of service and/or fraud, waste, and abuse", [45]. Hence, network and data transaction attacks and unauthorized access to the account via false or erroneous authentication are threats in digital banking. According to, [46], the adoption of digital banking is significantly hindered by security concerns. In the context of digital banking, perceived risk can includes concern about security and financial loss. Perceived risk can have a negative impact on customer attitudes toward the adoption of digital banking. If customers perceive a high level of risk associated with using digital banking services, their overall attitude and willingness to adopt these services can be negatively affected. Customers might worry about the security of their sensitive financial information when using digital banking platforms. If they believe there's a risk of their personal data being compromised, they might be hesitant to adopt digital banking services. They might also be concerned about the possibility of fraudulent activities or identity theft in digital banking transactions. The fear of financial loss and damage to their credit might deter them from embracing these services.

H4: Perceived Risk has a negative effect to customer attitude toward the adoption of digital banking

Attitude is described as individuals' behaviors by looking at the extent to which personal activities are positive or negative. Several researchers have noted that attitudes are determinants of consumers' use systems explain that Attitude is the user's desire to use the system, [47]. Attitudes toward digital banking are defined as individuals' overall affective reactions to digital banking, [48]. Attitude play a crucial role in adoption of digital banking services; a positive attitude generally leads to a higher likelihood of adoption. In the context of digital banking, when individual have a favorable attitude towards digital banking, they recognize the advantages of using digital banking and feel at ease with the technology and its features and it also links to trust in the security measures and reliability of the digital banking platform. A positive attitude toward digital banking is a strong predictor of adoption. Therefore, a hypothesis can be formulated:

H5: attitude has a positive effect toward the adoption of digital banking

3.2 Research Model

There are 5 constructs in our model, which include perceived ease of use, perceived usefulness, security risk, financial risk as an independent variable, attitude as the mediating variable, and intention to adopt to use as the dependent variable. The framework of this research is presented as follows:

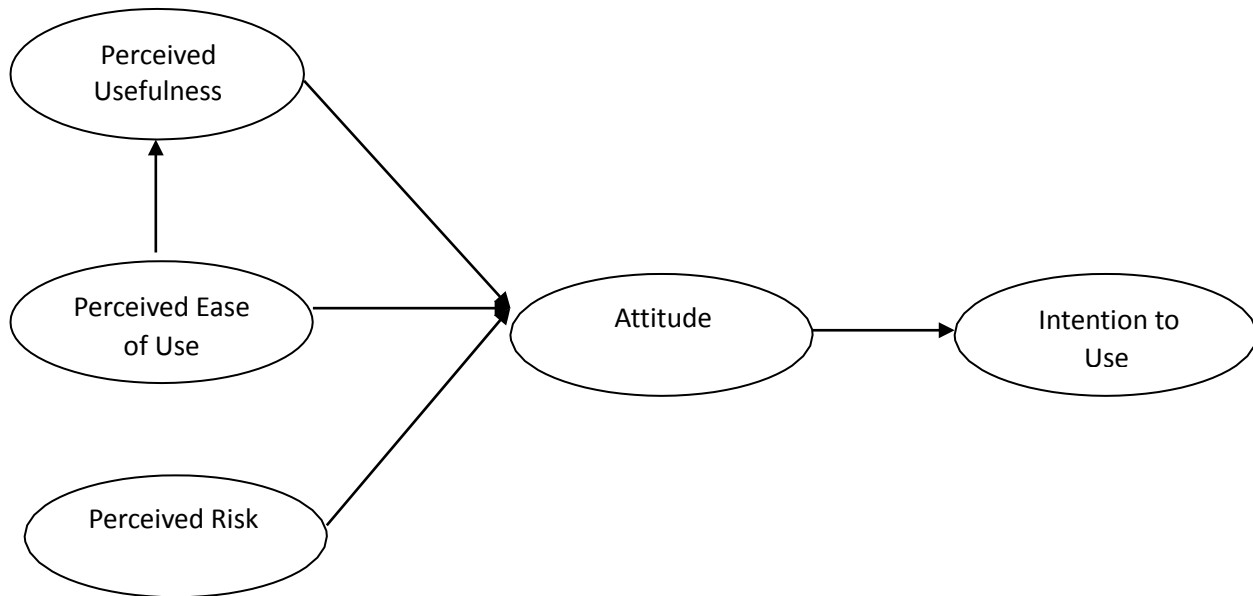


Fig. 1: Research Model (Created by: Authors)

4 Research Method

4.1 Data Collection

For data collection, this study distributed a structure to DB users in Indonesia. The sample in this study is Gen Z., [49], states that, based on data from the Indonesian population census, the Generation accounts for 60 million or 27.94% of all Indonesian citizens. Moreover, the popularity of the Internet among Indonesians has facilitated the growth and use of a new banking model. Generation Z has the highest percentage of Internet adoption compared to other age groups, at about 83,58%. The conceptual model includes a list of 24 questions in 6 constructions, including PU, PEOU, SR, FR, ATT, and INT.

All items are measured on a Likert-type scale ranging from “1” (strongly disagree) to “5” (strongly agree). Partial Least Square Structural Equation Model (PLS-SEM) software is used to conduct the study, [50]. This method could explain the variations between the target constructs with abnormal data. The initial measurement model is examined in two-step of the PLS-SEM procedure to ensure the reliability and validity of the data.

Second, the structural model is evaluated for path analysis and testing hypotheses.

The sample size for this research is yet unknown; however, to consider the sample, we will use the "sample to variable" ratio method. A minimum observation-to-variable ratio of 5:1 is suggested by the sample-to-variable ratio, while values of 15:1 or 20:1 are recommended, [51]. This means that each independent variable in the model must be taken into account for a minimum of five respondents. The 15 or 20 is recommended to avoid underpowered studies. In this research, there are 5 independent variables. Therefore, our research sample will be as follows:

$$4 \text{ Independent variable} \times 20 \text{ respondent per variable} = 80 \text{ Respondent minimum}$$

4.2 Measurement Development

The instrument was designed to include 2 parts of the questionnaire. The first part was used to collect basic information about respondent characteristics, which included name, gender, age, education, job, domicile, expenses per month, and experience using conventional and digital banking. The second

part of the questionnaire was developed based on perceived usefulness, perceived ease of, security risk, financial risk, attitude, and intention to use. Perceived ease of use was adapted from the measurement defined by, [17], [52], [53]. Perceived usefulness was adapted from the measurement defined by, [8], [54], [55]. Perceived risk was adapted from the measurement defined by, [56], [57]. Attitude and intention to use were adapted from the measurement defined, [52], [58], [59], [60], [61].

5 Result

5.1 Distribution of Participant Profiles

The measurement model was initially examined to gauge the convergent and discriminant validity of the data collection. The structural model will next be investigated to determine the direction and strength of the theoretical construct.

Table 1 (Appendix) demonstrates that female participants made up more than half of the participants in this study, making them the majority. The participants for this study are Gen Z in the range of 18-25 years old. In this study, most of the respondent comes from around JABODETABEK. Regarding digital banking, the most used digital bank is ALLO BANK which covers 29% of the respondents. All the respondents taken in this study are conventional and digital bank users.

5.2 Analysis of the Measurement Model

The outer loading in the Table 2 (Appendix) explains that all variables have results greater than 0.7. The Ease-of-use variable displays the results of items that meet the conditions (PEOU1 – PEOU5). Similarly, the usefulness variable displays the results of items that meet the condition (PU1 – PU5). Furthermore, a Perceived risk with 2 dimensions, FR with a measurement of FR1 – FR 2 and SR with a measurement of (SR1 -SR 4), also meets the condition. Intention as the dependent has also met the condition. However, for the attitude variable, ATT3 as a result of less than 0.6, so it must be eliminated. All items in this study were valid after re-running and deleting the ATT3.

Composite reliability and Cronbach's alpha have a rule of thumb greater than 0.7, [62]. Table 3 (Appendix) also shows the results of reliability based on Cronbach's alpha (CA) and composite reliability (CR), where all variables have results

greater than 0.7, indicating that all variables in this study are reliable.

Referring to Table 4 (Appendix), the CR for all constructs is above 0.70, and the AVE values are between 0.779 and 0.954. The discriminant validity was assessed using Fornell and Larcker (1971) by comparing the square root of each AVE in the diagonal with the correlation coefficients (off-diagonal) for each construct in the relevant rows and columns. Overall, discriminant validity can be accepted for this measurement model and supports the discriminant validity between the constructs.

5.3 Fit Model and Coefficient of Determination

Table 5 (Appendix) shows that the adjusted R-square result for Attitude is 0.461. The variable (PEOU, PU &, PR) can explain 46.1% of the relationship between Attitude. Intention has the adjusted R- squared of 0.470, meaning that attitude explains 47% of the relationship between Intention. Lastly, Perceived usefulness has an adjusted R – Square of 0.719, which shows that ease of use can explain 71.9% of usefulness, and lastly is Perceived risk which has an adjusted R-Square of 1.

5.4 Hypothesis Testing

Table 5 (Appendix) displays the result of the research hypothesis test. The P-Value of 0.003 (<0.05) in the perceived usefulness path to attitude. Therefore, perceived usefulness has a significantly positive effect on attitude toward digital banking. The ease-of-use path toward attitude has a different result with a p-value of 0.080 (>0.05), indicating an insignificant yet positive effect on attitude. Furthermore, ease of use towards usefulness has a p-value of 0.000, indicating that the relation between this variable is significant and has a positive effect. Another relation is perceived risk towards attitude, which has a p-value of 0.000, indicating that it has a negative and significant effect. Lastly, attitude towards intention to use has a p-value of 0.000 which means it has a significantly positive affect. P – value in this study is indicated as significant if it is less than "0.05"; therefore, the result of hypothesis testing is mentioned in the remark column of Table 6 (Appendix).

Based on the result of Table 6 (Appendix), the authors confirmed that Perceived Usefulness & Perceived Risk has a positive relationship with attitude and intention to use digital banking. Similarly, Perceived ease of use has a positive relationship with Perceived Usefulness. The result

is confirmed due to all the p values of these variable were less than 0.05. Therefore, Hypothesis H1, H3, H4 and H5 were accepted.

6 Discussion

Several insightful results can be summarized for the research framework. It is assumed that applying the IT framework increases a task's efficiency, [63]. In this research, Perceived usefulness is seen to have a significant positive effect on attitude. However, the other two variables did not significantly affect attitude.

In this study, perceived usefulness has a significant level of 0.011 which indicates that this variable has an effect on attitude and the intention to adopt digital banking. Surveys stated that Gen Z would gladly use technology if it provided an obvious advantage or minor security drawbacks and technology that help them to monitor and reduce their energy and cost, [64]. The value that customers place on a technology's quality determines how helpful it is. Consumers may only find digital banking beneficial if they think it is superior to traditional banking. Consumers will likely adopt it if it has more usefulness. Hence, the result shows that respondent takes digital banking as a useful tool to help their finances. The study is support by, [65].

Perceived ease of use and perceived usefulness also have a similar effect which is significantly positive. The result of its significant level is 0.000, which indicates that when something is easy to use, it is intuitive, requires minimal effort to operate or understand, and provides a smooth user experience. This ease of use can enhance the overall usability of a product, making it more accessible and enjoyable for users. This outcome is consistent with, [4] earlier research.

Moving further, perceived risk has a negative significant effect on attitude towards digital banking. Currently, internet banking does not provide staff assistance, unlike traditional settings that provide confidence through official procedures and receipts. As a result, when transaction errors occur, it is typically difficult for customers to request compensation. This also explains how many customers reject Internet banking. The biggest obstacle to the adoption of Internet banking is security risk. This reveals that Internet users are highly concerned about fraud and identity theft. Supplementing encryption and robust authentication should be a top priority in this field to prevent fraud and identity theft. This finding is supported by, [5].

The result of this study shows that Perceived ease of use did not have a significant positive effect on attitude towards digital banking. Customers perceive the process of using digital banking services as easy and intuitive, and it can positively influence their attitude toward it. Customers are more inclined to choose and accept a user-friendly system, which fosters a more favorable attitude toward digital banking. However, in the result obtained, respondents did not consider digital banking an easy tool per several measurements taken in the studies. The fact that Gen Z has grown up with the Internet, mobile devices, and other connected technologies may be "normalizing" the innovations they have witnessed, [66]. The result reverses the original TAM model, which mentioned PEOU as a factor that affects attitude. This finding is supported by, [36], [67], in determining ease of use towards attitude.

This research shows that attitude toward digital banking has a positive and significant effect on using digital banking. In this study, the attitude is measured by three variables: usefulness, ease of use, and risk. The respondent, in this case, has a positive attitude towards digital banking and increases the intention to use it. Banks must emphasize a positive attitude toward digital banking by providing usefulness and understanding customer needs. According to TAM, an attitude toward certain behavior is an output of users' beliefs which are perceived ease of use and perceived usefulness. This finding was consistent with past research by, [68], [69].

7 Implication

7.1 Managerial Implication

As highlighted in this paper, the result shed light on one important factor related to the attitude of gen Z and their intention to adopt digital banking. Perceived usefulness is the individual's belief in how certain technology would improve their performance or offer other benefits. The perceived usefulness of digital banking has a significant impact on the intention to adopt it. Managers in the banking industry should consider the following managerial implications related to perceived usefulness. Perceived usefulness can be a source of competitive advantage. If customers perceive a bank's digital banking services as more useful and beneficial compared to those of competitors, they are more likely to choose that bank for their financial needs. Managers should focus on communicating and promoting the value and

benefits of digital banking to their customers. This includes emphasizing convenience, time- saving features, accessibility, and personalized services. Digital banking should offer a wide range of features and services that cater to customers' financial needs. Managers should continuously update and improve the functionality of their digital banking. Managers who prioritize and invest in enhancing the perceived usefulness of their digital banking offerings can gain a competitive edge over their rivals. By considering these managerial implications, banks can increase the perceived usefulness of digital banking, ultimately driving customer adoption and usage of these platforms.

Furthermore, Perceived risk has also influenced the intention to adopt digital banking in Gen Z. Managers should proactively address the perceived risks associated with digital banking by providing clear and transparent information about security measures, privacy protections, and fraud prevention mechanisms. Additionally, managers should emphasize the reliability and trustworthiness of their digital banking platforms to build confidence among potential adopters. To mitigate perceived risks, managers should continuously invest in enhancing the security infrastructure of their digital banking platforms. This includes implementing advanced encryption technologies, two-factor authentication, biometric authentication, and regular security audits. Demonstrating a strong commitment to protecting customer information and transactions, managers can instill confidence in potential adopters and reduce their perceived risks. By proactively addressing concerns, enhancing security measures, providing education and support, and leveraging social proof, managers can reduce perceived risks and increase customers' intention to adopt digital banking.

7.2 Theoretical Implication

In terms of theory building, this study attempts to use the technology acceptance model and perceived risk. The suggested approach adds to the emerging literature, particularly in digital banking. The theoretical implications of the positive effect of perceived usefulness on attitude and intention to adopt digital banking in Generation Z can be understood through the model. TAM suggests that perceived usefulness is critical to individuals' attitudes and intentions to adopt a technology. Regarding digital banking, if Generation Z perceives digital banking as useful, it will lead to a positive attitude toward digital banking adoption and an increased intention to adopt it. This implies that when Generation Z recognizes the usefulness

of digital banking, they are more likely to develop a favorable attitude towards it and express a stronger intention to adopt it.

Furthermore, TAM adds that a barrier to the adoption of technology is the perception of risk. When individuals perceive higher risks associated with digital banking, it can negatively influence their attitude and intention to adopt it. This implies that perceived risk is an important factor to consider when studying individuals' intention to adopt digital banking. The benefits for the conducting this research are multifaceted and substantial. Firstly, this research offers the author an opportunity to contribute to the understanding of a timely and relevant topic in digital banking services. It allows the author to engage with a pressing issue affecting the Gen Z demographic, a generation that plays a pivotal role in shaping the future of digital banking. Secondly, by investigating into the factors influencing Gen Z's adoption of digital banking, the author gains valuable insights into the shades of consumer behavior and technology acceptance. This understanding can be applied beyond the scope of this research, potentially informing strategies for businesses, financial institutions, and policymakers seeking to navigate the evolving financial technology ecosystem.

8 Conclusion and Limitations

This paper aims to explain customers' attitudes regarding their intention to adopt digital banking. The proposed model incorporates two categories of perceived risk for a more thorough assessment. The conclusions of this study should not be Generalized, as with any other research. It can be deduced that perceived usefulness has a favorable and significant impact on the intention to use digital banking. Then, attitude toward digital banks has a positive and significant effect on using digital banking. Perceived ease of use is also positively significant towards perceived usefulness. Perceived risk has a significant negative effect on attitude and intention of adopting digital banking. However, perceived ease of use does not have a significant effect on attitude towards digital banking. This study can give management in the banking and non- banking sectors information on the variables that could affect how the public perceives using digital banking, allowing enhancements to the product and service of digital banking. Additionally, it may provide start-up businesses ideas for creating more beneficial financial solutions that are more suitable. For Indonesian

government, introducing digital banking to citizens in Indonesia holds immense potential for driving financial inclusion, economic progress, and efficient government services. With a substantial portion of the population lacking access to traditional banking, digital banking can bridge this gap by offering a convenient and accessible way to manage finances. By formulating and enforcing regulations that ensure security and consumer protection, the government can instill trust in digital transactions. Additionally, launching targeted public awareness campaigns can educate citizens about the benefits and safe practices of digital banking, addressing any apprehensions they might have.

Furthermore, there are not many limitations in this research that can be addressed in subsequent studies. The study solely examined Gen Z and did not accurately represent the behavior of all demographic age groups. It is expected that future research will increase the scope to several ages. In regard to variables, several variables can be used, such a self - efficacy for future research, and regarding perceived risk, the researcher has only taken two dimensions. Hence, the future paper may take a few more dimensions of perceived risk to provide more detailed insight. Lastly, the area in which the research is taken has only been done in Indonesia; therefore, the area of research can also be expanded.

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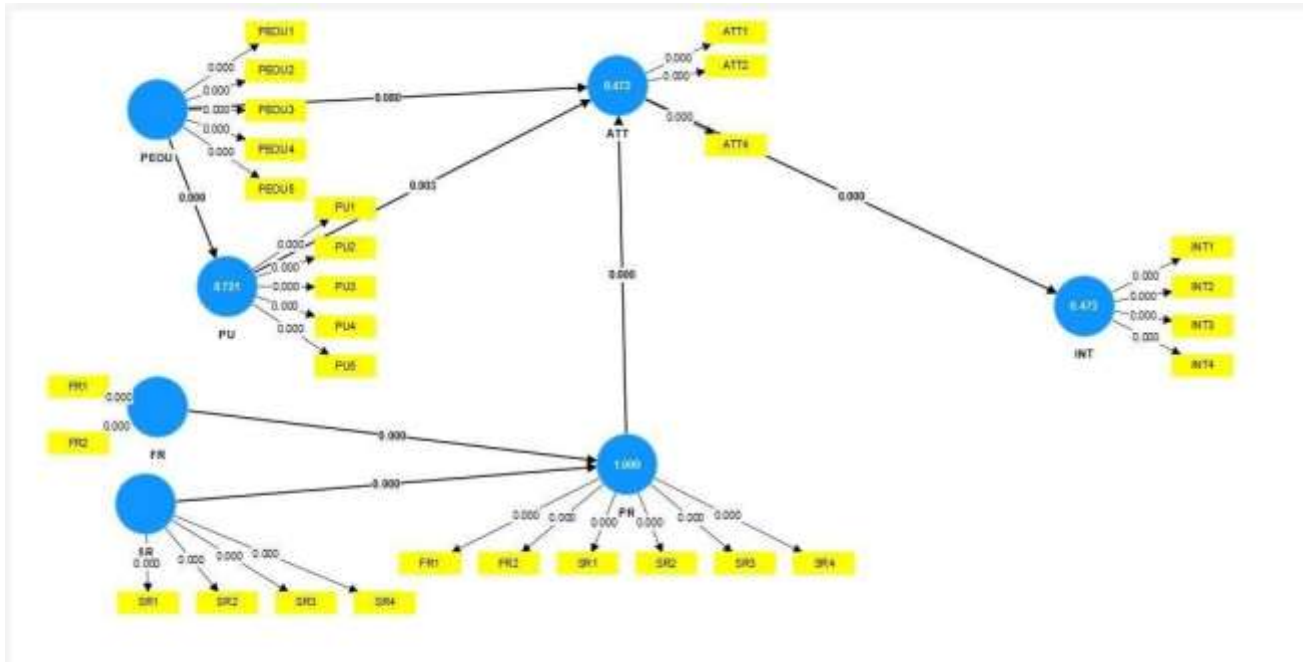
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APPENDIX

APPENDIX 1. Variable Measurement (Created By Author)

Variable	Measurement	Source
PERCEIVED EASE OF USE	Petunjuk penggunaan perbankan digital dapat dengan mudah ditemukan. (PEOU 1)	[45] & [53]
	Penggunaan aplikasi perbankan digital dapat dengan mudah dipahami. (PEOU 2)	
	Layanan perbankan digital dapat diakses dengan mudah (PEOU3)	
	Perbankan digital mudah digunakan untuk menyelesaikan kegiatan perbankan saya (PEOU 4)	[54]
	Penggunaan perbankan digital akan mudah (PEOU 5)	
PERCEIVED USEFULNESS	Perbankan digital akan meningkatkan kinerja saya melakukan pembayaran (PU1)	[45], [55] [56] [53]
	Aplikasi perbankan digital meningkatkan produktivitas saya (PU2)	
	Aplikasi perbankan digital akan meningkatkan efektivitas pembayaran saya (PU3)	
	Saya merasa perbankan digital berguna (PU4)	
	Perbankan digital memberikan kontrol yang besar terhadap aktivitas pembayaran saya (PU5)	
PERCEIVED RISK	Saat mentransfer uang melalui perbankan digital, saya khawatir akan kehilangan uang karena kesalahan seperti salah memasukkan nomor rekening atau salah memasukkan jumlah uang (FR 1)	[57]
	Ketika kesalahan transaksi terjadi, saya khawatir bahwa saya tidak bisa mendapatkan kompensasi dari bank (FR 2)	
	Saya tidak akan merasa benar-benar aman memberikan informasi privasi pribadi melalui perbankan digital (SR 1)	[57]
	Saya khawatir menggunakan perbankan digital karena orang lain mungkin dapat mengakses akun saya. (SR 2)	
	Saya tidak akan merasa aman mengirim informasi sensitif di seluruh perbankan digital. (SR 3)	
	Saya pikir menggunakan layanan perbankan digital membahayakan privasi saya (SR 4)	[58]
ATTITUDE	Menurut saya menggunakan perbankan digital dapat menguntungkan (ATT 1)	[59]
	Mengadopsi perbankan digital akan membuat saya merasa baik (ATT 2)	[60]
	Mengadopsi perbankan digital akan membuat saya tidak merasa bahagia (ATT 3) – (R)	
	Saya merasa mengadopsi perbankan digital memiliki manfaat bagi saya (ATT 4)	
INTENTION TO USE	Saya akan sangat menyarankan orang lain untuk menggunakan perbankan digital (INT 1)	[61]
	Saya akan menggunakan perbankan digital untuk kebutuhan perbankan saya (INT 2)	[59]
	Saya akan melihat diri saya menggunakan perbankan digital untuk menangani transaksi perbankan saya. (INT 3)	
	Saya akan menggunakan layanan perbankan digital jika diperlukan (INT 4)	[53] [62]

APPENDIX 2. PLS-SEM MODEL (SmartPLS 4.0 , 2023)



APPENDIX 3

Table 1. Sample Demographic (SmartPLS 4.0, 2023)

Measure	Item	Frequency	Percentage (%)
Age	18–25	148	100%
Gender	Male	41	28%
	Female	107	72%
Domicile	Bali	1	1%
	Bekasi	15	10%
	Bogor	40	27%
	Depok	22	15%
	Jakarta	41	28%
	Medan	1	1%
	Semarang	2	1%
	Surabaya	3	2%
	Tangerang	16	11%
	Yogyakarta	6	4%
	Batam	1	1%
Education	High School	36	24%
	Undergraduate / S1	108	73%
	Post – Graduate / S2	4	3%
Expenses	<Rp3.000.000	46	31%
	Rp3.000.000 - Rp 4.999.999	90	61%
	Rp5.000.000 - Rp 6.999.999	11	7%
	> Rp7.000.000	1	1%
Job	Private Employees	47	32%
	Students	37	25%
	Self employed	29	20%
	State Officer	33	22%
	Unemployed	2	1%
Conventional Bank Used	BCA	47	32%
	Bri	3	2%
	BNI	23	16%
	MANDIRI	30	20%
	CIMB	3	2%
	DANAMON	14	9%
	BTPN	3	2%
	PERMATA	1	1%
	Multiple Bank	24	16%
	Digital Bank Used	JENIUS	26
Brimo		3	2%
ALLO BANK		29	20%
BANK JAGO		20	14%
DIGIBANK		19	13%
BLU DIGITAL		13	9%
PERMATA ME		5	3%
DSAVE		2	1%
TMRW		6	4%
NEOBANK		2	1%
LINE BANK		4	3%
LIVIN MANDIRI		1	1%
Multiple Bank		18	12%
Use Of Conventional Bank	Savings	82	55%
	Income	66	45%

Table 2. Validity Test (SmartPLS 4.0, 2023)

	ATT	FR	INT	PEOU	PR	PU	SR
ATT1	0.863						
ATT2	0.731						
ATT4	0.852						
FR1		0.953					
FR1					0.840		
FR2					0.854		
FR2		0.955					
INT1			0.853				
INT2			0.777				
INT3			0.835				
INT4			0.787				
PEOU1				0.826			
PEOU2				0.754			
PEOU3				0.743			
PEOU4				0.837			
PEOU5				0.727			
PU1						0.785	
PU2						0.785	
PU3						0.781	
PU4						0.773	
PU5						0.818	
SR1					0.894		
SR1							0.902
SR2					0.906		
SR2							0.919
SR3					0.851		
SR3							0.893
SR4					0.880		
SR4							0.918

Table 3. Reliability Test (SmartPLS 4.0, 2023)

	Cronbach's alpha	Composite Reliability (Rho_c)
ATT	0.757	0.858
FR	0.901	0.953
INT	0.829	0.886
PEOU	0.837	0.885
PR	0.936	0.950
PU	0.848	0.892
SR	0.929	0.949

Table 4. Discriminant Validity: Fornell and Larcker criterion (SmartPLS 4.0, 2023)

	ATT	FR	INT	PEOU	PR	PU	SR
ATT	0.818						
FR	-0.266	0.954					
INT	0.688	-0.045	0.813				
PEOU	0.57	0.103	0.703	0.779			
PR	-0.298	0.888	-0.087	0.034	0.871		
PU	0.607	0.055	0.695	0.849	-0.002	0.789	
SR	-0.289	0.758	-0.101	-0.004	0.973	-0.031	0.908

Table 5. R-Square (SmartPLS 4.0, 2023)

	R-Square	R-Square adjusted
ATT	0.472	0.461
INT	0.473	0.470
PR	1.000	1.000
PU	0.721	0.719

Table 6. Hypothesis testing (SmartPLS 4.0, 2023)

	Original sample (O)	T-stats	P-value	Remark
PU -> ATT	0.406	3.024	0.003	H1: Accepted
PEOU -> ATT	0.236	1.750	0.080	H2: Rejected
PEOU -> PU	0.849	32.126	0.000	H3: Accepted
PR -> ATT	-0.305	4.870	0.000	H4: Accepted
ATT -> INT	0.688	17.586	0.000	H5: Accepted

Notes: PU = Perceived Usefulness; ATT = Attitude; PEOU = Perceived Ease Of Use; PR = Perceived Risk; INT = Intention.

Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

- Priti Siwa Linggam carried out the writing – original draft, reviewing and editing
- Ledis Julia was responsible for the statistics
- Rafiadri Hibatullah was responsible for the investigation and providing resources.
- Jerry S. Justianto was responsible for the conceptualization and supervising the research process

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