

AI; Digital Banking; TAM; Behavioral Intention; Actual Usage; Malaysia

FROM INNOVATION TO ADOPTION:  
EFFECTS OF LEVERAGING AI AND TAM TO  
ELEVATE SECURITY, TRUST, AND SERVICE  
QUALITY IN MALAYSIA'S DIGITAL BANKING

HO YONG YI

BACHELOR OF FINANCE (HONOURS)  
FINANCIAL TECHNOLOGY

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF ACCOUNTANCY AND MANAGEMENT  
DEPARTMENT OF FINANCE

DECEMBER 2025

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BY

HO YONG YI

A research project submitted in partial fulfilment of the  
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## DECLARATION

I hereby declare that:

- (1) This undergraduate research project is the end result of my own work and that due acknowledgement has been given in references to ALL sources of information be they printed, electronic, or personal.
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Name of Student:

Ho Yong Yi

Student ID:

2207082

Signature: \_\_\_\_\_



Date: 16.12.2025

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## DEDICATION

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#### LIST OF ABBREVIATIONS

AI	Artificial Intelligence
AU	Actual Usage

ATT	Attitude Toward Using
AVE	Average Variance Extracted
BI	Behavioural Intention
BNM	Bank Negara Malaysia
CR	Composite Reliability
CVPAT	Cross-Validated Predictive Ability Test
GLM	General Linear Model
HTMT	Heterotrait-Monotrait Ratio
MFA	Multi-Factor Authentication
ML	Machine Learning
NFI	Normed Fit Index
NLP	Natural Language Processing
PEOU	Perceived Ease of Use
PI	Personal Innovativeness
PLS-SEM	Partial Least Square Structural Equation Modelling
PS	Perceived Security
PT	Perceived Trust
PU	Perceived Usefulness
PLS-SEM	Partial Least Squares Structural Equation Modelling
R <sup>2</sup>	Coefficient of Determination
RMiT	Risk Management in Technology
RMSE	Root Mean Square Error
SRMR	Standardized Root Mean Square Residual

SQ	Service Quality
TAM	Technology Acceptance Model
TRA	Theory of Reasoned Action
VIF	Variance Inflation Factor

## PREFACE

By the requirement of Universiti Tunku Abdul Rahman (UTAR) to obtain the

AI; Digital Banking; TAM; Behavioral Intention; Actual Usage; Malaysia certificates for Bachelor of Finance (Financial Technology) with Honors, it is compulsory for every student to undertake the Final Year Project ‘UKFN3026 Research Project for Finance and Fintech.’ The ideas for this research study emerged from my strong interest in understanding the impact of AI in Malaysia’s digital banking sector. As environmental concerns continue to grow globally, the topic of AI-driven digital banking resonated with me as an essential area of exploration, particularly its role in shaping consumer experience. Many prior studies have examined the factors that can encourage consumers to adopt AI-driven digital banking. Therefore, the author was inspired to investigate the impact of AI-driven digital banking on security, trust, and service quality, aiming to contribute to promoting the widespread use of AI-driven digital banking.

## ABSTRACT

This research focuses on the factors that influence the use of AI-supported online

AI; Digital Banking; TAM; Behavioral Intention; Actual Usage; Malaysia

banking services in Malaysia, based on an extended Technology Acceptance Model (TAM). Four additional factors, which are Perceived Security (PS), Perceived Trust (PT), Service Quality (SQ), and Personal Innovativeness (PI), were considered. This study adopts the quantitative method, where the survey method was conducted online, involving 168 active users of Ryt Bank, and Partial Least Squares Structural Equation Modeling (PLS-SEM) was utilized for the analysis. The findings suggest that BI significantly influences AU, where the factors influencing BI are Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). In addition, the significant influences of SQ and PI are supported as having significant and positive contributions on both PU and PEOU. On the contrary, the relationships between PT and PU & PEOU are not significant, but the influence of PS on PU but not PEOU are supported. This study provides significant contributions and implications for digital banking licensees, where the focus on the functionality of the system, user-friendliness, and readiness for innovation are important aspects of enhancing the use of AI-supported banking services.

Keywords: Artificial intelligence (AI); Digital Banking; Technology Acceptance Model (TAM); Behavioral Intention; Actual Usage

## **CHAPTER 1: INTRODUCTION**

### **1.0 Introduction**

The first chapter introduces the foundation for the study. Subsequently, it introduces the problem statement, which identifies the challenges of the research that Malaysia currently faces. After that, the procedure identifies where the study belongs, specifically the gaps that it needs to fill, the research questions, the objectives, and the hypothesis. This kind of research highlights the significance of the study for the broader viewpoint. This chapter introduces the structure that the whole book needs to follow. Eventually, the conclusion summarizes the various significant points that the study identifies during the chapter.

### **1.1 Research Background**

#### **1.1.1 Malaysia's Banking Sector**

The financial system in Malaysia is a key factor that propels the sustainability and growth in the nation's economy, based on studies cited by Munusamy et al. (2010). As such, it functions as an important vehicle for the transfer of money that supports investments and the efficient distribution of financial resources for the various sectors of the economy (Gan & Yu, 2010). At present, the banking sector and operations of the economy of Malaysia are no longer traditional.

The 2009 Central Bank of Malaysia Act empowered the oversight and regulation of the financial system by the Bank Negara Malaysia (BNM), which mainly focuses on the objectives of ensuring financial and fiscal stability, prudent safeguarding, and the observance of international standards (Bank Negara Malaysia, n.d.-a). In the aftermath of the Global Financial Crisis of 2008, the improvement of regulations has enhanced the robustness and integrity of the industry, enhanced financial sufficiency, and reinforced the observance of sound and ethical business conduct

(Ang & McKibbin, 2007). These regulatory advancements, coupled with technological advancements, have contributed to the development of the industry, including the development of the fintech industry.

In recent years, the Malaysian banking sector has been characterized by strong capitalization, diversified services, and increasing adoption of digital technologies for improving financial inclusion (Laouamri & Chalour, 2025). With initiatives of the Financial Sector Blueprint 2022–2026, it practices economic transformation, household and business financial well-being, digitalization, sustainable finance, and Islamic finance leadership (Bank Negara Malaysia, 2022). In this way, these initiatives support foreseeable national expansion and competitiveness while bolstering the confidence of Malaysia's financial system.

### **1.1.2 Digital Banking**

The growth of digital banking observed in the case of Malaysia marks the shift that the world financial industry is undergoing as it keeps on evolving as a result of the growth and development of information and communication technologies, shifting preferences, and the efforts for financial inclusion. As stated by Teo (2025), the definition of the manner of distribution, which they refer to as 'digital banking,' focuses on the use of the internet and mobile communications, as well as 'ATMs and call centres,' without having the need to be there physically. This shift, instead, had been facilitated by the improvement of mobile communications, the growth of the internet, and the subsequent increasing need for continuous delivery of financial services.

BNM played an important role, especially in ensuring the creation of an attractive and favorable regulatory framework. In the Financial Sector Blueprint 2022-2026, the promotion of innovation, the use of various technologies, and inclusiveness were important factors that supported the sustainability of the financial system of Malaysia that promoted enhanced social resilience and mobility by the financial sector (Bank Negara Malaysia, 2022). The most significant milestone took place in

April 2022, when BNM granted the issuance of five new digital banking licenses for the collaboration of financial institutions and non-financial institutions (Saif et al., 2022). This marked the beginning of the entry of new, complete digital banks into the financial sector of Malaysia, which marked the beginning of an innovative and competitive period of operations. In the proposed Risk Management Technology (RMiT) for BNM, the operational framework was put forward, as it had the responsibility and the potential to ensure that banks are safe and reliable financial institutions for the people (Bank Negara Malaysia, n.d.-b).

Cybersecurity issues are now an important concern for Malaysia. As internet platforms are necessary for electronic banking, banks are also prone to various threats, such as phishing, vishing, identity theft, and malware (Cele & Kwenda, 2025). Cybercrimes have been on the increase during the past few years, and as such, people are worried about the emergent needs for security. To lessen these risks, institutions are implementing multi-factor authentication, fingerprinting, blockchain validation, and AI-driven fraud analysis tools (Waliullah et al., 2025). Likewise, BNM had detailed control provisions for the aspect of cyber-security in the RMiT framework (Bank Negara Malaysia, n.d.-b).

The state of the digital banking industry in Malaysia, as of now, is undergoing a phase of transition. This industry possesses an unquantifiable potential for revolutionizing the banking sector of the country by making it efficient, personalized, and inclusive, even though it exists in its nascent stage. In this regard, it would not only enhance productivity but would also aid the national aspiration for the development of the nation as strong, just, and innovative.

### **1.1.3 The Effect of AI in Current Banking Industry**

The financial industry in Malaysia has seen a substantial transformation due to the rapid progress of artificial intelligence (AI). AI is largely used by digital banks to optimize customer experience, efficiency, and competitive advantage. With the growing presence of digital banks and financial technology companies, the role of

AI is changing the face of banking and redefining the financial institution and customer relationship.

The capacity to customize monetary services constitutes one of the greatest significant uses of AI in Malaysia's digital banking industry. Data mining and machine learning (ML) platforms enable banks to meaningfully evaluate a vast amount of data regarding their customers to provide tailored services such as saving plans, investments, and loans based on customers' individual risk tolerance and investment habits (Ashrafuzzaman et al., 2025). Moreover, tailored financial products improve customers' satisfaction and loyalty, which serves as a distinguishing factor between digital banks and conventional banks (Arora et al., 2023).

AI has also made a tremendous impact on cybersecurity and fraud control. The increasing trend of digital banking has naturally led to increased risks and vulnerabilities to cyberattacks. Therefore, AI technology and tools like Natural Language Processing (NLP) and Machine Learning (ML) have helped to enhance the privacy framework and boost the accuracy of fraud detection and control (Nurliza & Lee, 2025). In this case, AI is capable of quickly identifying potentially fraudulent activities, thereby increasing the efficiency of cybersecurity systems to secure Malaysia's digital financial system. This is a consideration that is essential due to the increasing number of reported cybercrimes.

BNM is tasked with governing the role of AI within the digitization of banking. In efforts to avoid the adoption and utilization of technology systems that undermine consumer rights and integrity and to further financial inclusion, BNM promotes innovative systems, legal utilization of AI, and confidentiality of data within Digitalization in Financial Services: Artificial Intelligence in the Malaysian Financial Sector (Bank Negara Malaysia, 2025). To effectively walk the line between advancement and governance, authorized digital banks are supposed to ensure legal compliance regarding the utilization of AI technology.

In conclusion, AI has proven to have a tremendous impact on Malaysian digital banking, ranging from promoting financial inclusion to intensifying efforts to

secure financial systems, efficiency, and customization. AI is predicted to take on an increased role as more digital banks emerge. AI can place Malaysia at the fore of digital finance if it is applied wisely and up to the optimal standards.

#### **1.1.4 Technology Acceptance Model**

In several academic research studies, the Technology Acceptance Model (TAM) is a conceptual framework employed for assessing consumers' propensity to adopt innovative technology (Davis, 1987). According to TAM, people's willingness to embrace emerging innovations is largely influenced by perceived usefulness (PU) and perceived ease of use (PEOU), particularly when it comes to actual usage (AU) (Wijayanti et al., 2024). In theory, the results of this investigation should aid Malaysia's finance industry in comprehending the behavioral intention (BI) of its clients and contribute to the creation of more efficient methods for providing financial services via internet-based channels (Alnemer, 2022). In order to provide deeper conceptual and academic understandings, this study seeks to clarify several variables associated with the AU of digital banking in Malaysia.

### **1.2 Problem Statement / Motivation of the Study**

Even though Malaysia's banking business is increasingly changing to internet-based, a substantial segment of the public continues to suffer economically. As stated by Low (2024), studies showed that 41% of adults are financially disadvantaged and 14% of individuals are without a bank account. More than 12 million Malaysians can take advantage of services that are provided by digital financial institutions that they can utilize via mobile applications or e-wallets instead of requiring them to create a bank account at a conventional bank. But the mere fact that digital banking is available does not guarantee that it can be widely utilized or accepted.

However, acceptance is still hampered by several obstacles, including low levels of digital comprehension, mistrust of AI, and worries about privacy and security. The

absence of human assistance, trouble making a transaction, an inadequate internet connection that affects how well digital banking services operate, and a limit on the variety of options accessible (Gargouri, 2023). It has been questioned whether Malaysian customers will fully adopt AI-powered banking platforms, and it's probable they might choose traditional banks over those that operate online.

Malaysia's online banking sector is growing quickly, partly due to the integration of AI, which provides improved customer experience, security, and efficiency (Rahman et al., 2023). Even while AI-powered digital banks like Ryt Bank have brought cutting-edge financial services to the market, their PU, which determines how users interact with these products, seems to serve as a key determinant of client interest along with stability. However, little has been discovered about how Malaysian customers perceive online banking driven by AI, along with how well it truly fulfills their needs.

Furthermore, cyberthreats, which have developed rapidly globally, include any malevolent activity that wants to enter a digital banking account despite the owner's consent (Sekhar & Kumar, 2023). Although AI is being utilized for identifying fraud, more research is necessary to determine whether it can effectively lower cybercrime in online transactions. From the perspective of cybercriminals, they have additionally equipped AI technology with advanced instruments and techniques to continue illegal activities, including the creation of malicious messages, social networking frauds utilizing AI-generated information, and voice-based phishing attempts that use AI-generated voice clones. These acts occur online and expose consumers to hazards like identity theft, money losses, and privacy threats (Leong et al., 2024). In Malaysia, digital banks have utilized AI for fraud detection; however, further empirical evidence is still needed to determine its concrete effect on lowering cybercrime and safeguarding customer confidentiality.

Furthermore, the introduction of Malaysia's sole AI-driven digital bank, Ryt Bank, raises questions due to its distinct offering in comparison to other online banks, including Boost Bank, GX Bank, and AEON Bank (Abdullah, 2025). Despite Ryt Bank's adoption of AI-driven individualization, fraud monitoring, and multilingual capabilities, it is unclear whether these innovations set it apart from other banks.

Therefore, by enhancing the PU and PEOU in Malaysia, this research project aims to close the knowledge deficit regarding how integrating AI can benefit digital banks. It seeks to assess how well AI-driven digital banking improves BI and AU, as well as whether these improvements provide them with an advantage over traditional financial institutions and the ways it can impact the future growth of online financial services.

### **1.3 Research Questions**

To give straightforward direction, several study questions were developed:

1. Is there a connection among external variables (perceived security, perceived trust, service quality, and personal innovativeness) and perceived usefulness (PU)?
2. Is there a connection between external variables and perceived ease of use (PEOU)?
3. Is there a connection between PU and behavioral intention (BI)?
4. Is there a connection between PEOU and BI?
5. Is there a connection between BI and actual usage (AU)?

### **1.4 Research Objectives**

For answering my research inquiries, the following research objectives have been established:

1. To investigate the connection between the external variables (perceived security, perceived trust, service quality, and personal innovativeness) and PU.
2. To examine how external variables and PEOU relate.
3. To investigate the connection between PU and BI.
4. For exploring the connection between PEOU and BI.
5. For studying the connection between BI and actual usage (AU).

## 1.5 Hypotheses of the Study

*H<sub>1</sub>*: BI has a significant effect on AU of digital banking.

*H<sub>2</sub>*: PU has a significant effect on BI towards the adoption of digital banking.

*H<sub>3</sub>*: PEOU has a significant effect on BI towards the adoption of digital banking.

*H<sub>4a</sub>*: PS has a significant effect on PU of AI-driven digital banking.

*H<sub>4b</sub>*: PS has a significant effect on PEOU of AI-driven digital banking.

*H<sub>5a</sub>*: PT has a significant effect on PU of AI-driven digital banking.

*H<sub>5b</sub>*: PT has a significant effect on PEOU of AI-driven digital banking.

*H<sub>6a</sub>*: SQ has a significant effect on PU of AI-driven digital banking.

*H<sub>6b</sub>*: SQ has a significant effect on PEOU of AI-driven digital banking.

*H<sub>7a</sub>*: PI has a significant effect on PU of AI-driven digital banking.

*H<sub>7b</sub>*: PI has a significant effect on PEOU of AI-driven digital banking.

## 1.6 Significance of Study

This research has better implications for both theoretical development and application. Malaysia continues to strive for the development of a more efficient banking system. From the point of view of theory, the planned study adds to the expanding corpus of information regarding the application of AI in emerging nations' financial sectors. The entire impact of the deployment of AI in Malaysia's digital financial sector remains unknown, despite the study looking at the entire nation's acceptance of internet finance and its consequences on the banking sector in broad. Theoretical advancements have not yet taken into consideration the full range of usages of AI in the banking sector.

Furthermore, the study improves our comprehension of user behavior within the framework of AI-enabled platforms, specifically Ryt Bank, in their abilities in relation to the fulfilment of promises in the realms of anti-fraud measures, multilingual services, and personalization. There also lies the groundwork for the upcoming research endeavors centered on the efficiency gains for the underbanked community.

For the digital banks of Malaysia, as well as policymakers in the country, the results of the research have clear applications. They contribute to our understanding of consumer concerns, which could impede the use of digital financial services. They also enable the assessment of the efficiency of the adoption of artificial intelligence in combating fraudulent practices and increasing customer trust.

Moreover, the findings may also aid in the development of more secure digital banking legislation by BNM to benefit the underbanked or unbanked populations. Indeed, the challenges of deploying efficient AI in digital financial institutions have critical implications in the real world since traditional banks have left more than 12 million citizens of Malaysia unserved.

The aim of the research is to assist AI-driven digital banks in their long-term strategy in Malaysia's financial ecosystem and to highlight the competitive edge they may hold over traditional banks in the coming years.

## **1.7 Outline of the Study**

A summary of the study's introduction, the rationale, and the problem thesis supporting the choice for the study issue is given in the preliminary section. In addition, the importance, issues, hypotheses, and goals of study are determined.

In chapter two, the previous research on dependent variables, which are BI and AU, independent variables, which are PU and PEOU; and external variables, which are PS, PT, SQ, and PI, is summarized. This comprises theoretical and conceptual frameworks applied in this research. Finally, the hypothesis development has been established.

The study method is covered in the third section. The study's design, size of sample determination, recruitment strategy, and analysis tools are all covered in this section. The methods for handling and analyzing data have also been described.

Chapter 4 presents the study's outcomes. A skillful presentation of the results is necessary to meet the study's objectives. This chapter highlights the descriptive analysis, measurement model assessment, and structural model assessment.

The study's findings are thoroughly examined and summarized in the final section. Finally, recommendations for putting the findings into practice are given to the appropriate organizations. Additionally, the constraints of the study are discussed, and recommendations are made to get around them.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.0 Introduction**

The structure of this chapter is as outlined below: The initial section looked over the existing research regarding the dependent, independent, and external variables employed throughout the investigation; the second and third parts clarified its theoretical and conceptual frameworks, respectively; and the final part discussed the formation of the hypotheses being investigated.

### **2.1 Literature Review**

This section discusses previous studies on BI and AU components in connection to the usage of digital financial services. Both PU and PEOU are independent variables that are being explored. In addition, external variables such as PS, PT, SQ, and PI have been analyzed. These variables are discussed and explained in relation to the influences of dependent variables on AI-driven digital banking.

#### **2.1.1 Actual Usage**

A crucial idea in comprehending how technology is accepted, actual usage (AU) is frequently used interchangeably with acceptability in the TAM (Davis, 1987; Venkatesh & Davis, 2000). "Actual usage" in the present research refers to how many behaviors a user engages in with the technology of enchantment. (Hassler et al., 2021).

In digital banking, BI toward mobile or AI-driven services strongly influences their AU. Luarn & Lin (2005) showed that BI significantly predicts adoption, which accelerated the shift to digital and AI-based banking solutions. Favorable attitudes,

shaped by users' beliefs and perceptions of benefits, also play an important role.

In sum, AU in AI-driven digital banking reflects the behavioral realization of both intention and attitude. The rapid digital transformation of recent years has made it easier to observe the way consumers' thoughts and opinions transform into actual adoption behaviors, as demonstrated by traditional approaches such as TAM.

### **2.1.2 Behavioral Intention**

Behavioral intention (BI) was considered the central antecedent to determine one's intentions of accepting a new behavior in the scenario of utilizing the services of AI in banks (Papathomas et al., 2025; Uzir et al., 2023). The TAM developed by Venkatesh & Davis (2000) illustrated how BI was determined by the factors of perceiving the usage to be useful (PU) and perceiving the usage to be of ease (PEOU); both factors determine the BI, followed by the prediction of actual usage (AU).

In order to impact both BI and the uptake of mobile banking offerings, later research expanded the TAM by adding contextual elements such as the innovative traits of flexibility, difficulties, integration, competitive advantage and threat through the investigation's approach (Alalwan et al., 2016). Additionally, research by Venkatesh et al. (2003) confirmed that BI is a key indicator of AU in technologically savvy contexts. This provides support for the fact that comprehension of BI serves as the cornerstone of predicting and guiding customer adoption behaviors, particularly in Malaysian digital banking.

Despite these observations, research on BI and adoption of digital banking via AI is quite limited. Although TAM and various other models offer a robust basis to examine BI in digital financial settings, the inclusion of constituents unique to AI needs more study. Understanding how BI affects the AU's willingness to embrace AI-based financial services is essential given the significance of AI in the financial sector.

### **2.1.3 Perceived Usefulness**

According to the TAM, one of the major elements influencing technological acceptance is perceived usefulness (PU) (Davis, 1987). Venkatesh & Davis (2000) define PU as the extent to which consumers believe utilizing something would increase its efficacy and productivity. In the framework of internet financial institutions, such technology makes it possible to have faith in the service's capacity to enhance operation facilities and handle financial affairs (Alnemer, 2022; Tahar et al., 2020).

In the scenario of digital banking mediated by AI technology, a significant role was assumed by the PU. Highly advanced functionalities of the type of chatbots, financial counselling services customized to each individual's requirements, and anti-fraud services benefit the clients in a tangible manner by providing maximum efficiency of time utilization, reducing errors to a minimum, and providing personalized services. With the clients aware of the benefits derived from the services, the intention to utilize the services significantly gets strengthened (Sakdiah et al., 2025; Yeo et al., 2025). Hence, the principal factor for motivation in the adoption of intentions related to the utilization of financial services by the clients of the AI platforms gets consolidated in the form of the PU.

### **2.1.4 Perceived Ease of Use**

Utilization of technology has historically been linked to perceived ease of use (PEOU). According to a definition by Davis (1987), "Perceived Ease of Use can be viewed as the degree to which a person thinks he or she should be able to use a particular system without effort." A system that operates in a more effortless manner can promote adoption of the system for continuous usage (Tahar et al., 2020). The level of customer satisfaction might be significantly increased if they think banking technology features are easy to use and don't need more work (Sakdiah et al., 2025). Previous research has also demonstrated that the uptake of fintech services was impacted by the elimination of having to spend time in lengthy

queues as the fresh offerings grew more effective (Ly & Ly, 2022).

In conclusion, the PEOU construct has a significant impact on users' willingness to embrace AI-powered digital banking offerings. Ensuring the ease of use of the digital interface helps the financial institutions in the given context to boost the adoption rates of the services on offer. An improved adoption level also helps in the development of positive perceptions about the services amongst the users.

### **2.1.5 Perceived Security**

Perceived Security (PS) is one of the vital bases of the TAM when considering tech-based banking services. This concept measures how much people think their protected financial and personal data is shielded from abuse or illegal access (Arpaci et al., 2015; Nisa & Solekah, 2022). Investigative studies in the earlier realms of digital banking identified the factor of security to be one of the pivotal points in influencing adoption, and there was apprehension about the safety of online payments (Flavián & Guinalú, 2006; Zhang, 2024). Recent studies validate the significant influence of PS on BI for the adoption of digital payments in terms of a positive relationship between PS and AU (Irawan & Affan, 2020; Permatasari & Kartawinata, 2021; Siagian et al., 2022).

In the setting of AI-enabled digital banking, trust in PS becomes even more crucial. This is because the applications developed using AI involve a massive amount of processing of information. Consumers are reluctant to take advantage of the functionality made possible by the program because they are unsure concerning the security of their private information.

### **2.1.6 Perceived Trust**

Perceived trust (PT) is the foundational element of the adoption of technology, especially where uncertainty and risk are integral to the environment. It is usually operationalized as the user's beliefs regarding the integrity and reliability of a system (Gefen, 2000; Payne et al., 2018). PT limits perceived risk and provides confidence in the financial system, making it a necessary component of customer retention (Fragata & Moustakas, 2013; K. B. Lim et al., 2025). For younger generations, particularly Generation Z, belief in banking with the application of AI is associated with reliability and efficacy perceptions by them (Hameed & Nigam, 2023).

In digital banking, PT encompasses security, privacy, and reliability beliefs (Ly & Ly, 2022; Sakdiah et al., 2025). PT blends rational belief with positive affect-based attitudes formed by favorable experiences that directly impact BI. Due to the nature of the complexity and lack of transparency of the AI systems, the role of trust increases further since the customers expect the banks to provide transparency, fair treatment, and safety. PT therefore serves as one of the primary acceptance and long-term usage drivers of AI-based digital banking.

### **2.1.7 Service Quality**

Client views and acceptance of digital financial services were determined by service quality (SQ). SQ is a type of mindset that arises with comparing expectations with genuine results; it is linked to yet unlike satisfactions (Polyakova & Mirza, 2015). Empirical work has similarly indicated that SQ is central in digital banking contexts. SQ relies on banks, Internet service providers, and browser interfaces (Baabdullah et al., 2019). Studies conducted in New Zealand additionally demonstrate that SQ affects consumers' propensity to use mobile banking in any societal setting (Rod et al., 2009). These findings confirm the necessity of making investments in superior system features in order to provide a competitive edge in the area of customer satisfaction.

Within the scenario of AI-enabled digital banking services, SQ assumes new meaning. The use of AI in the financial sector gives conventional SQ elements additional significance. Responsiveness refers to the efficiency of chatbots in problem-solving tasks enabled by AI. Assurance refers to the dependability of the algorithm adopted in the context of AI. Empathy refers to the level of personalization performed by the application of AI. SQ becomes not only an operational factor in the industry but also a critical competency.

### **2.1.8 Personal Innovativeness**

The acceptance of technology is largely influenced by personal innovativeness (PI), which is described as openness to experiment with cutting-edge technologies (Argawal & Prasad, 1998). Greater PI is more inclined to embrace new IT solutions, according to studies of Yang et al. (2012).

Empirical studies consistently confirm this link across fintech contexts. Innovations were found to have a positive impact on BI deployment in Malaysia (Chong et al., 2019), Indonesia (Wirani et al., 2022), Vietnam (Nathan et al., 2022), and mobile banking in Poland (Solarz & Adamek, 2022). In the era of AI-driven digital banking, this factor is especially relevant. Generation Z, known for high digital engagement, shows a strong tendency to embrace innovation (Dao & Anh, 2024). Client satisfaction with BI and the embrace of AI-driven digital banking are consequently significantly influenced by PI.

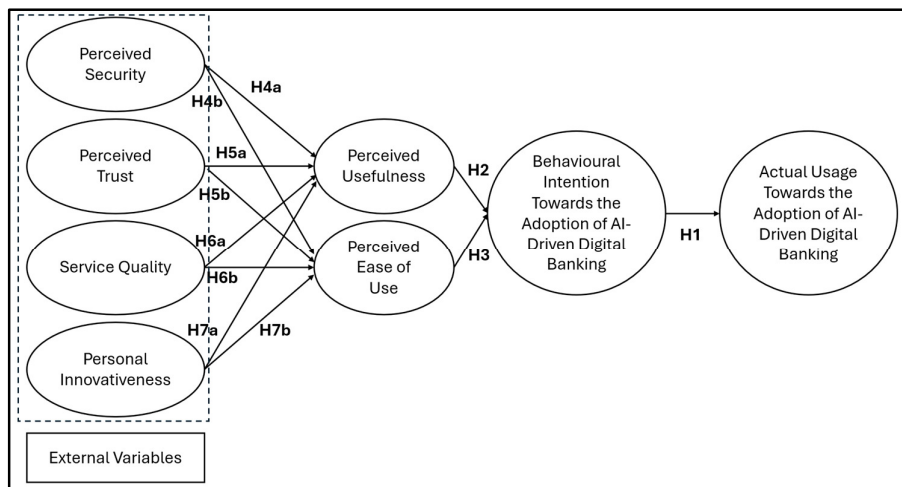
## **2.2 Theoretical Frameworks and Models**

The Technology Acceptance Model (TAM) is mentioned in previous studies to clarify the relationship of BI and AU towards the adoption of new technology with its independent variables, which are PU and PEOU, as well as its external variables. The TAM is founded on ideas taken from Davis (1987) that outline ways to gauge attitude that are significant to behavior, differentiate between beliefs and attitudes,

and outline why these relate to external factors, including the goal characteristics of a state of mind. But the TAM concept established three crucial variables for the overall deployment and customer acceptance for every new technology, including PU, PEOU, and attitude to use (ATT). Davis (1987) suggested in his study that the key factor in assessing the AU is user attitude. He clarified that user attitude is significantly impacted by PU and PEOU.

## 2.3 Conceptual Framework

Figure 2.1: Conceptual Framework



Source: Developed from this study

The conceptual framework shown above was produced by putting the theoretical concepts discussed in the prior section into practice. This approach, which is shown in Figure 2.2, analyzes the BI and AU in relation to Malaysia's deployment of AI-driven digital banking. PU and PEOU are the two independent variables that are part of this structure. In addition, there are four external variables that are involved in this conceptual framework, which are PS, PT, SQ, and PI. According to earlier research, BI and AU's embrace of AI-driven digital banking in Malaysia has been significantly influenced by both factors as well as four external variables. Therefore, the accuracy of the research has been evaluated using this conceptual structure. In the next section, hypotheses have been established.

## **2.4 Hypotheses Development**

### **2.4.1 Behavioral Intention Towards Actual Usage to Adopt AI-Driven Digital Banking**

The connection between BI and AU is frequently studied in different sectors. Financial institutions have investigated goals about efficiency and technological usability through this partnership. The claim that thoughts are the true indicators of an individual's AU is the foundation for the implementation of BI to estimate AU. Most studies examined have a significant impact on BI towards AU (Gu et al., 2009; Raman et al., 2022; Tarhini et al., 2013). But according to Tao (2009), BI has no bearing on AU. Given these contradictory findings, additional investigation is required, particularly considering the growing acceptance of online banking services. Thus, the subsequent concept is proposed:

$H_1$ : AU's adoption of AI-driven digital banking is significantly impacted by BI.

### **2.4.2 Perceived Usefulness Towards Behavioral Intention to Adopt AI-Driven Digital Banking**

The extent to which an individual thinks that utilizing certain tools could increase their output in the workplace is known as perceived usefulness (Davis, 1987). Studies conducted by Agarwal & Karahanna (2000), along with Venkatesh & Davis (2000), indicate that both PEOU and PU had an influence on BI. The purpose of the research is to ascertain whether PU influences BI's adoption of AI-driven digital banking. Previous studies apart from Malaysia have shown that PU represents one of the key factors that significantly influence the desire to utilize digital banking services (Alalwan et al., 2016; Avornyo et al., 2019; Kazi & Mannan, 2013; Koenig-Lewis et al., 2010). Consequently, the hypothesis is put out considering this understanding:

$H_2$ : PU has a significant effect on BI by adopting AI-driven digital banking.

### **2.4.3 Perceived Ease of Use Towards Behavioral Intention to Adopt AI-Driven Digital Banking**

TAM acknowledges that PEOU and PU have an impact on opinions regarding the use of advances in technology (Davis, 1987; Venkatesh & Davis, 2000). PEOU plays a crucial role when assessing BI because digital banking necessitates certain degrees of expertise. Consumers are more inclined to employ mobile banking offerings even though internet banking platforms are straightforward to use, offer distinctive characteristics, and remain quick to access. This demonstrates that PEOU is crucial in inspiring BI. BI in the framework of digital banking is significantly impacted by PEOU, according to an enormous amount of research (Alalwan et al., 2016; Chinnasamy et al., 2024; Gu et al., 2009; Luarn & Lin, 2005). Hence, the related hypothesis is established considering this comprehension:

*H<sub>3</sub>*: PEOU has a significant effect on BI of adopting AI-driven digital banking.

### **2.4.4 Perceived Security**

PS is the signal that symbolizes the condition of the infrastructure and characteristics that are secure or shielded from danger (Lai, 2016). The purpose of the investigation is to ascertain whether the PS affects the PU and PEOU of digital banking powered by AI. According to earlier research, PU significantly affects both PU and PEOU (Alka'awneh et al., 2025; Basak et al., 2016; Lai, 2016, 2017). These results highlight the significance of taking contextual elements into account when analyzing the connection between PS and the widespread adoption of AI-driven digital banking. These hypotheses are put out considering this understanding:

*H<sub>4a</sub>*: PS has a significant effect on PU of AI-driven digital banking.

*H<sub>4b</sub>*: PS has a significant effect on PEOU of AI-driven digital banking.

### **2.4.5 Perceived Trust**

PT is the trust that arises when one party, based on their own experiences and observations, considers the other party to be reliable and worthy of trust (Kou & Sun, 2024). According to Fratama et al. (2023), trust is the most important or key thing in doing business online because it can reduce the sense of risk felt by buyers and buyer uncertainty. In this study, trust plays a crucial role in PU, especially in relation to electronic transactions, as it gives buyers confidence in knowing they will receive the anticipated advantages from merchants. Furthermore, trust is known to have a positive impact on PU since it makes customers trustworthy when they use mobile internet, guaranteeing that they get the significance they believe via their conversations and offerings to safeguard their confidentiality and information (Alalwan et al., 2018; Gefen et al., 2003). PT significantly affects PU and PEOU in several ways, particularly in the environment of e-commerce, according to earlier research. (Pavlou, 2003; Zhang, 2024). These findings thus demonstrate the importance of PT in examining the relationship with PU and PEOU in the framework of AI-driven digital banking. These hypotheses are put out considering this understanding:

$H_{5a}$ : PT has a significant effect on PU of AI-driven digital banking.

$H_{5b}$ : PT has a significant effect on PEOU of AI-driven digital banking.

### **2.4.6 Service Quality**

According to Parasuraman et al. (1988), SQ is the discrepancy between client expectations and comprehension of products or offerings and their thoughts afterwards about their application. This research aims to study whether SQ is influencing PU and PEOU towards AI-driven digital banking adoption. SQ is essential in increasing usage and indicates the importance of SQ to describe the impact of the online financial industry (Baabdullah et al., 2019). According to earlier research, SQ significantly affects PU and PEOU when it involves FinTech payment systems and mobile applications for reservations (Alnawafleh et al., 2023; Sharma et al., 2024). These results may also suggest a connection between SQ along

with PEOU and PU. The related hypotheses are established considering this comprehension:

$H_{6a}$ : SQ has a significant effect on PU of AI-driven digital banking.

$H_{6b}$ : SQ has a significant effect on PEOU of AI-driven digital banking.

### **2.4.7 Personal Innovativeness**

PI is a unique characteristic given to an individual that influences actions demonstrated by the application of technological innovations. (Solarz & Adamek, 2023). This research investigates whether both the PU and PEOU's embrace of AI-powered digital banking is influenced by individuals with innovative skills. PI entails being willing to get started with AI-driven digital banking, experiment with new technologies, and upgrade to the newest technology. Previous research has shown that PI and PEOU with PU are significantly correlated (Amoroso & Lim, 2015; Fagan et al., 2012). However, Lu (2014) discovered that PI only significantly affects PEOU. According to these results, the effect of personal innovativeness can change depending on certain economic or situational factors, suggesting that PI's influence on AI-driven digital adoption is situation sensitive. These findings demonstrate how important it is to consider contextual elements when examining the connection between PI and the uptake of digital banking powered by AI. The following theories are put forth in light of this comprehension:

$H_{7a}$ : PI has a significant effect on PU of AI-driven digital banking.

$H_{7b}$ : PI has a significant effect on PEOU of AI-driven digital banking.

## **2.5 Conclusion**

The current section of the research paper has addressed the literature evaluation on independent, dependent, and external factors. Furthermore, this chapter has also examined the theoretical and conceptual frameworks. Finally, a research hypothesis has been formulated using the external variables of PS, PT, SQ, and PI with all independent variables and all dependent variables.

## **CHAPTER 3: METHODOLOGY**

### **3.0 Introduction**

A variety of data collection and analysis methods have been covered in this section. It emphasizes various methods for gathering and analyzing information. The study's structure, information-gathering techniques, selection plan, instruments for analysis, structure examination, handling of information, and outcome analysis are also described.

### **3.1 Research Design**

#### **3.1.1 Quantitative Research**

To find trends and create connections, quantitative research uses numerical data gathered from surveys and analysis (Sukamolson, 2007). In quantitative data analysis, numerical data is processed and interpreted using statistical techniques (Kotronoulas et al., 2023). Surveys have been distributed to college students as part of this study's quantitative research methodology.

#### **3.1.2 Descriptive Research**

According to Marshall & Jonker (2010), descriptive analysis explains the characteristics of a set of findings. It includes gathering details that reflect events, then arranging, calculating, displaying, and summarizing them. Standard statistical evaluation is made possible by the survey forms used in this research to collect results in statistical form, which allows for the interpretation of data on characteristics of Malaysian AI-driven digital banking users.

## **3.2 Data Collection Methods**

Data collection is the process of gathering relevant details to solve the specified study topic and forecast. The potential results of the investigation can be determined by the correctness of the data gathering. This study collects primary data in order to gather information and identify resources.

### **3.2.1 Primary Data**

Ajayi (2023) describes primary data as details that investigators have obtained through interactions with participants, groups, or the environment of the study. A few methods for gathering data include surveys, observations, and interviews. This study employs the survey approach since it is more effective than other methods in terms of both time and effort. Participants receive surveys designed to collect the information required for this study. Several questions about bank clients' intentions to employ AI-driven digital banking have been included in the surveys.

## **3.3 Sampling Design**

After the research design and information collection methods are developed, a sample design has been developed for extrapolating results. The subsequent sections provide justification for the study's target population, sampling frame, location, components, methodology, and sample size.

### **3.3.1 Target Population**

Targeted populations are subsets of a larger population that are defined by preset standards consistent with the study's objectives (Willie, 2024). To evaluate the pertinent data, investigators must ensure that those who responded are members of

the intended group. Examining the variables that affect Malaysians' BI and AU of AI-driven digital banking is the purpose of this study. Therefore, Malaysian citizens who utilize AI-driven digital banking are the study's target demographic. By reaching out to this demographic, we can learn about their opinions on Malaysian AI-powered digital banking. To understand further concerning customers' BI and AU, it covers their awareness, understanding, and demand for AI-driven digital banking.

### **3.3.2 Sampling Frame and Sampling Location**

In probabilistic sampling, the sampling context is essential because a random selection among the group of interest will not solve the investigation's issue if it is not made correctly (Acharya et al., 2013). However, there is no sample frame that is used because this study uses methods of non-probability sampling. Malaysia was chosen as the sampling location, as the target demographic is Malaysians who utilize AI-driven digital banking.

### **3.3.3 Sampling Elements**

Any single occurrence or part of a target population constitutes an element. In research, specific components of a population have been selected for analysis using a sampling approach. Convenience sampling was employed in the research to pick Malaysian citizens who employ AI-powered digital banking as targeted participants or sample components.

### **3.3.4 Sampling Technique**

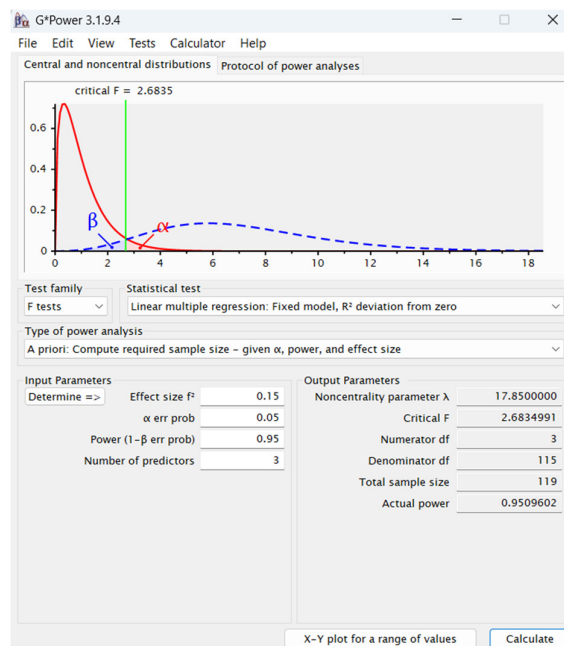
Non-probability sampling has been used in this study because it is difficult to capture the entire population and fails to assure all individuals have a comparable likelihood of getting chosen, even though the questionnaires are intended for

Malaysians from a range of socioeconomic backgrounds. A convenient sampling method has been utilized in this study to choose those who participated. This is because it allows us to efficiently gather large volumes of data (Acharya et al., 2013). Furthermore, one of the best methods for collecting samples for experimentation is convenient sampling.

### 3.3.5 Sampling Size

The number of complete answers required for an inquiry is indicated by the sample size. Research results are more accurate when the sample size is determined correctly (Andrade, 2020). For this study using G\*Power, at least 146 samples are required according to an effect size of 0.15, as well as a power level of 0.95, as shown in Figure 3.1. The link between external variables, independent variables, and dependent variables is ascertained using the F-tests, "Linear multiple regression: fixed model,  $R^2$  deviation from zero." Three independent variables, including the set of external variables that are directly associated with two dependent variables and match the three predictors, are included in the study.

Figure 3.1: Calculation of Sampling Size



Source: Developed for research by G\*Power

## 3.4 Research Instrument

### 3.4.1 Questionnaire

Since it is feasible to obtain comprehensive data from many people, questionnaires are employed to gather information from survey responders. Questions can yield both quantitative and qualitative responses and may be either of the open-ended or closed-ended types. Data and information on a preferred population in a study are normally collected using questionnaires.

The survey questionnaire of the study has four sections. Section A contains demographics, Section B contains questions that refer to independent variables, Section C contains questions that refer to dependent variables, and Section D contains external variables (PS, PT, SQ, and PI). The study assesses views using a five-point Likert scale, which has been scientifically validated (Joshi et al., 2015).

## 3.5 Constructs Measurement

### 3.5.1 Origin of Construct

Table 3.1: Origin of Construct

<b>Construct</b>	<b>Sources</b>
Behavioral Intention	Venkatesh & Davis (2000)
Actual Usage	Venkatesh & Davis (2000)
Perceived Usefulness	Davis (1987)
Perceived Ease of Use	Davis (1987)
Perceived Security	Flavián & Guinalú (2006)
Perceived Trust	Gefen (2000)
Service Quality	Parasuraman et al. (1988)
Personal Innovativeness	Argawal & Prasad (1998)

Source: Davis (1987); Argawal & Prasad (1998); Parasuraman et al. (1988); Gefen (2000); (Venkatesh & Davis, 2000); Flavián & Guinalú (2006)

### **3.5.2 Scale of Measurement**

There are recognitions and descriptions of the initial sources and operational descriptions of the concepts used in surveys or interviews to gauge proposed connections. It clarifies the usage of nominal, ordinal, and interval scales in the survey's construction along with the Likert scale procedures.

A score framework, which is a common polling instrument, establishes how much participants are in agreement or disagreement with ideas, which makes it easy to assess while contrasting results. The survey is divided into the following four parts: Six questions in the first section of the survey use both nominal and ordinal scales to gather demographic information. Using a 5-point Likert scale, Sections B through D evaluate the BI and AU to adopt AI, as well as PEOU and PU, with the PS, PT, SQ, and PI. From 1 (strongly disagree) to 5 (strongly agree), the scale rates the answers.

## **3.6 Data Processing**

This section covers the preliminary process before data analysis, including the data editing and data coding.

### **3.6.1 Data Editing**

Data editing includes adding, removing outliers, altering numbers, and selecting alternative measures using validation tests (Leahey, 2008). Specific modifications are made at phases of gathering and analyzing information, despite the kind of data being processed. Thus, surveys are highlighted in the explanation of data editing.

### **3.6.2 Data Coding**

By giving data meaningful tags, data coding is a qualitative data technique that helps researchers connect relevant information across the dataset (Elliott, 2018). For instance, questionnaire opinions were categorized using a Likert scale that went from "1=Strongly Disagree" to "5=Strongly Agree" for dependent, independent, and external variables. The gender codes were "1=female" and "2=male."

## **3.7 Data Analysis**

By condensing and turning pertinent raw data into statistics, data analysis helps evaluate data consistency. First, descriptive analysis has been tested by using SPSS. In addition, Partial Least Squares Structural Equation Modelling (PLS-SEM), bootstrapping, and PLSpredict with SmartPLS are used in this study to evaluate the association between dependent variables, independent variables, and external variables. This study investigates AI-driven digital banking in Malaysia by extending the TAM with several external variables, including PS, PT, SQ, and PI. Tests for measurement model assessment, structural model assessment, and descriptive analysis are included in this section.

### **3.7.1 Descriptive Analysis**

The demographic information of the respondents, such as gender, age, profession, degree of study, monthly income, and their utilization of digital banking apps, can be described using descriptive data. A table summarizing the responses shows the number and proportion of respondents. The descriptive data came from Google Forms, and the analysis would be done in Microsoft Excel.

### 3.7.2 Measurement Model Assessment

#### 3.7.2.1. Reliability Test

The reliability test measures how consistently and repeatedly test outcomes are obtained (Menon et al., 2025). Reliability measures in research studies ensure that the instrument of measurement generates stable and reliable outcomes under identical situations and hence lowers measurement mistakes. For testing internal reliability, outer loading is to be used. Communality, or how well an indicator can be explained by intrinsic variables in a framework, is represented by the square root of the usual outer loading (Dzin & Lay, 2021). Every indicator's outer loading ought to be greater than the 0.7 threshold that is required, as stated by Hair et al. (2014). A key component of reliability is internal coherence, which is defined as a feature of a complex measurement and describes the degree of relationships between components throughout the range (Fong et al., 2010).

Internal consistency is often assessed using statistical measures such as Cronbach's alpha and Composite Reliability (CR). Cronbach's alpha accuracy is estimated using the average correlation divided by the average total variance, whereas CR, which is frequently employed in PLS-SEM, rates the variable according to each of the loadings of the construct indicators (Hair et al., 2019; Menon et al., 2025). As Table 3.2 shows, a higher Cronbach's alpha score, typically over 0.7, is acceptable and indicates that the factors are consistently evaluating the same object (Zahreen et al., 2018). Similarly, reliability is ascertainable if the CR can meet the suggested value of 0.7 (Mohamad et al., 2021).

Table 3.2: Range of reliability and its coefficient of Cronbach's alpha

No	Coefficient of Cronbach's alpha	Reliability Level
1	More than 0.90	Excellent
2	0.80-0.89	Good
3	0.70-0.79	Acceptable
4	0.6-0.69	Questionable
5	0.5-0.59	Poor
6	Less than 0.50	Unacceptable

Source: Zahreen et al. (2018)

### **3.7.2.2. Convergent Validity**

The degree to which two distinct metrics identify the same phrase is known as convergent validity (Carlson & Herdman, 2012). Data analysis has used factor loadings and Average Variance Extracted (AVE) in PLS-SEM with SmartPLS to determine convergent validity. For a factor loading of 0.5 or higher, it ought to remain in the test framework. If not, it ought to be eliminated because it suggests that the indicator contributes less to other aspects (Afthanorhan, 2013). In addition, convergent validity can be achieved whether the AVE values surpass the suitable minimum of 0.5 (Afthanorhan, 2013).

### **3.7.2.3. Discriminant Validity**

The degree that the constructions experimentally differentiate themselves from others is known as discriminant validity, and it gauges how different overlapped variables differ from the others (Ab Hamid et al., 2017; Hair et al., 2014). The issue of whether statistically important factors are truly backed by the results or merely the result of constructing similar concepts multiple times in a single model is raised by an absence of discriminant validity (Voorhees et al., 2016). The Heterotrait-Monotrait (HTMT) ratio of linkages approach can be used to evaluate the investigation's discriminant validity. HTMT was introduced as a relationship estimation tool involving two latent variables, as stated by Ab Hamid et al. (2017). Once the HTMT value is below the suggested cutoff of 0.85, discriminant validity should be confirmed (Alshurideh et al., 2019). In addition, many researchers also suggested using the Fornell-Lacker criterion to assess discriminant validity. Ummu Sakinah et al. (2020) state that the discriminant validity can be confirmed if the Fornell-Lacker requirement for every variable stipulates that its main value of AVE ought to be larger than the correlation with the remaining variables.

#### **3.7.2.4. Collinearity Test**

A collinearity test is a type of diagnostic statistical technique for regression analysis. This technique helps to determine the degree of the correlation between two or more independent variables (Vatcheva et al., 2016). When there is multicollinearity in a regression analysis, the common assumption of having unique information from the predictors may become distorted. This can also influence the accuracy of the analysis in terms of providing a regression coefficient. In the case of collinearity, the variance inflation factor (VIF) test is the commonly used test in the context of a PLS-SEM. The general rule of thumb for a threshold in a PLS-SEM analysis would be a value of less than 5 (Hair et al., 2014). The value of the VIF of 5 or greater suggests there is a collinearity problem (Hair et al., 2011).

### **3.7.3 Structural Model Assessment**

#### **3.7.3.1. Coefficient of Determination and Overall Model Fit**

Two metrics have been proposed to serve for the evaluation of the inferential analysis of the research: the coefficient of determination ( $R^2$ ) together with the path coefficient and hypothesis tests for the evaluation of the relationships amongst the variables. As a rule, the higher the value of  $R^2$ , the closer the analysis can be to being perfectly accurate in prediction. In the case of the presented research, further metrics have been applied for overall model evaluation. These metrics include the standardized root-mean residual (SRMR) and the normed fit index (NFI). SRMR is a measure of the accuracy of the obtained model. Its value relies on the deviations between the correlation matrices of the empirical data and the predicted matrices (Yusif et al., 2020). According to Hu & Bentler (1998), the required threshold for SRMR should not exceed the level of 0.10. NFI considers the chi-Square statistics in the evaluation of the overall fit of the model in relation to a given standard. According to the ideas of Bentler & Bonett (1980), a good fit for the model would be achieved if the chi-Square statistic of the target model. If the NFI value is above the threshold of 0.90, it should usually represent an acceptable fit (Yew et al., 2022).

### 3.7.3.2. Path Coefficient

The path coefficient can be used by the bootstrapping method in SmartPLS 4 software to analyze the relationship between the set of external and internal elements. By characterizing the magnitude of interactions, path coefficients typically help investigators in understanding the importance of the connections between various elements (Purwanto & Sudargini, 2021). For supporting the hypotheses developed in the study, t-statistics and p-values are often used in many studies. According to Alfarizi (2023), if the significance levels are below 0.05 and t-statistics are greater than 1.96, the predictions should be approved. In addition,  $f^2$  value has also been used in this research for evaluating the effect size of the result. Aburumman et al. (2023) illustrate that there is a different threshold of  $f^2$  to emphasize different effect sizes, as shown in Table 3.3.

Table 3.3: Range of Effect Size ( $f^2$ )

$f^2$	Effect Size
< 0.02	No effect
0.02 – < 0.15	Small
0.15 – < 0.35	Medium
$\geq 0.35$	Large

Source: Aburumman et al. (2023)

### 3.7.3.3. Predictive Relevance and Power Assessment

To evaluate the out-of-sample forecasting capacity of an algorithm, this study uses the Cross-validated Predictive Ability Test (CVPAT) beyond PLSpredict in the SmartPLS 4.0 software. This makes it possible for researchers to evaluate the out-of-sample forecasting accuracy of conceptually constructed algorithms (Frömbling et al., 2023). According to Hair et al. (2019), predictions can accurately be generated by different ranges of predictive power of indicators, as shown in Table 3.4.

Table 3.4: Predictive Power of Indicators using PLSpredict

<b>PLSpredict</b>	<b>Interpretation</b>
All indicators' $PLS\_RMSE > LM\_RMSE$	Lack of predictive power
Majority of indicators' $PLS\_RMSE > LM\_RMSE$	Low predictive power
Minority of indicators' $PLS\_RMSE > LM\_RMSE$	Medium predictive power
None of the indicators' $PLS\_RMSE > LM\_RMSE$	High predictive power

Source: Hair et al. (2019)

### **3.8 Summary of the Chapter**

The relationship between Malaysians who use AI-driven digital banking as well as their BI and AU of this technology are examined in Chapter 3, which also provides an overview of various research methodologies. It comprises investigating the relationships among the external variables (PS, PT, SQ, and PI), independent variables (PU and PEOU), and dependent variables (BI and AU). The methods and specifics employed in this investigation have been explained and analyzed in this chapter. The subsequent section follows with the findings and assessment.

## **CHAPTER 4: DATA ANALYSIS**

### **4.0 Introduction**

The purpose of this section was to evaluate the inquiry data. This section revealed the outcomes of the participants' characteristics, measurement model assessment, and structural model assessment. A PLS-SEM model, bootstrapping model, and PLSpredict/CVPAT in the SmartPLS 4.0 software are used for developing measurement model assessments on outer loading, constructs reliability, convergent validity, discriminant validity, and structural model evaluation.

### **4.1 Data Filtering**

The study received 241 replies using online surveys. Nevertheless, the 11 outliers have been eliminated from the collection to maintain the evaluation's reliability. As a result, only 230 replies were considered in the data analysis.

Furthermore, the poll inquired about participants who are Malaysian AI-powered digital bank customers, and only Ryt Bank consumers fit the study's purposes. Table 4.1 shows that only 168 out of 230 respondents use Ryt Bank. Given that the objective of this investigation is to ascertain what Malaysian AI-driven digital banks' customers believe, which necessitated concentrating on users of AI-driven digital banks like Ryt Bank, the replies of these 62 respondents were removed. For the analysis of data, 168 sets of survey data are utilized.

Table 4.1: Filtering of Data about Malaysian AI-Driven Digital Bank Users

<b>Online Banking Application</b>	<b>Frequency</b>	<b>Percent (%)</b>
<b>Public Bank (PB engage)</b>	167	72.6%
<b>Maybank (MAE)</b>	90	39.1%
<b>Boost Bank</b>	15	6.5%
<b>Aeon Bank</b>	11	4.8%
<b>GX Bank</b>	35	15.2%
<b>Ryt Bank</b>	168	73%

Source: Prepared by the author

## 4.2 Descriptive Analyses

The characteristics of the respondents are represented, and their general opinions are expressed through a descriptive evaluation. The data collected from the surveys was sorted using it. The instrument contained a few organized inquiries that asked about the respondents' demographics.

### 4.2.1 Respondent Demographic Profile

The total amount of gender distribution of 168 respondents who use Malaysian AI-driven digital banks is shown in Table 4.2. There are 80 female responses (47.6%) and 88 male responders (52.4%). As a result, the study's participants' gender distribution favored male involvement.

Table 4.2 Statistics of Gender

<b>Gender</b>	<b>Frequency</b>	<b>Percent (%)</b>
<b>Male</b>	88	52.4%
<b>Female</b>	80	47.6%

Source: Prepared by the author

The age distribution of the 168 respondents is shown in Table 4.3; 74 responses, or 44% of the total number of responses, are within the age range of 18 and 22. 47 participants, or 28% of the sample, are between the ages of 23 and 27. Additionally, 18.5% of those surveyed are between the ages of 28 and 32. The remaining 9.5% of responders are older than 33.

Table 4.3: Statistic of Age

<b>Age</b>	<b>Frequency</b>	<b>Percent (%)</b>
<b>18 – 22 years old</b>	74	44%
<b>23 – 27 years old</b>	47	28%
<b>28 – 32 years old</b>	31	18.5%
<b>Above 33 years old</b>	16	9.5%

Source: Prepared by the author

Table 4.4 displays the occupational distribution of 168 people who participated, with 76 participants, or 45.2% of the total, as students. 48 of the participants, or 28.6% of the sample, have employment. Additionally, 19% of those surveyed work for themselves. The remaining 7.1% of those surveyed do not have a job.

Table 4.4: Statistics of Occupation

<b>Occupation</b>	<b>Frequency</b>	<b>Percent (%)</b>
<b>Student</b>	76	45.2%
<b>Employed</b>	48	28.6%
<b>Self-employed</b>	32	19%
<b>Unemployed</b>	12	7.1%

Source: Prepared by the author

Table 4.5 illustrates the academic background of 168 participants: most of those polled hold undergraduate degrees (39.3%, or 66 respondents), followed by diploma, STPM, or foundation holders (37.5%, or 63 respondents). Additionally, 18.5% of those surveyed have postgraduate degrees. Professional respondents make up the remaining 4.8% of the sample.

Table 4.5: Statistics of Education

<b>Education</b>	<b>Frequency</b>	<b>Percent (%)</b>
<b>Undergraduate (bachelor's degree)</b>	66	39.3%
<b>Diploma/STPM/Foundation</b>	63	37.5%
<b>Postgraduate</b>	31	18.5%
<b>Professional</b>	8	4.8%

Source: Prepared by the author

Table 4.6 shows the monthly earnings level of 168 respondents; the bulk of the participants (84 respondents) receive less than RM 2500. Additionally, 38.7% of respondents receive between RM 2500 and RM 6000. The other 11.3% of responders receive more than RM 6,000.

Table 4.6: Statistics of Monthly Income

<b>Monthly Income</b>	<b>Frequency</b>	<b>Percent (%)</b>
<b>Below RM 2500</b>	84	50%
<b>RM 2500 – RM 6000</b>	65	38.7%
<b>Above RM 6000</b>	19	11.3%

Source: Prepared by the author

#### **4.2.2 Central Tendencies Measurement of Constructs**

The descriptive information, which is displayed in Table 4.7, gives a summary of the respondents' thoughts on eight constructs as well as the corresponding metrics. Likert scales are frequently used for assessing these parameters. They indicate a ranges from 3.46 to 4.14 in most cases, depicting values higher than the mid-scale value, reflecting the general positive attitude toward all variables that could be assessed. The BI, with the highest average in BI4 ( $M = 4.14$ ,  $SD = 0.843$ ), depicted the greatest positive attitude. The remaining variables, namely PEOU and PU, also posted high averages from 4.00 on and the lowest standard deviations, such as PEOU1, averaging 4.02,  $SD = 0.868$ , reflecting high levels of

agreement and acceptance among the respondents. The lowest scores, on the other hand, were posted by the following variables, all measuring the lowest average at 3.46, namely, PI2, PT1, and PT3. Additionally, even though the averages of the responses to AU were modest, this construct showed the greatest degree of variance, especially for AU3 (SD = 1.194), which indicated the sample's greatest diversity of ideas and the smallest amount of acceptance.

Table 4.7: Central Tendencies of Constructs

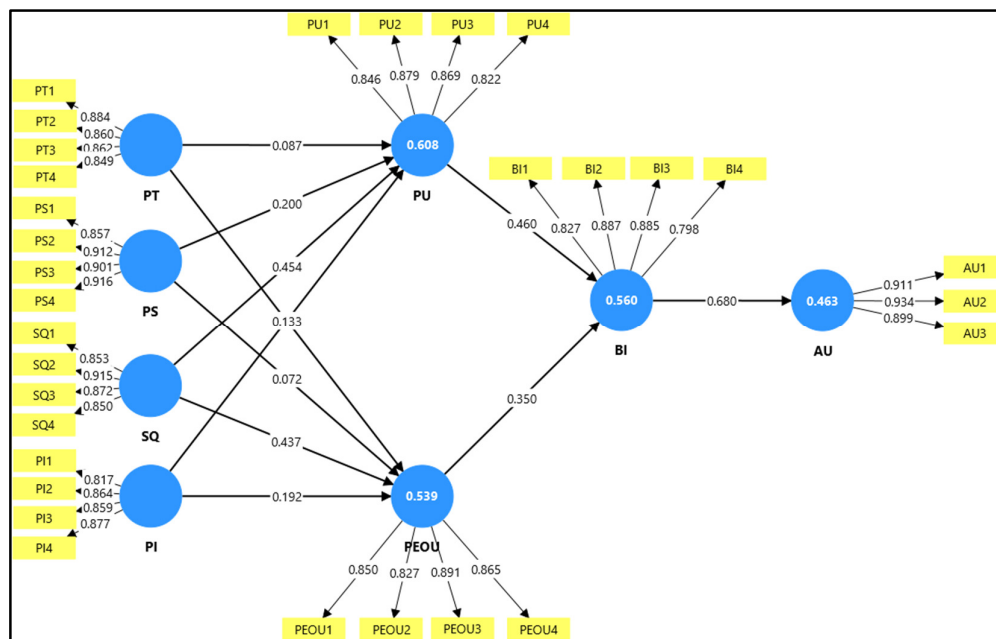
<b>Construct</b>	<b>Indicator</b>	<b>Mean</b>	<b>Standard Deviation</b>
<b>AU</b>	AU1	3.65	1.117
	AU2	3.73	1.087
	AU3	3.51	1.194
<b>BI</b>	BI1	4.08	0.925
	BI2	3.88	0.955
	BI3	3.93	0.967
	BI4	4.14	0.843
<b>PEOU</b>	PEOU1	4.02	0.868
	PEOU2	4.02	0.879
	PEOU3	4.02	0.879
	PEOU4	3.96	0.868
<b>PI</b>	PI1	3.80	1.108
	PI2	3.46	1.173
	PI3	3.81	0.985
	PI4	3.56	1.136
<b>PS</b>	PS1	3.59	0.993
	PS2	3.61	1.078
	PS3	3.60	1.111
	PS4	3.63	1.013
<b>PT</b>	PT1	3.46	1.213
	PT2	3.74	1.027
	PT3	3.46	1.173
	PT4	3.74	1.089
<b>PU</b>	PU1	3.99	0.906
	PU2	3.83	0.997
	PU3	3.88	0.947
	PU4	4.02	0.902

<b>SQ</b>	SQ1	3.70	0.926
	SQ2	3.83	0.887
	SQ3	3.88	0.901
	SQ4	3.97	0.865

Source: Prepared by the author

### 4.3 Measurement Model Assessment

Figure 4.1: Reflective Measurement Model of The Study



Source: Prepared by the author

This study is also indicative of the PLS-SEM model that was employed. Dependability cannot be said to be adequate until the results obtained from Cronbach's alpha values are at least 0.70. Based on Table 4.8, all variables acquired scores over 0.70, and there are no issues concerning the results obtained from Cronbach's alpha. The response's outstanding internal consistency and reliability are demonstrated by PS (0.919), which has the greatest Cronbach's alpha. However, other variables also exhibit a high degree of dependability. Since Cronbach's alpha is considered an unbiased measure, composite reliability also suggests employing it in the study (Kaur et al., 2021). When the score of the

composite reliability (CR) exceeds 0.7, the measure tends to be trustworthy (Kwong & Wong, 2013). Every variable in Table 4.8 is greater than 0.7, and the PS, with the highest value of 0.943, though less than 0.95, is the most prominent variable in the proposed study. The CR of every construct has been verified, while the mean of other variables is approximately 0.90 above.

Similarly, in the event where the AVE exceeds 0.50, implying that 50% of the variations can be explained, the results seem appropriate in assessing convergent validity, according to Hair et al. (2011). All the variables are in excess of 0.50, as depicted in table 4.8. The highest value, that of 0.837, is registered under AU, while the average of the other variables is almost 0.72 in excess.

Table 4.8: Measurement Model Assessment (Reliability and Validity)

<b>Construct</b>	<b>Cronbach's <math>\alpha</math></b>	<b>Composite Reliability (CR)</b>	<b>Average Variance Extracted (AVE)</b>
<b>AU</b>	0.902	0.939	<b>0.837</b>
<b>BI</b>	0.871	0.912	0.723
<b>PEOU</b>	0.881	0.918	0.738
<b>PI</b>	0.877	0.915	0.73
<b>PS</b>	<b>0.919</b>	<b>0.943</b>	0.805
<b>PT</b>	0.887	0.922	0.746
<b>PU</b>	0.877	0.915	0.73
<b>SQ</b>	0.895	0.927	0.762

Source: Prepared by the author

AU2 (0.934) has the largest outer loading, according to Table 4.9, and other indicators are likewise higher than a benchmark of 0.70. As a result, nothing would be removed from the model.

If the VIF is less than 5, there appears to be no likelihood of a collinearity issue (Jony & Serradell-López, 2020). Since no VIF is more than 5, Table 4.9 demonstrates the fact that the study does not have a collinearity problem. PS2 is still below five with the highest value of 3.608, indicating that it does not have a collinearity problem in the study.

Table 4.9: Outer Loadings and Indicator Collinearity (VIF)

Construct	Indicator	Outer Loading	VIF
AU	AU1	0.911	2.928
	AU2	<b>0.934</b>	3.499
	AU3	0.899	2.542
BI	BI1	0.827	2.034
	BI2	0.887	2.891
	BI3	0.885	2.801
	BI4	0.798	1.837
PEOU	PEOU1	0.85	2.169
	PEOU2	0.827	2.064
	PEOU3	0.891	2.75
	PEOU4	0.865	2.379
PI	PI1	0.817	1.784
	PI2	0.864	2.473
	PI3	0.859	2.237
	PI4	0.877	2.715
PS	PS1	0.857	2.355
	PS2	0.912	<b>3.608</b>
	PS3	0.901	2.973
	PS4	0.916	3.559
PT	PT1	0.884	2.94
	PT2	0.86	2.187
	PT3	0.862	2.63
	PT4	0.849	2.107
PU	PU1	0.846	2.097
	PU2	0.879	2.462
	PU3	0.869	2.339
	PU4	0.822	1.959
SQ	SQ1	0.853	2.359
	SQ2	0.915	3.367
	SQ3	0.872	2.446
	SQ4	0.85	2.332

Source: Prepared by the author

The Heterotrait-Monotrait ratio (HTMT), which can be utilized to assess discriminant validity, is the mean amount of component relationships among variables compared to the mean (geometric) correlations for elements evaluating a single trait (Purwanto & Sudargini, 2021). If the element's HTMT value is higher than the 0.90 threshold, it possesses no discriminant validity (Hair et al., 2019). According to Table 4.10, each combination of the HTMT values falls below the maximum threshold of 0.90. If not, this may result in latent variables losing discriminant validity, indicating that the variables should be interrelated without being able to be clearly distinguished from one another. The combination of PS and PT (0.843) has the greatest HTMT value, indicating that they are most closely related while still being able to clearly distinguish the variable. Consequently, it is confirmed that all variant combinations have discriminant validity.

Table 4.10: Discriminant Validity Assessment (HTMT)

<b>Construct</b>	<b>AU</b>	<b>BI</b>	<b>PEOU</b>	<b>PI</b>	<b>PS</b>	<b>PT</b>	<b>PU</b>	<b>SQ</b>
<b>AU</b>								
<b>BI</b>	0.764							
<b>PEOU</b>	0.674	0.769						
<b>PI</b>	0.631	0.764	0.689					
<b>PS</b>	0.649	0.709	0.651	0.742				
<b>PT</b>	0.648	0.718	0.688	0.716	<b>0.843</b>			
<b>PU</b>	0.627	0.807	0.802	0.706	0.737	0.734		
<b>SQ</b>	0.709	0.768	0.789	0.752	0.75	0.81	0.835	

Source: Prepared by the author

When evaluating discriminant validity, the Fornell-Lacker criterion is frequently used instead of the HTMT ratio. To meet the Fornell-Lacker criterion, all latent constructs' AVE must be greater compared to the highest exponential correlation between the other latent constructs (Hair et al., 2011). Based on table 4.11, each construct has the highest diagonal value (0.915, 0.85, 0.859, 0.855, 0.897, 0.864, 0.854, and 0.873) compared to the correlations with other variables. Hence, all variables are considered discriminant validity.

Table 4.11: Discriminant Validity Assessment (Fornell-Lacker Criterion)

Construct	AU	BI	PEOU	PI	PS	PT	PU	SQ
AU	<b>0.915</b>							
BI	0.68	<b>0.85</b>						
PEOU	0.602	0.674	<b>0.859</b>					
PI	0.561	0.671	0.608	<b>0.855</b>				
PS	0.591	0.634	0.588	0.666	<b>0.897</b>			
PT	0.578	0.636	0.613	0.636	0.761	<b>0.864</b>		
PU	0.559	0.706	0.705	0.624	0.663	0.651	<b>0.854</b>	
SQ	0.638	0.678	0.701	0.667	0.68	0.723	0.741	<b>0.873</b>

Source: Prepared by the author

#### 4.4 Structural Model Assessment

The dependent variables in the study, namely AU and BI, and the independent variables, PEOU and PU, appear in Table 4.12 together with their respective coefficients of determination ( $R^2$ ), Standardized Root Mean Square Residual (SRMR), and Normed Fit Index (NFI). The metrics of  $R^2$  can be utilized to assess the model's goodness of fit and predictive power about that specified model's objective by calculating the cumulative effect of every associated external variable on the intrinsic construct (Jony & Serradell-López, 2020). In Table 4.17, the value of  $R^2 = 0.608$  in the construct PU reveals a large and significant explanatory power, since the value exceeds the cut-off limit of 0.50 and even approximates 0.75. Moreover, the  $R^2$  value of 0.56 in BI reveals a moderately large and significant power. In the same way, the  $R^2$  values in AU and PEOU revealed the moderate-to-larger explanatory power in the construct, since they approximated the cut-off of 0.50 in values of 0.463 and 0.539, respectively.

The SRMR was used to calculate the average absolute correlation residual error; the lower the amount, the greater the model's performance (Taasobshirazi & Wang, 2016). Table 4.17 reveals that the SRMR value (0.09) in the model satisfies the 0.10 cut-off criterion, signifying an adequate model fit and adequate

representation in the observed data. Although the NFI value (0.817) is below the threshold of 0.90, it is still acceptable. This is because the framework is still considered as having a suitable level of goodness of fit, referred to as a marginal fit, if the NFI value remains above 0.80 (Isniah et al., 2025).

Table 4.12: Coefficient of Determination ( $R^2$ ) and Overall Model Fit (SRMR and NFI)

<b>Metric</b>	<b>AU</b>	<b>BI</b>	<b>PEOU</b>	<b>PU</b>	<b>Overall Fit</b>
<b><math>R^2</math> (Explanatory Power)</b>	0.463	0.56	0.537	0.608	
<b>SRMR (Estimated Model)</b>					0.09
<b>NFI (Estimated Model)</b>					0.817

Source: Prepared by the author

Table 4.13 shows the structural model assessment of all hypotheses. The  $H_1$ ,  $H_2$ ,  $H_3$ ,  $H_{4a}$ ,  $H_{6a}$ ,  $H_{6b}$  and  $H_{7b}$  have been supported since their t-statistics are more than 1.96 and the p-values are less than 0.01. The  $H_{7a}$  has also been supported since the t-statistic is larger than 1.96 and the p-value is less than 0.05. However, the  $H_{4b}$ ,  $H_{5a}$ ,  $H_{5b}$  have not been supported, as the t-statistics are less than 1.96 and the p-value is more than 0.05.

Table 4.13: Structural Model Results (Path Coefficients)

Hypothesis	Path	$\beta$ Coefficient (O)	T-Statistic	P-Value	Result
$H_1$	BI $\rightarrow$ AU	0.68	15.369	0	Supported (**)
$H_2$	PU $\rightarrow$ BI	0.46	4.973	0	Supported (**)
$H_3$	PEOU $\rightarrow$ BI	0.35	3.974	0	Supported (**)
$H_{4a}$	PS $\rightarrow$ PU	0.199	2.902	0.004	Supported (**)
$H_{4b}$	PS $\rightarrow$ PEOU	0.072	1.041	0.298	Not Supported
$H_{5a}$	PT $\rightarrow$ PU	0.087	1.148	0.249	Not Supported
$H_{5b}$	PT $\rightarrow$ PEOU	0.12	1.33	0.061	Not Supported
$H_{6a}$	SQ $\rightarrow$ PU	0.454	5.467	0	Supported (**)
$H_{6b}$	SQ $\rightarrow$ PEOU	0.437	4.626	0	Supported (**)
$H_{7a}$	PI $\rightarrow$ PU	0.133	2.012	0.044	Supported (*)
$H_{7b}$	PI $\rightarrow$ PEOU	0.192	2.465	0.008	Supported (**)

Note: \*  $p < 0.05$ ; \*\*  $p < 0.01$ . Hypotheses are supported if the 95% CI does not include zero.

Source: Prepared by the author

According to Table 4.14, the predicted value of the  $f^2$  effect size for the  $H_1$  is 0.862. Since it exceeds the criterion measure of 0.35, there appears to be a large effect size on BI towards AU. In addition,  $H_2$  and  $H_3$  have a calculated  $f^2$  effect size of 0.242 and 0.206, respectively, in the case of a medium effect size. This indicates that the effect size of the hypothesis is medium-to-large, as they are more than the threshold of 0.15 but less than 0.35.

Table 4.14: Effect size of constructs

Hypotheses	$f^2$	Effect size
BI → AU	0.862	Large
PU → BI	0.242	Medium
PEOU → BI	0.206	Medium

Source: Prepared by the author

Table 4.15 evaluates the model's out-of-sample predictive performance using PLSpredict, which compares the PLS-SEM\_RMSE (model of the study) and the LM\_RMSE (benchmark linear model). According to table 4.15,  $Q^2$  predict values of all indicators range from 0.273 to 0.498, which are all more than 0, demonstrating that the model's predictive relevance is favorable for every indicator. In the construct of AU, there is only one indicator (AU1) that shows that the PLS-SEM\_RMSE is lesser than the LM\_RMSE, and the remaining show slightly better performance in the PLS-SEM\_RMSE. This indicates the predictive power for AU is low. In addition, BI has medium predictive power overall, although there is an indicator (BI4) that shows that the PLS-SEM\_RMSE is higher than the LM\_RMSE as the remaining three indicators show slightly better performance in the LM\_RMSE. Moreover, the PEOU and PU demonstrate high predictive power since all their indicators show the PLS-SEM\_RMSE is less than the LM\_RMSE.

Table 4.15: Predictive Relevance and Power Assessment (PLSpredict / CVPAT)

Construct	Indicator	$Q^2_{predict}$	PLS-SEM_RMSE	LM_RMSE (Benchmark)	Result (PLS-SEM vs. LM)
AU	AU1	0.273	0.94	0.962	Good
	AU2	0.347	0.891	0.879	<b>Bad</b>
	AU3	0.354	0.947	0.903	<b>Bad</b>
BI	BI1	0.337	0.716	0.742	Good
	BI2	0.418	0.73	0.777	Good
	BI3	0.417	0.735	0.753	Good
	BI4	0.352	0.67	0.652	<b>Bad</b>
PEOU	PEOU1	0.345	0.722	0.741	Good
	PEOU2	0.363	0.691	0.707	Good
	PEOU3	0.39	0.694	0.71	Good

	PEOU4	0.415	0.655	0.673	Good
PU	PU1	0.424	0.683	0.707	Good
	PU2	0.498	0.687	0.732	Good
	PU3	0.44	0.7	0.761	Good
	PU4	0.356	0.715	0.747	Good

Source: Prepared by the author

## 4.5 Conclusion

This section describes how the information was analyzed using SmartPLS 4.0 software for measurement model assessment, structural model assessment, and descriptive analysis. Summaries of demographic data, including gender, age, job, academic level, income per month, and the use of internet banking applications, are included in the descriptive analysis. Outer loading, consistency reliability, convergent validity, discriminant validity, and collinearity tests are all included in the measurement model assessment. Path coefficients,  $R^2$  and  $Q^2$  values, SRMR, and PLSpredict/CVPAT are all included in the structural model assessment. In summary, only perceived security (PS) has no significant connection with perceived ease of use (PEOU), and perceived trust (PT) has no significant connection with PEOU and perceived usefulness (PU). Other hypotheses have been substantially supported by evidence.

## **CHAPTER 5: CONCLUSION AND IMPLICATIONS**

### **5.0 Introduction**

The data structure was analyzed using the questionnaires collected in the preceding chapter. The main findings of the study were covered in this section. The implications of what was discovered will be examined as a foundation for further study. Lastly, the limitations and suggestions for additional research are given.

### **5.1 Summary of Descriptive Analysis**

An overview of the statistical analysis done on the study's results is given in this section. The research focuses on Malaysian consumers adopting artificial intelligence-based online banks and uses data gathered from 241 participants. After the screening process, the analysis used 168 sets of surveys. The analysis offers important insights for its dataset through examining features and trends within the variables.

The demographic characteristics for participants show gender representation biased towards the male gender: 88 (52.4%) participants were male and 80 (47.6%) were female. The analysis for age revealed bias towards the younger participants: participants aged between 18 and 22 comprise 44%; participants aged between 23 and 27 comprise 28%; participants aged between 28 and 32 comprise 18.5%; and participants aged above 33 comprise 9.5% for the profession categories, most participants were students (45.2%), then employed (28.6%), self-employed (19%), and finally unemployed (7.1%). In the analysis of the education background, more participants held a degree (39.3%), then a Diploma/STPM/Foundation (37.5%), then finally postgraduates (18.5%), then professionals (4.8%). Lastly, for the income demographics, more than half (50%) of participants earn below RM 2500 per month, then 38.7% earn between RM

2500 and RM 6000, and finally 11.3% earn above RM 6000. The most frequently used online banking application was Ryt Bank (100%), followed by Public Bank (PB engage) (69%), Maybank (MAE) (39.9%), GX Bank (19%), Aeon Bank (7.7%), and Boost Bank (6.5%). This information delivers invaluable knowledge into the traits of the participants, allowing us to gain insight into the intended audience for the study on the adoption of Malaysian AI-driven digital banking services within the designated demographic.

## **5.2 Discussion on Major Findings**

### **5.2.1 Behavioral Intention**

Through a t-statistic value of 15.369 and a coefficient of correlation of 0.68, the results of the proposed framework show that behavioral intention (BI) has a substantial beneficial and noteworthy effect on the actual usage (AU) of AI-enabled digital banks in Malaysia. The proposed framework yields similar results since, according to the TAM, individuals' BI have consistently shown themselves to be the most reliable predictor and measure of technological usage and acceptance. In support of the proposed model and the works by Ahmad et al. (2020), the proposed model confirms that when people show positive behavioral intention towards using the services provided by e-banking, they positively use the services.

The hypothesis illustrated in this model has important supporting evidence in the form of studies conducted in the past, where consumers' attitudes and opinions about using digital financial services are greatly influenced by elements including customer acceptance and initial confidence. The studies conducted by Kimiagari & Baei (2022) appear to underscore the essential role played by factors like first-level trust, security, and the reliability of the systems in boosting the plans and attitudes displayed by users about advanced banking systems supported by AI technology. People who have a favorable opinion of services are more motivated when AI technology is incorporated into the offerings provided by Malaysian digital banks.

### **5.2.2 Perceived Usefulness**

Through a beta value of 0.46 along with a t-statistic value of 4.973, the study's findings provide solid empirical evidence for  $H_2$  which suggests that behavioral intention (BI) regarding the implementation of AI-enabled digital banks in Malaysia is significantly and favorably influenced by perceived usefulness (PU). This suggests that, given the growing awareness of the benefits of performance, while the capacity of digital banking services powered by AI to enhance their efficiency on banking duties, their adoption intention would increase considerably.

These results are consistent with the TAM, which holds that PU has a significant impact on technological adoption (Davis, 1987). There are sufficient studies in the repository of previous studies to show the substantial influence of PU on the acceptance and utilization of online banking in Malaysia as well as other nations (Mansour, 2016). According to several studies, people are motivated to use online and mobile banking when they recognize the apparent benefits provided by simplicity, accessibility, convenience, and efficacy, respectively (Kumar & Yukita, 2021; Musyaffi et al., 2021). All the above-stated aspects are in line with the innovative services provided by AI-operated digital banks in Malaysia.

### **5.2.3 Perceived Ease of Use**

The results validate  $H_3$ . People who think the digital systems of Malaysian AI banks are simple to navigate PEOU are more likely to utilize them in the foreseeable future. The direct relationship between PEOU and BI to use the AI banks' systems positively exists because the value of the corresponding regression coefficient in the regression equation supporting the hypothesis is 0.35 and the t-statistic value is 3.974.

This supports the results of earlier research on the critical role that usability plays in affecting the acceptance of new technologies. According to Tiong (2020), the Malaysian population's decision to utilize digital banking was motivated by their

perception of the technological accessibility and ease of use. According to Ahmad et al. (2020), people's attitudes and intentions are positively impacted when they believe the service is convenient and easy to use. The current study's results are consistent with the logic presented in the previous argument.

#### **5.2.4 Perceived Security**

The findings show a significant and positive link between Perceived Security (PS) and Perceived Usefulness (PU) for the AI-driven digital banking system among the Malaysian participants. This result corroborates earlier research showing that consumers were more inclined to feel delighted with the system of internet banking and consider it to be extremely valuable and helpful for their own financial affairs if they believed that different safety features and procedures were important and beneficial (Alka'awneh et al., 2025). Further research has supported the assertion that secure online banking platforms increase perceptions of their usefulness for numerous e-payment and mobile banking services available for public use (Lai, 2016). It is thus clear from this research that higher levels of safety and security increase the perceived usefulness and valuable services from AI-driven online banking platforms.

Conversely, the impact of PS on the PEOU was non-significant, and the path coefficient was small in magnitude ( $\beta = 0.072$ ). This implies that, despite the fact that users perceive high levels of security, they are not directly impacted in terms of the PEOU of the system. These results are supported in the mobile banking environment, where researchers have argued that, despite the need for security, users PEOU in terms of the graphical user interfaces and system usability and complexity, among other factors, rather than the quality (Fonchamnyo, 2012; Wandira & Fauzi, 2022).

In general, the findings reveal the critical role played by the dimension of security in influencing perceived usefulness, hence validating the belief that secure and privacy-oriented digital banking platforms can increase user value perceptions. Furthermore, PEOU cannot be enhanced by the security aspect solely.

### **5.2.5 Perceived Trust**

The hypotheses show that perceived trust (PT) has no relationship between PU and PEOU in Malaysian AI-enabled digital banks. The results implied that users' trust in AI-enabled digital banking systems has insignificant effects on their PU and PEOU. However, this finding was opposite to that found by other research studies that showed that users trusting mobile and e-banking services tend to increase their beliefs on perceived value and protection accruable from such services (Fonchamnyo, 2012; Luarn & Lin, 2005).

As was suggested by Kumar & Yukita (2021), the results also revealed a negligible correlation between perceived usefulness and trust, suggesting that consumers are not connecting their assessment of the system's technology that utilizes AI to their degree of confidence. The role of trust, it seems, has a far bigger effect on the perceived safety and security offered by the system than on perceived usefulness. Similarly, the insignificant effect of PT towards PEOU, with a coefficient value of 0.12, suggests that the PEOU perceived by the consumers has nothing to do with the degree of their trust in AI technology.

According to the results, trust has been crucial in maintaining customer confidence in AI-enabled banking services, yet it has not been capable of improving their PU and PEOU. On the other hand, it is impossible to overstate how important the layout of systems, along with other elements, is in assessing PU and PEOU.

### **5.2.6 Service Quality**

The results confirm the hypothesis that service quality (SQ) has a significant effect on perceived usefulness (PU) and perceived ease of use (PEOU) in the Malaysian AI-operated digital banking industry. In other words, both factors are established to be significant, and service quality emerges as a vital determinant in the formation of PU and PEOU in Malaysian AI-operated digital banking settings. Fulfillment,

efficiency, system availability, and privacy factor together in making an improved outlook on the digital financial services offered, ensuring that what is offered operates and performs at, or beyond, expectations, leading to increased adoption and usage over time among the populace (Amnas et al., 2025). When services operate in an efficient, unbroken, and demand-oriented manner, the cognitive processing aspects encountered by users are reduced, leading to an increased outlook on ease of use.

Furthermore, the empirical evidence reveals that excellent service quality facilitates users in retrieving their desired information in digital banking systems intuitively, confirming the notion that employing the services requires minimal effort and time. (Wijayanti et al., 2024). Conversely, high SQ enhances PU and strengthens the conviction that technology provides top-notch services, thereby improving its ability to assist users in meeting their expectations and financial requirements. Poor service provision, functionality, and accessibility, on the other hand, can lower the PU and PEOU among the technology users, hence validating the importance and role of service quality in influencing technology acceptance in the financial field (Akgül, 2018).

### **5.2.7 Personal Innovativeness**

The investigation's findings demonstrate that the result has been a notable beneficial impact exerted by the personal innovativeness (PI) construct on the perceived usefulness (PU) construct ( $\beta = 0.133$ ) and the perceived ease of use (PEOU) construct ( $\beta = 0.192$ ) in the Malaysian setting concerning AI-enabled digital banking systems. It means that people with a tendency to look for and invest in innovations regard the AI-powered online banking system as more advantageous and facilitative.

This finding is supported by previous studies on the factors contributing to PEOU for mobile and internet banking. Lim et al. (2020) found that Gen-Y customers with high PI tend to perceive the ease of use for digital banking system processes

due to their higher levels of confidence and motivation in exploring innovative technologies. Musyaffi et al. (2024) argued that customers with high innovative personality traits tend to be highly receptive and responsive towards exploring innovative initiatives within the field of banking.

Additionally, previous research has found that higher personal innovativeness has a positive link with technological knowledge and adoption readiness on the part of the user, thus supporting perceived usability and convenience (Zhong et al., 2021). In this regard, the current research confirms a congruent link between innovative personality traits and high user identification with the usability and convenience aspects of the AI banking system.

Together, the findings provide further evidence that personal innovativeness is an important factor influencing both PU and PEOU and that individuals who are generally more open to technological change are better situated to appreciate the value placed on AI-enabled digital banking interfaces.

### **5.3 Conclusions of the Results**

By integrating TAM with four additional external constructs (PS, PT, SQ, and PI), this study aims to examine the variables that affect Malaysians' adoption and actual utilization of AI-driven digital banking. The research effectively determined the major precedents of intending to implement and actual utilization in a fresh context of AI-based banking services using information gathered from 168 participants and PLS-SEM analysis. According to the findings, PU and PEOU evolved into essential parts of the TAM and had a significant impact on BI. In relation to the Malaysian embrace of digital banking, BI also proved to be an essential and significant source for AU, supporting the reliability of TAM.

Across the external variables, SQ and PI had consistent and significant effects on both PU and PEOU. These results confirm that high-quality digital service delivery and the readiness of users to embrace innovation lie at the very heart of

shaping attitudes toward AI-enabled financial platforms. On the other hand, PS positively influenced PU but had no significant effect on PEOU. Valued trust, however, was found not to have a significant impact on either PU or PEOU, as well as to suggest that Malaysian users' adoption tends towards functional performance and interface usability, not towards trust-related aspects. These insights emphasize the growing maturity of Malaysian consumers in the evaluation of technology based on tangible quality and convenience rather than perceived risk.

Overall, the study improves theoretical comprehension by extending TAM in an AI-focused context while also providing practical recommendations for politicians, scholars, and digital bank owners. It demonstrates that careful consideration regarding system functionality, user interface, safety interaction, and advancement adaptability is necessary for the effective introduction of AI-driven digital banking. The findings provide a sound basis for future research into strengthening AI governance, improving digital inclusion, and deepening empirical understanding of user behavior in evolving financial ecosystems.

In terms of efficacy, simplicity, and personalization, this investigation is essential as proof that AI-based digital financial services have the ability to completely transform Malaysia's banking sector. However, commerce, research, and government must collaborate for such gadgets to be safe, easy to utilize, and customized to user needs. The study's findings provide basic recommendations to support the continued, consistent expansion of AI-powered online banking services across Malaysia in order to advance the country's transition to an economy based on digitization.

## **5.4 Implications of the Study**

The findings of this research concentrate on the independent and external factors that have an immediate effect on the dependent variables in order to embrace Malaysian AI-driven digital banking. Therefore, it is essential that researchers in

academia, legislators, and digital financial institution holders incorporate the findings to help with subsequent studies. It offers the essential framework for future studies on the internet-based banking sector in Malaysia. In a field of study that is typically neglected, this inquiry provides a crucial foundation for subsequent studies, allowing an improved comprehension of this particular sector.

#### **5.4.1 Academia**

The results obtained in this research have important implications and lessons to be learned and adopted in Malaysia by the academia, the government, and the entities that hold digital bank licenses. In academia, this research work has provided critical empirical contributions in an area that still has less precedence, specifically the implementation of online financial services powered by AI in emerging economies. By adding other perceived variables such as PS, PT, SQ, and PI to the classic TAM framework, the viability and validity within the TAM model in the AI-enabled banking environment has now become an evidence-supported issue.

The model now can accommodate further studies in the field, such as the attitude and adoption toward other AI-enabled functionality in banking, specifically in the realms of detecting fraud, personalization, linguistic functionality, and AI-enabled decision-making systems. Finally, the surprise finding in the paper, that PT was discovered to be insignificant in affecting PU and PEOU undermines the commonly presumed logic on the subject and hence requires further studies and explanations on the issue and the role of perceived trustworthy aspects in algorithmic banking models.

#### **5.4.2 Government**

In governmental and regulatory organizations, like BNM, the findings and insights from this research are important and can add value in improving the formulation and development of national digitalization plans. The results show that while PS significantly influences PU, PS has virtually no impact on PEOU, implying that the

Malaysian people segregate the aspects of security and ease of use concerning AI. These factors, in turn, emphasize the necessity of more precise laws to encourage the safe as well as transparent application of AI in Malaysia.

In light of Malaysia's momentum in adopting the Financial Sector Blueprint 2022-2026, the findings and insights in this paper reaffirm the need for and importance of the development and implementation of better-defined regulations, such as the Risk Management in Technology, in facilitating and promoting responsible innovations and the development of technologies, like AI, without diminishing the rights and freedoms of the people. Moreover, the paper reaffirms the need for and importance of developing digitalization strategies at the national and government levels, since the lack of digital literacy and trust in AI remain critical factors in the adoption and development of AI in Malaysia.

### **5.4.3 Digital Bank License Holders**

The present investigation reveals some important implications for the entities possessing the digital bank license, and these can act as guidelines in their strategic planning, product development, and customer interaction rationales. Digital banks must concentrate on the availability, flexibility, effectiveness, and simplicity of their infrastructure because SQ plays an integral part in assessing PU and PEOU. Consumers particularly appreciate straightforward page layout, user-friendliness, and smooth platform functionality; these represent a few of the elements that are crucial in terms of sense of worth and convenience.

Moreover, the prominent role played by personal innovativeness reveals that digital banks should utilize AI technology and develop innovative, personalized, and interactive systems that would specifically fascinate the young and technically sound customers. Since the role played by trust was insignificant in affecting PU and PEOU, digital banks need to rethink their strategies regarding the development and enhancement of trust, and this should not be limited to focusing on the security aspects but rather on the performance and delivery aspects related to high-quality digital services. Initiatives and strategies pertaining to the growth and improvement

of beneficial BI in consumers are crucial, as demonstrated by the significant function that BI plays for forecasting AU, and this could include customer education, easy and clear communication, and intuitive system use.

## **5.5 Limitations of the Study**

There are some restrictions that deserve to be noted notwithstanding the depth and relevance of the findings in the justification of the acceptance framework in the usage of AI-enabled digital banking in Malaysia. Firstly, the ways in the survey involved the use of self-completion and were conducted using the internet. The rationale in the limitations asserts that the issue with using the survey was the potential response bias in the survey arising from the respondents' individual attitudes and perceptions and their readiness and enthusiasm to participate in the implementation of AI-enabled banking systems. In this respect, the survey was also subject to limitations in influencing the respondents and ensuring they understand all the questions and the questions' rationales and assumptions.

Secondly, despite the sample referring to the 168 complete surveys, the figure meets the PLSEM necessities and needs. The sample and the survey were, in fact, smaller and mostly comprised of people aged and categorized under the younger cohort, and this included mostly the student populace. Thirdly, the survey and the variables only sampled and scrutinized the Malaysian populace using the digital banking application, and this means that the survey and the results cannot and should not be generalized in terms and scope in other regions and countries.

Furthermore, this research sheds light on beliefs and behaviors at a particular point in time, making it impossible to explore the development of attitudes in response to the maturation of digital banks and the enhancements in AI functionalities. Furthermore, there appears to be an issue in choosing the variables. The variables discussed, such as PS, PT, SQ, and PI, provided important results, but other factors, such as perceived risk, digital literacy, and AI equity and transparency, may be crucial for the manner of acceptance. The last issue in the model appears related to the adoption measures, where the use

reported by the respondents differs in relation to the records available in digital banks.

The envisioned study's impacts are still substantial regardless of these drawbacks. These offer a path for more investigation that could strengthen the approach, reach a wider demographic, and investigate additional factors that might shed more light on Malaysians' embrace of AI-enabled digital banking.

## **5.6 Recommendations for Future Research**

Given the drawbacks of the present study, a number of recommendations for additional investigation are made to guide subsequent investigations into the widespread use of AI-powered digital banking in Malaysia. Furthermore, upcoming studies ought to increase the sample amount and include a wider range of respondents, such as lower-income individuals, elderly individuals, residents of countryside areas, and those with comparatively low levels of technological comprehension. This would improve the findings' generalizability and enable a more sophisticated method of understanding how demographic variations affect opinions of AI-enabled banking services. In addition, the application of combination techniques, such as adding qualitative conversations or focus groups to quantitative surveys, can improve future research by capturing more comprehensive and complex viewpoints on consumer worries related to AI, particularly the openness and equitable nature of automated decision-making.

Secondly, further investigations may also include extra concepts not covered in this study, which are nevertheless becoming increasingly important given AI adoption (for example, perceived risk, algorithmic transparency, digital literacy, trust in automation, or perceived fairness of AI). The addition of such variables might provide more information about why some users remain doubtful even if confronted with highly technologically advanced innovations. For example, cultural beliefs and personality characteristics, which are believed to exert a significant influence on behavioral intention and willingness to embrace technology, could also be examined.

Long-term research is required in the future in order to comprehend the way customer opinions evolve over time, as digital banks become established, regulatory requirements tighten, and AI becomes more sophisticated. This could present a more flexible viewpoint regarding the way shifts in behavioral intention are interpreted, particularly as consumers become increasingly comfortable with AI-based banking services. Furthermore, instead of relying solely on individual ratings that are susceptible to social attractiveness and cognitive prejudices, prospective investigators should think about utilizing authentic behavioral information, such as usage histories or banking transaction documents.

In the end, benchmarking Malaysia's AI-powered financial infrastructure against comparable countries or against conventional financial institutions and online banks should serve as an effective way to see how well it operates in terms of international standards. This kind of comparison would highlight knowledge learned, points of competitive edge, and achievements in the Malaysian digital banking industry. Future studies should be capable of creating a further complicated and varied comprehension of the acceptance of AI by exploring these investigation possibilities, which can advance both theoretical comprehension and practical application of digital banking services.

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## APPENDIXES

### Appendix 4.1: Research Survey Questionnaire

#### **Title: From Innovation to Adoption: Effects of Leveraging AI and Tam to Elevate Security, Trust, and Service Quality in Malaysia's Digital Banking**

Dear respondents,

I am a final-year undergraduate student of Bachelor of finance (financial technology) with Honours at Universiti Tunku Abdul Rahman (UTAR). I am currently conducting my final year project with the topic of "From Innovation to Adoption: Effects of Leveraging AI and Tam to Elevate Security, Trust, and Service Quality in Malaysia's Digital Banking". Kindly fill up all the questions to the best of your knowledge. This survey is expected to take approximately 5 to 10 minutes. Your responses will remain PRIVATE and CONFIDENTIAL. If you have any questions or concerns, please feel free to contact me. Your valuable participation is really appreciated.

Name: Ho Yong Yi

Email: [hoyongyi@lutar.my](mailto:hoyongyi@lutar.my)

#### **Personal data Collection Notice**

Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

1. Personal data refers to any information which may directly or indirectly identify a person which could include sensitive personal data and expression of opinion. Among others it includes:

- a) Name
- b) Identity card
- c) Place of Birth
- d) Address
- e) Education History
- f) Employment History
- g) Medical History
- h) Blood type

- i) Race
- j) Religion
- k) Photo
- l) Personal Information and Associated Research Data

2. The purposes for which your personal data may be used are inclusive but not limited to:

- a) For assessment of any application to UTAR
- b) For processing any benefits and services
- c) For communication purposes
- d) For advertorial and news
- e) For general administration and record purposes
- f) For enhancing the value of education
- g) For educational and related purposes consequential to UTAR
- h) For replying any responds to complaints and enquiries
- i) For the purpose of our corporate governance
- j) For the purposes of conducting research/ collaboration

3. Your personal data may be transferred and/or disclosed to third party and/or UTAR collaborative partners including but not limited to the respective and appointed outsourcing agents for purpose of fulfilling our obligations to you in respect of the purposes and all such other purposes that are related to the purposes and also in providing integrated services, maintaining and storing records. Your data may be shared when required by laws and when disclosure is necessary to comply with applicable laws.

4. Any personal information obtained by UTAR shall be destroyed and/or deleted in accordance with our retention policy applicable for us in the event such information is no longer required.

5. UTAR is committed to ensuring the confidentiality, protection, security and accuracy of your personal information made available to us and it has been our ongoing strict policy to ensure that your personal information is accurate, complete, not misleading and updated. UTAR would also ensure that your personal data shall not be used for political and commercial purposes.

Consent:

6. By submitting or providing your personal data to UTAR, you had consented and agreed to allow your personal data to be used in accordance to the terms and conditions in the

Notice and our relevant policy.

7. If you do not consent or subsequently withdraw your consent to the processing and disclosure of your personal data, UTAR will not be able to fulfill our obligations or to contact you or to assist you in respect of the purposes and/or for any other purposes related to the purpose.

**Acknowledge of Notice**

I have been notified, understood, consented and agreed per UTAR PDPA notice.

I agree

I disagree

**Section A: Demographic Information**

Please choose one answer only for each question.

1. Gender

- Male
- Female

2. Age

- 18-22 years
- 23-27 years
- 28-32 years
- Above 33 years

3. Occupation

- Student
- Self-employed
- Employed
- Unemployed

4. Education

- Diploma/STPM/Foundation
- Undergraduate (bachelor's degree)
- Postgraduate
- Professional

5. Monthly Income

- Below RM2500
- RM2500-RM6000
- Above RM6000

6. Which online banking app do you use to make and receive payments? You can select more than one.

- Public Bank (PB engage)
- Maybank (MAE)
- Boost Bank
- Aeon Bank
- GX Bank
- Ryt Bank

**Section B: Independent Variables**

This Section used the likert scale (Noted that: strongly disagree-1, disagree-2, neutral-3, agree-4, and strongly agree-5).

<b>Code</b>	<b>Perceived Usefulness (PU)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>PU1</b>	Using AI-powered digital banking would enhance my effectiveness in managing finances.					
<b>PU2</b>	I find AI-powered digital banking useful for making financial decisions.					
<b>PU3</b>	Using AI-powered digital banking would improve my financial productivity.					
<b>PU4</b>	AI-powered digital banking would make it easier to manage my finances.					
<b>Code</b>	<b>Perceived Ease of Use (PEOU)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>PEOU1</b>	Learning to use AI-powered digital banking would be easy for me.					
<b>PEOU2</b>	I find AI-powered digital banking easy to use.					
<b>PEOU3</b>	Interacting with AI-powered digital banking is clear and understandable.					
<b>PEOU4</b>	It would be easy for me to become skilful at using AI-powered digital banking.					

**Section C: Dependent Variable**

This Section used the likert scale (Noted that: strongly disagree-1, disagree-2, neutral-3, agree-4, and strongly agree-5).

<b>Code</b>	<b>Behavioral Intention Towards Adoption of Digital Banking (BI)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>BI1</b>	I intend to use AI-powered digital banking in the future.					
<b>BI2</b>	I plan to use AI-powered digital banking regularly.					
<b>BI3</b>	I will recommend AI-powered digital banking to others.					
<b>BI4</b>	I will explore more features of AI-powered digital banking in the future.					
<b>Code</b>	<b>Actual Usage Towards Adoption of Digital Banking (AU)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>AU1</b>	I frequently use AI-powered digital banking for financial transactions.					
<b>AU2</b>	I use AI-powered digital banking for various financial activities.					
<b>AU3</b>	I spend a significant amount of time using AI-powered digital banking.					

**Section D: External Variables**

This Section used the likert scale (Noted that: strongly disagree-1, disagree-2, neutral-3, agree-4, and strongly agree-5).

<b>Code</b>	<b>Perceived Security (PS)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>PS1</b>	I think the AI-powered digital banking has sufficient technical capacity to prevent identity spoofing online.					
<b>PS2</b>	I think the AI-powered digital banking ensures that the data I send cannot be modified by a third party.					
<b>PS3</b>	The AI-powered digital banking has enough security measures to protect my personal and financial information.					
<b>PS4</b>	I think the AI-powered digital banking has sufficient technical capacity to ensure that the data I send cannot be modified by a third party.					

<b>Code</b>	<b>Perceived Trust (PT)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>PT1</b>	I trust that AI-powered digital banking will protect my financial information.					
<b>PT2</b>	I believe AI-powered digital banking are reliable for financial transactions.					
<b>PT3</b>	I feel confident that AI-powered digital banking will not misuse my data.					
<b>PT4</b>	I trust that AI-powered digital banking will provide accurate financial advice.					
<b>Code</b>	<b>Service Quality (SQ)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>SQ1</b>	The overall quality satisfaction level of this AI-driven digital banking is very close to my ideal.					
<b>SQ2</b>	I am pleased with the service of AI-driven digital banking.					
<b>SQ3</b>	The service quality I receive from AI-driven digital banking is excellent.					
<b>SQ4</b>	AI-driven digital banking provides high-quality service.					
<b>Code</b>	<b>Personal Innovativeness (PI)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>PI1</b>	When I hear about a new product of AI-powered digital banking, I look for ways to try it.					
<b>PI2</b>	Among my peers, I am usually the first one to try a new AI-powered digital banking.					
<b>PI3</b>	I like to experiment with new AI-powered digital banking services.					
<b>PI4</b>	I am always the one who wants to try out new technologies of AI-powered digital banking among my friends.					

### **THE END OF QUESTIONNAIRE**

We assure you that your personal data will be kept strictly confidential.

Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul

Rahmah ("UTAR") is hereby bound to make noticed and require in relation to collection, recording, storage, usage, and traditional of personal information.

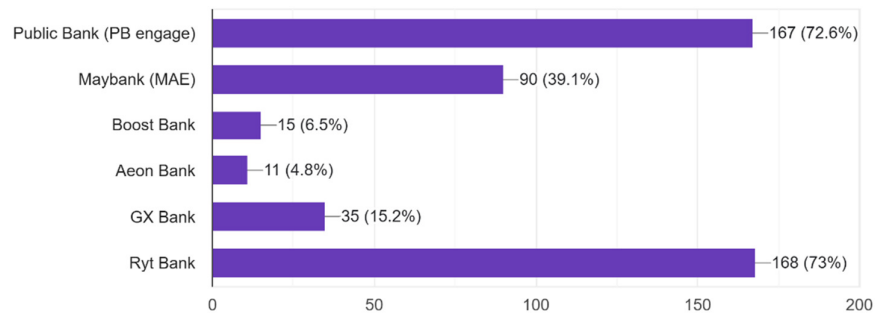
If you have any question regarding this questionnaire, you may contact this research at [hoyongyi@lutar.my](mailto:hoyongyi@lutar.my)

THANK YOU SO MUCH FOR SPENDING TIME TO ANSWER!

Appendix 4.2: Statistics of Malaysian AI-Driven Digital Bank User Before Data Filtering

6. Which online banking app do you use to make and receive payments? (You can select more than one)

230 responses

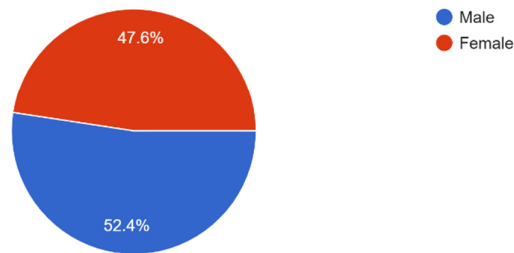


Source: Prepared by the author

Appendix 4.3: Statistics of Gender

1. Gender

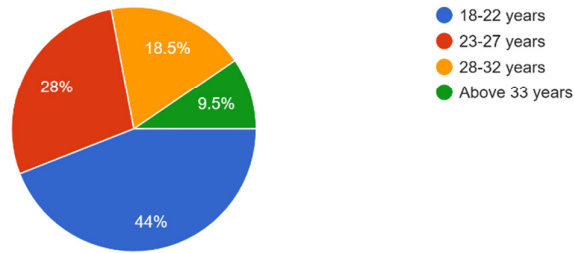
168 responses



Source: Prepared by the author

Appendix 4.4: Statistics of Age

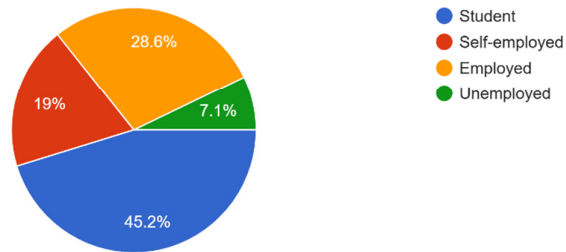
2. Age  
168 responses



Source: Prepared by the author

Appendix 4.5: Statistics of Occupation

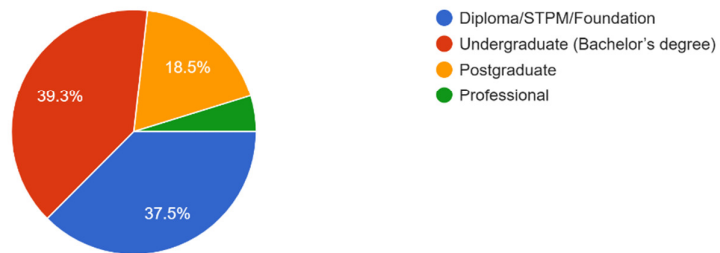
3. Occupation  
168 responses



Source: Prepared by the author

Appendix 4.6: Statistics of Education

4. Education  
168 responses

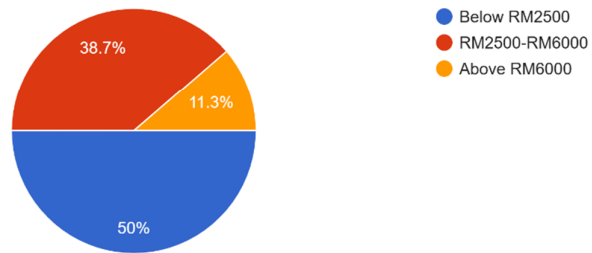


Source: Prepared by the author

Appendix 4.7: Statistics of Monthly Income

5. Monthly Income

168 responses



Source: Prepared by the author