



**AN INTERNET BANKING SUSTAINABILITY MODEL TOWARDS
IMPROVING USER'S ADOPTION**

By

KHAIRI AZHAR BIN AZIZ

**Thesis Submitted to the School of Graduate Studies University Putra Malaysia, in
Fulfilment of the Requirements for the Degree of Doctor of Philosophy**

September 2023

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the Degree of Doctor of Philosophy

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The increasing competitiveness in the banking services sector urges banks to innovate in developing and utilizing alternative channels continuously. Hence, banking has always been an intensive service industry that relies heavily on technology to acquire, process, and deliver user services and information. The emergence of the internet era has provided a solution for banks to improve the efficiency of service delivery to users while staying competitive in the financial industry. Internet banking sustainability is expected to offer financial customers meaningful access while promoting the usage of suitable options for affordable financial solutions.

The research put forward three objectives: to reveal the influencing success factors, analyze the relationships between the identified factors that influence internet banking sustainability towards improving user adoption, and propose an internet Banking sustainability model for improving user adoption. The study opted to use a quantitative study using questionnaires and validated the feasibility of the research through a pilot study among 30 individuals obtaining data verification. The actual study engaged 196 internet banking service users. The data was analyzed using statistical tools such as Statistical Package for Social Sciences (SPSS), Rasch model, and Partial Least Squares-Structural Equation Modelling (PLS-SEM) to test the 18 hypotheses on influencing success factors identified for the study and to evaluate the model. The study discovered that sixteen (16) out of the eighteen (18) theorized hypotheses were met.

A few theories, namely the Technology Acceptance Model (TAM), Social Cognitive Theory (SCT), Theory of Planned Behavior (TPB), and Information Systems (IS) success model, were used as unpinning theories to understand the insight of users behavior and to derive the internet banking sustainability model. The model development towards improving user systematic adoption of internet banking was derived from seven (7) factors, specifically website design, ease of use, quality system, social influence, perceived usefulness, perceived ease of use, and intention to use, and ten (10) factors

recommended by the experts such as security, trust, electronic word of mouth, rewards, sustainability, commitment, user experience/generation, knowledge, profession, and income. The results of this study provide empirical support for the research model.



Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

MODEL KEMAMPAHAN PERBANKAN INTERNET BAGI MENAMBAH BAIK PENGAMBILGUNAAN DALAM KALANGAN PENGGUNA

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Daya saing yang semakin meningkat dalam sektor perkhidmatan perbankan menggesa bank-bank untuk mewujudkan inovasi dalam membangunkan dan menggunakan saluran-saluran alternatif secara berterusan. Oleh itu, industri perbankan menjadi sektor perkhidmatan intensif yang amat bergantung pada teknologi untuk memperoleh, memproses dan menyampaikan perkhidmatan dan maklumat pengguna. Kebangkitan era internet telah menyediakan suatu penyelesaian kepada bank-bank untuk meningkatkan kecekapan penyampaian perkhidmatan kepada para pengguna di samping usaha untuk kekal berdaya saing dalam industri kewangan. Kemampuan perbankan internet dijangka akan menawarkan akses yang bermakna kepada para pelanggan kewangan di samping menggalakkan penggunaan pilihan-pilihan yang sesuai bagi menikmati penyelesaian kewangan yang mampu milik.

Penyelidikan ini meletakkan tiga objektif: untuk mendedahkan faktor-faktor kejayaan yang memberikan pengaruh, menganalisis hubungan antara faktor yang dikenal pasti mempengaruhi kemampuan perbankan internet dalam menambah baik pengambilgunaan dalam kalangan pengguna, dan mengusulkan model kemampuan perbankan internet bagi menambah baik pengambilgunaan dalam kalangan pengguna. Kajian kuantitatif dengan menggunakan borang kaji selidik dipilih dalam kajian ini, dan ia disahkan melalui penyelidikan kebolehlaksanaan melalui kajian rintis yang melibatkan seramai 30 orang bagi mengesahkan data yang diperolehi. Kajian yang sebenar pula melibatkan seramai 196 orang pengguna perkhidmatan perbankan internet. Data dianalisis dengan menggunakan alat-alat statistik seperti Pakej Statistik untuk Sains Sosial (SPSS), model Rasch dan Kuasa Dua Terkecil Separa-Pemodelan Persamaan Struktur (PLS-SEM) untuk menguji 18 hipotesis berkenaan faktor-faktor kejayaan yang memberikan pengaruh yang dikenal pasti dalam kajian ini dan untuk menilai model tersebut. Kajian ini mendapati enam belas (16) daripada lapan belas (18) hipotesis yang menajdi teori tersebut telah dipenuhi.

Beberapa teori iaitu Model Penerimaan Teknologi (TAM), Teori Kognitif Sosial (SCT), Teori Tingkah Laku Terancang (TPB) dan model kejayaan Sistem Maklumat (IS) digunakan sebagai teori-teori yang menjadi dasar untuk mendalami pemahaman berkenaan tingkah laku para pengguna dan untuk menghasilkan model kemampuan perbankan internet. Pembangunan model bagi menambah baik pengambilgunaan perbankan internet yang sistematik dalam kalangan pengguna dihasilkan daripada tujuh (7) faktor khususnya reka bentuk laman sesawang, kemudahan, sistem yang berkualiti, pengaruh sosial, tanggapan kebergunaan, tanggapan kemudahan dan hasrat untuk mengguna, manakala sepuluh (10) faktor disyorkan oleh para pakar iaitu keterjaminan, kepercayaan, mulut ke mulut elektronik, ganjaran, kemampuan, komitmen, pengalaman/generasi pengguna, pengetahuan, profesion, dan pendapatan. Keputusan daripada kajian ini memberikan sokongan empirikal terhadap model penyelidikan tersebut.



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LIST OF ABBREVIATIONS

AVE	Average Variance Extracted
CA	Cronbach's Alpha
CFA	Conduct Validation Factor Analysis
CR	Composite Reliability
FIs	Financial Institutions
HTMT	Heterotrait-Monotrait Ratio
PLS	Partial Least Squares
PMC	Point Measure Correlation
SEM	Structural Equation Modelling

CHAPTER 1

INTRODUCTION

1.1 Internet Banking

Internet banking (IB) encompasses banking services that empower customers to carry out financial transactions via the internet, utilizing any device with an internet connection at any time and from any location. This allows customers to remotely access their accounts, conduct transactions, and oversee their finances, offering enhanced convenience and flexibility in their banking activities (Almaiah et al., 2022). The majority of the banks have introduced IB to improve customer service and sustainability (Rahi et al., 2020). Internet banking serves as an electronic payment platform, enabling customers engaged in online banking to execute financial transactions through a website provided by the institution, which could be a credit union, virtual banking, retail banking, or building society. It is also known as online banking, electronic banking, virtual banking, or other platforms suitable for online transactions (Firdous & Farooqi, 2017b). Typically, internet banking needs to be connected to the bank system, such as core banking and its branches, to operate daily businesses. Banking innovation in the form of internet banking has grown rapidly over the last decade.

The definition of online banking, also known as “internet banking,” is a new type of information system that uses cutting-edge technologies, such as the internet and the World Wide Web (WWW), and it has altered how customers perform different financial activities in a virtual environment (Abdul Razak et al., 2021). In Malaysia, Malayan Banking Berhad (Maybank) is the first local bank in Malaysia to offer online banking services through its portal at www.maybank2u.com. The services offered by Maybank include account overview, bill payment, transaction history, fund transfer, and credit card payment. The Central Bank of Malaysia or Bank Negara Malaysia (BNM) has given authority to commercial banks to provide electronic services through websites. This was followed by Hong Leong Bank (HLB), which introduced internet banking (e-banking) through their portal at www.hlbb.hongleong.com.my in December 2000. Thereafter, Southern Bank followed suit by offering internet banking in Malaysia through the portal www.sbbdirect.com.my. Internet banking technology rapidly grew, with other banks such as Public Bank and Alliance Bank offering internet banking in 2001. Essentially, all local domestic banks offer online banking services to their customers (Raviadaran et al., 2019a). Internet banking services contributed to the overall performance and efficiency of the banking firm. Subsequently, internet banking involves a process where users get direct access to their bank account via the internet and can perform banking transactions (Rahi et al., 2020).

Generally, internet banking was expected to benefit banking institutions by saving operational costs and, at the same time, expanding their bank operations for other business activities, such as upgrades and improvements of products and services for customers. Indirectly, the customers are expected to benefit from and be satisfied with performing online transactions, have good accessibility through the internet platform,

and at the same time, experience a reduction in travel costs (Raviadaran et al., 2019a). The internet changed the financial landscape. Internet banking is a very important piece of technology on this global platform. Applications are very important in the field of banks and financial institutions. According to Jagadeesan and Chinnadurai (2017), information technology offers internet services and provides the highest quality of service to customers. In the context of internet banking, people frequently act based on their view of what others think they should do, and their desire to adopt a behavior is possibly impacted by others close to them (Nor et al., 2008).

Internet banking has given bank institutions a chance to make a difference among competitors and achieve their goals accordingly. Essentially, this relates to the relationship between bank management and the customers themselves. The high quality of delivery services to customers is a success factor that affects the performance of the service industry. Service quality measurement has become the main goal of several studies on internet banking, which will be discussed further. Another crucial element of performance in organizational service is customer satisfaction, which is closely related to the quality of service. Any enhancements to service quality will impact the customer's satisfaction with the contributions. Delivering quality service to customers is a crucial factor in improving the bank's performance and gaining a better place in the global market.

Malaysia's internet banking services officially launched on June 1, 2000. In Malaysia, internet banking is subject to the regulations set forth in the Banking and Financial Institution Act 1989 (BAFIA) and the Islamic Banking Act 1983. In Malaysia, roughly thirteen banks now provide internet banking. Most Malaysian banks use information technology, allowing them to offer new services and share resources to cut development costs. The Bank's entire electronic service is thus a high-level service for the public in the first instance (home banking) and in the second case (office banking). Some banks use their own development or that of others to operate their systems. It is also related to the fact that the bank delivers exceptional service to its customers, which might improve bank traffic. The majority of domestic banks have introduced various telephony services in order to speed up customer provisioning, make it more pleasant, and reduce the "personal" turnover of bank accounts (B. Othman et al., 2019).

Banking is increasingly taking place online, financial institutions provide their services through various electronic channels, and the relevance of a traditional branch network has reduced. Advanced technological innovations and the rapid integration of information technology have led to a profound transformation in banking operations. IT has become a crucial element in the competitive landscape of the financial services industry. Recent development has resulted in a completely new service model and service environment. The whole essence of selling and purchasing financial services has been altered by technological advancements. The shift of customers from traditional banking methods to more standalone banking options has been a significant and far-reaching change in the banking industry. In other words, a shift in private banking towards the use of electronic delivery channels like as the internet, telephone, and mobile phones. Internet banking is a revolutionary system that leverages the internet's power to enable users to conduct financial transactions in a virtual environment. This study defines internet banking as a web-based platform that provides a range of banking services,

including bill payment and investment, through a single portal. In contrast, traditional banking websites that only offer information without transactional capabilities are not considered internet banking services. The rapid growth of non-traditional banking firms in Malaysia, fueled by the liberalization of the banking industry and the emergence of new technologies, is posing significant competition to the traditional banking sector (Arunkumar, 2008).

According to a study, approximately 80% of respondents in Malaysia use internet banking services (IBS) at least once a month, with 12 domestic banks offering IBS to 4.5 million users. IBS provides a new channel for banks to reach a wider range of customers through electronic and interactive communication channels, primarily the internet. However, if banks invest in IBS without understanding the factors that influence client adoption, they may fail to achieve critical business success. Therefore, domestic banks must strive to better understand their customers in this area to avoid losses and maintain a competitive advantage (Yenyuen & Yeow, 2009). This study aims to investigate internet banking adoption and identify the elements that influence internet banking usage, including service quality and other factors.

As a driving force behind the development of internet banking, the need to deliver a higher level of sustainability to meet users' needs and demands has become increasingly important. With the growing popularity of internet banking as a platform service, banks must prioritize the effectiveness and efficiency of their internet banking sustainability in order to gain a competitive advantage. However, there are constraints that hinder the sustainability of internet banking, such as a lack of awareness and insufficient knowledge among users to access computers and the internet. However, having basic initial knowledge of internet banking can make it more comfortable to use, creating a conducive environment for individuals to adopt and sustain internet banking. The convenience of internet banking is a major factor, as it minimizes costs, is faster, more accessible, and can be done from anywhere and at any time. In addition to convenience, another notable benefit of internet banking is the time it can save users. Research has consistently shown that Malaysians have relatively low levels of adoption of internet banking, with studies examining the various factors that influence this trend. Therefore, further research is necessary to update the findings and identify the specific factors that influence internet banking adoption in Malaysia.

1.2 Problem Statement

The various issues to be discussed in this study are:

- i) One of the key factors influencing customers' willingness to use internet banking is trust in the security of online transactions. If consumers do not feel secure when conducting financial transactions online, they are less likely to adopt and use internet banking services. Security concern and a general ignorance of internet banking are significant obstacles to its wider acceptance. Specifically, internet banking users are worried about the safety and security of online transactions, which can lead to e-security threats, cyber-attacks on customer profiles, account hijacking, fraudulent messages, theft of customer

- privacy, and loss of financial transaction secrecy. Despite the benefits of internet banking, users are hesitant to adopt it due to these security concerns, as well as the cost of hardware and software upgrades and low computer literacy. (Hazwani et al., 2019). According to other experts in the field, internet banking has yet to experience significant growth due to concerns over security and personal preferences. (Shabbir et al., 2019).
- ii) Trust is a significant obstacle that individuals encounter when using internet banking (Rapidah et al., 2020). Internet banking customers struggle to trust online banking due to apprehensions about the reliability of internet services and a lack of faith in service providers (Altobishi et al., 2018). Trust is a crucial factor in determining customers' attitudes towards adopting internet banking. Unfortunately, one of the primary obstacles to widespread adoption is the perceived unreliability of internet banking applications, which can erode trust and hinder its acceptance (Normalini et al., 2019). Low trust levels hinder the long-term success of internet banking, and a lack of faith in this technology continues to be a significant barrier to widespread adoption (Inder et al., 2022) and negative client experiences and high levels of distrust can contribute to a negative outlook on internet banking acceptability (Naeem, 2021). It is more likely that users will mistrust an online banking provider if the digital platform has an unfamiliar or suspicious design, requires them to follow an abnormal process, or requests information that is not commonly required for internet banking transactions (Ofori et al., 2017). According to recent findings, a substantial portion of internet users (54.2%) do not utilize online banking services due to a lack of trust and confidence in these platforms. Moreover, many individuals prefer to physically visit their banks rather than conduct financial transactions online. This suggests that there is a disconnect between the availability and adoption of digital banking services, highlighting the need for banks to address these concerns and improve the overall user experience. (Abdul Razak et al., 2021).
 - iii) Sustainability banking is developing at a gradual pace and has not yet reached its full potential (Riegler, 2023). Due to worries about how state-owned banks manage their environmentally friendly online banking services, online banking customers may quickly switch to alternative providers (Burhanudin et al., 2019) such as are concerned about how state-owned banks handle their long-term internet banking services. Due to occasional disruptions in internet connectivity, customers of internet banking services may experience difficulty accessing their accounts, resulting in lengthy wait times and the potential for accounts to run out of funds at the end of the month. The slow response of service providers to address technical issues with online banking can contribute to a lack of reliability in the service, leading to frustration among users (A. J. Khan et al., 2023).

1.3 Research Question

According to the problem statement discussed above, the research questions are as follows:

- i) What are the existing influential factors for internet banking sustainability?
- ii) What are the new influential factors for enhancing internet banking sustainability?
- iii) How does each influential factor influence each other to internet banking sustainability?

1.4 Research Objective

The main objective of this research is discover the factors that contribute to the internet banking sustainability by towards improving user's adoption. As a result, it hopes to accomplish the following goals:

- i) To identify the influential success factors that influence internet banking sustainability towards improving user's adoption.
- ii) To analyze relationships between factors that influence internet banking sustainability towards improving user's adoption.
- iii) To propose an internet banking sustainability model towards improving user's adoption.

1.5 Scope of Research

This study was undertaken with the goal of developing a theoretical model to explain internet banking sustainability in order to increase user's adoption. The theoretical model's foundations are based on a review of the literature, a study of present models, as well as expert reviews. This study's context is based on internet banking users of any Financial Institution who make at least one transaction per month, with an emphasis on Klang Valley users. The extraordinary adoption rate of internet banking in the Klang Valley region of Malaysia is certainly noteworthy and deserves further examination. As the most developed and populous area in Malaysia and home to the country's capital, it is unsurprising that Klang Valley has the highest percentage of internet banking users at 54.2%, compared to 45.8% who do not use these services. This disparity highlights the potential for internet banking to reach a significant portion of the population in this region (Malaysian Communications and Multimedia Commission, 2018). This study is based on empirical research and focuses on respondents with experience using internet banking only. The mobile banking would not cater to this study. The proposed model is then validated by experts to evaluate the sustainability of internet banking.

1.6 Research Significance

The proposed model in this study aims to contribute to the development of an internet banking sustainability model by identifying and examining the factors that influence user

adoption. The model proposed in this study seeks to provide a theoretical framework for understanding the relationship between user intentions and behavior in the context of internet banking. The results of this research can be applied to the development and enhancement of financial services, offering valuable insights for financial institutions and policymakers. The study's findings can serve as a foundation for future investigations into internet banking adoption, providing a springboard for researchers to develop and refine the existing model. Overall, the study's findings have the potential to make a significant contribution to the field of internet banking and provide a valuable resource for evaluating the quality of research in this area.

1.7 Organization of Thesis

This research comprises six chapters. A brief description of each chapter is presented as follows:

Chapter 1 gives an overview and background of the research are presented. Specifically, it includes the problem statement, research question, research objectives, scope of research, and the significance of the research.

Chapter 2 provides details the literature review undertaken for the purpose of this research, which relates to internet banking and related models, and highlights the research gap in internet banking sustainability.

Chapter 3 describes the research methodology and methods used during model development, verification, validation, quantitative methods, and survey design.

Chapter 4 delves into the creation and refinement of the hypothesized model, as well as the specific research model that will be used to guide the study. This section provides a detailed examination of the conceptual model and the various factors that have been identified as key influences on the research topic.

Chapter 5 provides an exploration of the respondents' background and a thorough analysis, incorporating an empirical assessment of the model. It also encompasses the assessment of the measurement and structural models utilizing the partial least squares (PLS) approach within the structural equation modeling (SEM) framework. The chapter suggests the ongoing development of the model, delving into the relationships among the proposed factors, evaluating the proposed model, and summarizing the results.

Chapter 6 explicates the theoretical and practical implications of the research findings are emphasized. Furthermore, the study's limitations are thoroughly scrutinized, and recommendations for future research are offered to extend upon the present discoveries.

REFERENCES

- Abbas Naqvi, M. H., Jiang, Y., Miao, M., & Naqvi, M. H. (2020). The effect of social influence, trust, and entertainment value on social media use: Evidence from Pakistan. *Cogent Business and Management*, 7(1). <https://doi.org/10.1080/23311975.2020.1723825>
- Abdul-Rahim, R., Bohari, S. A., Aman, A., & Awang, Z. (2022). Benefit–Risk perceptions of FinTech adoption for sustainability from bank consumers’ perspective: The moderating role of fear of COVID-19. *Sustainability (Switzerland)*, 14(14). <https://doi.org/10.3390/su14148357>
- Abdul Razak, D., Abdul Hamid, R., Tuan Azhari, N. I., & Sonari, P. S. Q. (2021). Factors influencing the adoption of online banking services in the Klang Valley. *Advanced Science Letters*, 24(5), 3188–3192. <https://doi.org/10.1166/asl.2018.11341>
- Abrol, S., & Sharma, R. D. (2014). *Impact of internet banking on customer satisfaction and business performance*. 1–257.
- Abualsauod, E. H., & Othman, A. M. (2020). A study of the effects of online banking quality gaps on customers’ perception in Saudi Arabia. *Journal of King Saud University - Engineering Sciences*, 32(8), 536–542. <https://doi.org/10.1016/j.jksues.2019.09.001>
- Adiandari, A. M., Winata, H., Fitriandari, M., & Hariguna, T. (2020). Improving the quality of Internet banking services: An implementation of the quality function deployment (QFD) concept. *Management Science Letters*, 10(5), 1121–1128. <https://doi.org/10.5267/j.msl.2019.10.029>
- Ahmad Faris, A., Mohamed Shariff, M. S., & E Azam, M. S. (2019). Factors influencing intention to use islamic credit cards in Selangor. *International Journal of Islamic Business*, 4(1), 1–15.
- Ahmed, E. M., & Phin, G. S. (2016). Factors influencing the adoption of internet banking in Malaysia. *Journal of Internet Banking and Commerce*, 21(1).
- Ahmeti, F., & Prenaj, B. (2022). Determinants affecting consumer acceptance and adoption of internet banking in developing countries: The case study of Kosovo. *Economic Studies Journal (Ikonicheski Izsledvania)*, 31(6), 60–79.
- Akter, S., Wamba, S. F., & Dewan, S. (2017). Why PLS-SEM is suitable for complex modeling? An empirical illustration in big data analytics quality. *Production Planning and Control*, 28(11–12), 1011–1021.

- Al-Azzam, M. K. A. (2017). An integrated model for examining factors that influence customers' adoption of internet banking services provided by commercial banks in Jordan. *PQDT - UK & Ireland*, September. <https://search.proquest.com/docview/1913435238?accountid=17242>
- Al-Hawary, S. I. S., & Al-Smeran, W. F. (2017). Impact of electronic service quality on customers satisfaction of islamic banks in Jordan. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 7(1), 170–188. <https://doi.org/10.6007/ijarafms/v7-i1/2613>
- Al-Hazmi, N. M. (2020). The effect of total quality management on marketing educational services in Saudi universities. *Management Science Letters*, 10(10), 2329–2336. <https://doi.org/10.5267/j.msl.2020.3.001>
- Al-Janabi, A. A. (2021). Predicting internet banking effectiveness using artificial model. *International Journal of Advanced Computer Science and Applications*, 12(3), 325–332. <https://doi.org/10.14569/IJACSA.2021.0120340>
- Al-Qahtani, M. E. (2014). *An investigation of the internet banking (IB) adoption, use, and success in Saudi Arabia (SA)*. Hull University.
- Al-Qudah, A. A. (2017). The factors that affecting on the consumers' continuing to use internet services in the banking industry: Empirical evidence from Abu Dhabi, UAE. *Modern Applied Science*, 11(4), 45. <https://doi.org/10.5539/mas.v11n4p45>
- Al-Shbiel, S. O., & Ahmad, M. A. (2016). A theoretical discussion of electronic banking in Jordan by integrating technology acceptance model and theory of planned behavior. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 6(3), 272–284. <https://doi.org/10.6007/ijarafms/v6-i3/2275>
- Alabboodi, A. (2019). The effect of customer satisfaction on service quality: The case of Iraqi banks. *International Journal of Appl Ied Research*, 5(1), 146–152.
- Aldaihani, F. M. F., & Ali, N. A. (2018). Effect of electronic customer relationship management on electronic service quality provided by the commercial banks in Kuwait. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 8(2), 143–154. <https://doi.org/10.6007/ijarafms/v8-i2/4239>
- AlHaliq, H. A., & AlMuhirat, A. A. (2016). Customer satisfaction with electronic banking services in the Saudi banking sector. *Asian Social Science*, 12(5), 139–146. <https://doi.org/10.5539/ass.v12n5p139>
- Alharahsheh, H. H., & Pius, A. (2020). A Review of key paradigms: Positivism VS interpretivism. *Global Academic Journal of Humanities and Social Sciences*, 2(3), 39–43.

- Alhassany, H., & Faisal, F. (2018). Factors influencing the internet banking adoption decision in North Cyprus: an evidence from the partial least square approach of the structural equation modeling. *Financial Innovation*, 4(1). <https://doi.org/10.1186/s40854-018-0111-3>
- Ali, Q. (2018). Service quality from customer perception: Evidence from carter model on Bank Islam Brunei Darussalam (BIBD). *International Journal of Business and Management*, 13(2), 138. <https://doi.org/10.5539/ijbm.v13n2p138>
- Ali, Q., Parveen, S., Yaacob, H., & Zaini, Z. (2021). Cardless banking system in Malaysia: An extended TAM. *Risks*, 9(2), 1–16. <https://doi.org/10.3390/risks9020041>
- Alizadeh, A., Saghebi, S., Habibisenobari, T., & Mohammadzaher, M. (2018). Effects of adoption and satisfaction on word of mouth in the internet banking of Iran. *Journal of Internet Banking and Commerce*, 23(3), 1–30.
- Almaiah, M. A., Al-Rahmi, A. M., Alturise, F., Alrawad, M., Alkhalaf, S., Lutfi, A., Al-Rahmi, W. M., & Awad, A. B. (2022). Factors influencing the adoption of internet banking: An integration of ISSM and UTAUT with price value and perceived risk. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.919198>
- Almajali, M. (2018). Applications of planned behavior theory on internet banking services adoption in Jordan: Structural equation modeling approach. *China-USA Business Review*, 9(October).
- Altobishi, T., Erboz, G., & Podruzsik, S. (2018). E-banking effects on customer satisfaction: The survey on clients in Jordan banking sector. *International Journal of Marketing Studies*, 10(2), 151. <https://doi.org/10.5539/ijms.v10n2p151>
- Alwan, H. A., & Al-Zubi, A. I. (2016). Determinants of internet banking adoption among customers of commercial banks: An empirical study in the Jordanian banking sector. *International Journal of Business and Management*, 11(3), 95. <https://doi.org/10.5539/ijbm.v11n3p95>
- Alzaidi, A., & Qamar, S. (2018). Factors affecting the adoption of internet banking: A systematic literature. *International Journal Business Information Systems*, 28(1).
- Ananda, S., & Devesh, S. (2019). Service quality dimensions and customer satisfaction: Empirical evidence from retail banking sector in Oman. *Total Quality Management and Business Excellence*, 30(15–16), 1616–1629. <https://doi.org/10.1080/14783363.2017.1393330>
- Anuar Mokhtar, S., Katan, H., & Hidayat-ur-Rehman, I. (2017). Mobile banking adoption: The impacts of social influence, ubiquitous finance control and perceived trust on customers' loyalty. *Science International-Lahore*, 29(4), 829–836.

- Aruna, D. K. (2018). Service quality dimension of e-banking services-A study with reference to Vellore District. *International Advanced Research Journal in Science, Engineering and Technology*, 5(11), 45–52. <https://doi.org/10.17148/iarjset.2018.51110>
- Arunkumar, S. (2008). A study on attitude and intention towards internet banking with reference to Malaysian consumers in Klang Valley region. *International Journal of Applied ...*, 6(2004), 115–146. <http://www.publishing.waldenu.edu/ijamt/vol6/iss1/5/>
- Asad, M. M., Mohajerani, N. S., & Nourseresh, M. (2016). Prioritizing factors affecting customer satisfaction in the internet banking system based on cause and effect relationships. *Procedia Economics and Finance*, 36(16), 210–219. [https://doi.org/10.1016/S2212-5671\(16\)30032-6](https://doi.org/10.1016/S2212-5671(16)30032-6)
- Asadpoor, S., & Abolfazli, A. (2017). Effect of electronic service quality on customer satisfaction and loyalty Saderat bank's customers. *International Journal of Scientific Study*, 5(4), 407–411. <https://doi.org/10.17354/ijssl/2017/56>
- Assegaff, S. (2016). The effect of service quality to customer satisfaction by using internet banking service in Jambi. *Open J. Syst.*, 9(October), 21–36. <https://doi.org/10.12695/ajtm.2015.9.1.3>
- Bahadur, W., Aziz, S., & Zulfiqar, S. (2018). Effect of employee empathy on customer satisfaction and loyalty during employee–customer interactions: The mediating role of customer affective commitment and perceived service quality. *Cogent Business and Management*, 5(1), 1–21. <https://doi.org/10.1080/23311975.2018.1491780>
- Baharum, A., & Jaafar, A. (2015). User interface design : A study of expectation - confirmation theory. *Proceedings of the 5th International Conference on Computing and Informatics, ICOCI 2015*, 064, 17–24. <https://doi.org/10.1037/11863-009>
- Banu, A. M., Mohamed, N. S., & Parayitam, S. (2019). Online banking and customer satisfaction: Evidence from India. *Asia-Pacific Journal of Management Research and Innovation*, 15(1–2), 68–80. <https://doi.org/10.1177/2319510x19849730>
- Berrin Arzu, E. (2021). The effect of covid-19 fear on the internet banking and mobile banking usage experiences of the baby boomers generation. *KAUJEASF*, 12(24)(December 2021), 680–701. <https://doi.org/10.36543/kauuibfd.2021.028>
- Bidar, R. (2018). Customer value perception toward use of mobile banking applications. *ACIS 2018 - 29th Australasian Conference on Information Systems*, 1–11. <https://doi.org/10.5130/acis2018.bm>
- Boateng, H., Adam, D. R., Okoe, A. F., & Anning-Dorson, T. (2016). Assessing the determinants of internet banking adoption intentions: A social cognitive theory perspective. *Computers in Human Behavior*, 65, 468–478. <https://doi.org/10.1016/j.chb.2016.09.017>

- Bouteraa, M., Raja Hisham, R. R. I., & Zainol, Z. (2020). Islamic banks customers' intention to adopt green banking: Extension of UTAUT model. *International Journal of Business and Technology Management*, 2(1), 121–136.
- Burhanudin, B., Ronny, R., & Sihotang, E. T. (2019). Connecting intention to use online banking, commitment to environmental sustainability, and happiness: The role of nature relatedness. *Procedia Computer Science*, 161(July), 341–349. <https://doi.org/10.1016/j.procs.2019.11.132>
- CB, P., & Geetha, K. (2021). Factors affecting customers' perception towards digital banking services. *Turkish Journal of Computer and Mathematics Education*, 12(11), 1608–1614.
- Chavali, K., & Kumar, A. (2018). Adoption of mobile banking and perceived risk in GCC. *Banks and Bank Systems*, 13(1), 72–79. [https://doi.org/10.21511/bbs.13\(1\).2018.07](https://doi.org/10.21511/bbs.13(1).2018.07)
- Clemes, M. D., Gan, C., & Du, J. (2012). The factors impacting on customers' decisions to adopt internet banking. *Banks and Bank Systems*, 7(3), 33–50.
- Commission, M. C. and M. (2018). *Industry Performance Report 2018*. 54, 135.
- Dahawy, K., Tooma, E., & Kamel, S. (2005). The use of IT in teaching accounting in Egypt the case of BeckerConviser. *Communications of the IIMA*, 5(3). <https://doi.org/10.58729/1941-6687.1268>
- Deyalage, P. A., & Kulathunga, D. (2019). Factors affecting online customer satisfaction: The Sri Lankan perspective. *International Journal of Business and Management*, 14(2), 99. <https://doi.org/10.5539/ijbm.v14n2p99>
- Dospinescu, O., & Anastasiei, B. (2019). *Key factors determining the expected benefit of customers when using bank cards : An analysis on millennials and generation z in Romania*.
- Ecer, F. (2018). An integrated fuzzy AHP and ARAS model to evaluate mobile banking services. *Technological and Economic Development of Economy*, 24(2), 670–695. <https://doi.org/10.3846/20294913.2016.1255275>
- Ege Oruç, Ö., & Tatar, Ç. (2017). An investigation of factors that affect internet banking usage based on structural equation modeling. *Computers in Human Behavior*, 66, 232–235. <https://doi.org/10.1016/j.chb.2016.09.059>
- Fahmi, S., Noermijati, Rohman, F., & Sunaryo. (2018). Factors affecting Indonesian consumers to switch, using mobile banking and internet banking service. *KnE Social Sciences*, 3(10), 1236–1248. <https://doi.org/10.18502/kss.v3i10.3465>
- Fauzi, M. A. (2022). Partial least square structural equation modelling (PLS-SEM) in knowledge management studies: Knowledge sharing in virtual communities. *Knowledge Management and E-Learning*, 14(1), 103–124. <https://doi.org/10.34105/j.kmel.2022.14.007>

- Fawzy, S. F., & Esawai, N. (2017). Internet banking adoption in Egypt: Extending technology acceptance model. *Journal of Business and Retail Management Research*, 12(1), 109–118. <https://doi.org/10.24052/jbrmr/v12is01/ibaieetam>
- Firdous, S., & Farooqi, R. (2017a). Impact of banking service quality on customer satisfaction. *Journal of Internet Banking and Commerce*, 22(1), 1–17.
- Firdous, S., & Farooqi, R. (2017b). Impact of internet banking service quality on customer satisfaction. *Journal of Internet Banking and Commerce*, April 2017, Vol. 22, No. 1, 22(1), 61. <https://doi.org/10.37136/1003-000-046-141>
- Fisher, J., & W.P. (2007). Rating scale instrument quality criteria. *Rasch Measurement Transactions*, 21(1).
- Flavian, C., Gurrea, R., & Orus, C. (2009). Web design: A key factor for the website success. *Journal of Systems and Information Technology*, 11(2), 168–184. <https://doi.org/10.1108/13287260910955129>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, XVIII(February), 39–50.
- Gebreslassie, T. W. (2017). *E-Business Strategy to Adopt Electronic Banking Services in Ethiopia*. 186.
- Hadid, K. I., Soon, N. K., & Amreeghah, A. A. E. (2020). The effect of digital banking service quality on customer satisfaction: A case study on the Malaysian banks. *Asian Journal of Applied Science and Technology*, 04(01), 06–29. <https://doi.org/10.38177/ajast.2020.4102>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). A Primer on partial least squares structural equation modeling (PLS-SEM). Thousand Oaks. Sage, 165.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Partial least squares structural equation modeling (PLS-SEM) using R: A workbook. In *Springer*.
- Hamdu, G., Fuadi, F. N., Yulianto, A., & Akhirani, Y. S. (2020). Items quality analysis using rasch model to measure elementary school students' critical thinking skill on stem learning. *JPI (Jurnal Pendidikan Indonesia)*, 9(1), 61. <https://doi.org/10.23887/jpi-undiksha.v9i1.20884>
- Hammoud, J., Bizri, R. M., & El Baba, I. (2018). The impact of e-banking service quality on customer satisfaction : Evidence from the Lebanese banking sector. *SAGE Open*, 8(3). <https://doi.org/10.1177/2158244018790633>
- Harlacher, J. (2016). An educator's guide to questionnaire development. *Institute of Education Sciences (IES)*, January, 15 p.

- Hassan, S., & Awan, A. G. (2017). Factors affecting internet banking usage: A case study of professional graduates of Pakistan. *Global Journal of Management, Social Sciences & Humanities* 126, July.
- Hassanudin, T., Thaker, M., Khaliq, A., & Hussain, H. (2019). Continuous adoption of internet banking: Evidence from islamic banks in Malaysia. *Manuscript to the 10th Foundation of Islamic Finance Conference, November*, 1–27.
- Hazwani, N., Aziz, A., Ridzwan, N., & Mohd, S. (2019). *Factors influencing consumer behavior towards the usage of internet banking*. V(14), 1005–1015.
- Hennayake, H. M. G. Y. J. (2017). Impact of service quality on customer satisfaction of public sector commercial banks: A study on rural economic context. *International Journal of Scientific and Research Publications*, 7(2),(2), 156–161.
- Hirissa, M. T., Zariyawati, M. A., & Ying-Ying, T. (2019). Perceived risk towards continual usage intention of online banking. *Advanced Journal of Accounting and Finance*, 1(1), 10–16.
- Ho, W. S., & Yahya, S. (2015). Consumers' perception towards the extent of internet banking usage in Malaysia. *Problems and Perspectives in Management*, 13(2), 288–295.
- Hu, Z., Ding, S., Li, S., Chen, L., & Yang, S. (2019). Adoption intention of fintech services for bank users: An empirical examination with an extended technology acceptance model. *Symmetry*, 11(3). <https://doi.org/10.3390/sym11030340>
- Indar Rachmawati, W., Rustandi Kartawinata, B., Wijayangka, C., & Hasbi, I. (2020). Factors analysis that affecting the intention to use digital payment (case study on OVO users in Jakarta, Bogor, Depok, Tangerang, Bekasi). *KnE Social Sciences*, 2020, 290–302. <https://doi.org/10.18502/kss.v4i6.6605>
- Inder, S., Sood, K., & Grima, S. (2022). Antecedents of behavioural intention to adopt internet banking using structural equation modelling. *Journal of Risk and Financial Management*, 15(4). <https://doi.org/10.3390/jrfm15040157>
- Ishak, M. F., Ali, A. M., Tajuddin, N. I. I., & Shamsuddin, M. F. (2021). Does institution ranking influences students' decision-making to enrol at private higher education institutions? A PLS-SEM approach. *Academy of Entrepreneurship Journal*, 27(5), 1–10.
- Ismagilova, E., Slade, E. L., Rana, N. P., & Slade, E. L. (2019). *The effect of electronic word of mouth communications on intention to buy: A meta-analysis*. 1203–1226. <https://doi.org/https://doi.org/10.1007/s10796-019-09924-y>
- Ismarau Tajuddin, N. I., Abdullah, R., A. Jabar, M., Yah Jusoh, Y., & Arbaiy, N. (2017). Rasch model application in validating instrument for knowledge integration in small medium enterprises. *Acta Informatica Malaysia*, 1(2), 15–16. <https://doi.org/10.26480/aim.02.2017.15.16>

- Jagadeesan, D., & Chinnadurai, P. (2017). Internet banking service quality and account holders' satisfaction. *IOSR Journal of Business and Management (IOSR-JBM)*, 19(7), 81–86. <https://doi.org/10.9790/487X-1907048186>
- Jayasiri, N. K., Gunawaradana, K. D., & Dharmadasa, P. (2016). Adoption of internet banking in Sri Lanka: An extension to technology acceptance model. *Asia Pasific Journal of Contemporary Education and Communication Technology*, 2(January).
- Jehan, S. N., & Ansari, Z. A. (2018). Internet banking adoption in Saudi Arabia: An empirical study. *International Journal of Marketing Studies*, 10(3), 57. <https://doi.org/10.5539/ijms.v10n3p57>
- Jemili, N. S. (2019). Influence of service quality on internet banking customer satisfaction in Malaysia. *International Journal of Accounting & Business Management*, 7(2), 292–306.
- Jia, C. J., & Ling, A. W. P. (2019). Acceptance of wechat pay among consumers in Malaysia. *INTI Journal*, 2019(September).
- Jongmans, E., Jeannot, F., Liang, L., & Dampérat, M. (2022). Impact of website visual design on user experience and website evaluation: The sequential mediating roles of usability and pleasure. *Journal of Marketing Management*, 38(17–18), 2078–2113. <https://doi.org/10.1080/0267257X.2022.2085315>
- Jonyo, E., & Oduor, C. (2019). The effect of gender in online shopping behaviour among USIU-Africa students. *International Journal of Research Publications*, June, 1–11.
- Jung, J.-H., & Shin, J.-I. (2019). The effect of choice attributes of internet specialized banks on integrated loyalty: The moderating effect of gender. *Sustainability*, 11(24), 7063. <https://doi.org/10.3390/su11247063>
- Jung, J. H., & Shin, J. I. (2019). The effect of choice attributes of internet specialized banks on integrated loyalty: The moderating effect of gender. *Sustainability*, 11(24), 1–18. <https://doi.org/10.3390/su11247063>
- Kalaiarasi, H., & Srividya, V. (2013). An investigation on online banking adoption. *International Journal of Business Innovation and Research*, 7(1), 99. <https://doi.org/10.1504/IJBIR.2013.050558>
- Kante, M., Chepken, C., & Oboko, R. (2018). Partial least square structural equation Modelling ' use in information systems: An updated guideline of practices in exploratory settings. *Kabarak Journal of Research & Innovation*, 6(1), 49–67. <http://eserver.kabarak.ac.ke/ojs/>
- Karlimah, K. (2022). How does Rasch modeling reveal difficulty and suitability level the fraction test question? *Jurnal Elemen*, 8(1), 66–76. <https://doi.org/10.29408/jel.v8i1.4170>

- Karlsson, M. (2017). *Internet banking app quality compared to other utilitarian apps. 2014*, 1–12.
- Katagal, P. R., Mutkekar, R. R., & Garag, A. G. (2018). Exploring internet banking service quality attributes and it's impact on customer satisfaction. *Pacific Business Review International*, 11(3), 18–27.
- Kaur, A., & Malik, G. (2019). Examining factors influencing Indian customers' intentions and adoption of internet banking: Extending TAM with electronic service quality. *Innovative Marketing*, 15(2), 42–57. [https://doi.org/10.21511/im.15\(2\).2019.04](https://doi.org/10.21511/im.15(2).2019.04)
- Kelly, A. E., & Palaniappan, S. (2019). Information technology & software engineering survey on customer satisfaction, adoption, perception, behaviour and security on mobile banking. *Journal of Information Technology and Software Engineering*, 9(259). <https://doi.org/10.35248/2165-7866.19.9.259>
- Keng-Soon, C., Choo Yen-San, W., Pui-Yee, Y., Hong-Leong, C., & Teh Shwu-Shing, J. (2019). An adoption of Fintech service in Malaysia. *South East Asia Journal of Contemporary Business, Economics and Law*, 18(5), 134–147.
- Khan, A. J., Hanif, N., Iqbal, J., Ahmed, T., Hameed, W. U., & Malik, A. A. (2023). Greening for greater good: Investigating the critical factors for customer satisfaction with sustainable e-banking. *Environmental Science and Pollution Research*, September. <https://doi.org/10.1007/s11356-023-29090-8>
- Khan, A. P., Khan, S., & Xiang, I. A. R. (2017). Factors influencing consumer intentions to adopt online banking in Malaysia. *Business & Economic Review*, 9(2), 101–134. <https://doi.org/10.22547/BER/9.2.5>
- Khater, A. H. O., Omer, M. S., Khatarna, A. A. A., Osman, M. E. M. I., & Osman, I. Y. I. (2020). Customers intention to use internet banking: Age as a moderator variable. *International Journal of Scientific and Technology Research*, 9(3), 6541–6548.
- Khrais, L. T. (2018). The impact dimensions of service quality on the acceptance usage of internet banking information systems. *American Journal of Applied Sciences*, 15(4), 240–250. <https://doi.org/10.3844/ajassp.2018.240.250>
- Khwaja, M. G., Mahmood, S., & Zaman, U. (2020). Examining the effects of eWOM, trust inclination, and information adoption on purchase intentions in an accelerated digital marketing context. *Information*, 1–12.
- Kiljan, S., Vranken, H., & van Eekelen, M. (2018). Evaluation of transaction authentication methods for online banking. *Future Generation Computer Systems*, 80, 430–447. <https://doi.org/10.1016/j.future.2016.05.024>
- Kingdom, U., Saeed, S., Azim, M., Choudhary, A. I., & Humyon, A. A. (2015). Service quality factors affecting adoption of internet banking in Pakistan. *International Journal of Economics, Commerce and Management*, III(2), 1–10. <https://doi.org/10.1103/PhysRevA.70.063604>

- Kiri, R. K. D., & Raval, K. K. B. (2018). A study on adoption of internet banking among customers of public and private sector banks in North Gujarat. *Journal of Advances and Scholarly Researches in Allied Education*, 15(3), 220–227. <https://doi.org/10.29070/15/57442>
- Kock, N., & Hadaya, P. (2018). Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods. *Information Systems Journal*, 28(1), 227–261. <https://doi.org/10.1111/isj.12131>
- Lai, P. (2017). The literature review of technology adoption models and theories for the novelty technology. *Journal of Information Systems and Technology Management*, 14(1), 21–38. <https://doi.org/10.4301/S1807-17752017000100002>
- Legowo, M. B., Subanidja, S., & Sorongan, F. A. (2020). Model of sustainable development based on FinTech in financial and banking industry: A mixed-method research. *2020 3rd International Conference on Computer and Informatics Engineering, IC2IE 2020*, 194–199. <https://doi.org/10.1109/IC2IE50715.2020.9274605>
- Lin, W. R., Wang, Y. H., & Hung, Y. M. (2020). Analyzing the factors influencing adoption intention of internet banking: Applying DEMATEL-ANP-SEM approach. *PLoS ONE*, 15(2), 1–25. <https://doi.org/10.1371/journal.pone.0227852>
- Ling, C. H., Islam, M. A., Manaf, A. H. A., & Wan Mustafa, W. M. (2015). Users satisfaction towards online banking in Malaysia. *International Business Management*, 9(1), 15–27. <https://doi.org/10.3923/ibm.2015.15.27>
- Liu, X., & Kao, Z. (2021). Research on influencing factors of customer satisfaction of e-commerce of characteristic agricultural products. *Procedia Computer Science*, 199, 1505–1512. <https://doi.org/10.1016/j.procs.2022.01.192>
- Magboul, I. H. M., & Abbad, M. (2018). Antecedents and adoption of e-banking in bank performance: The perspective of private bank employees. *Interdisciplinary Journal of Information, Knowledge, and Management*, 13, 361–381. <https://doi.org/10.28945/4132>
- Malaysian Communications and Multimedia Commission. (2018). Internet users survey 2018. *Malaysian Communications and Multimedia Commission*, 1–39.
- Marafon, D. L., Basso, K., Espartel, L. B., de Barcellos, M. D., & Rech, E. (2018). Perceived risk and intention to use internet banking: The effects of self-confidence and risk acceptance. *International Journal of Bank Marketing*, 36(2), 277–289. <https://doi.org/10.1108/IJBM-11-2016-0166>
- Marn, J. T. K. (2015). Online banking acceptance among university students: An empirical investigation. *BERJAYA Journal of Services & Management*, 4(July), 37–47.

- Masoud, E., & AbuTaqa, H. (2017). Factors affecting customers' adoption of e-banking services in Jordan. *Information Resources Management Journal*, 30(2), 44–60. <https://doi.org/10.4018/irmj.2017040103>
- Massilamany, M., & Nadarajan, D. (2017). Factors that influencing adoption of internet banking in Malaysia. *International Journal of Business and Management*, 12(3), 126. <https://doi.org/10.5539/ijbm.v12n3p126>
- Matsuo, M., Minami, C., & Matsuyama, T. (2018). Social influence on innovation resistance in internet banking services. *Journal of Retailing and Consumer Services*, 45(August), 42–51. <https://doi.org/10.1016/j.jretconser.2018.08.005>
- Melnikovas, A. (2018). Towards an explicit research methodology: Adapting research onion model for futures studies. *Journal of Futures Studies*, 23(2)(December 2018), 29–44. <https://doi.org/10.6531/JFS.201812>
- Mendoza, M. C. O., Santos, R. R. C., & Magdaraog, J. E. H. (2020). Assessment of e-service quality dimensions and its influence on customer satisfaction: A study on the online banking services in the Philippines. *2020 IEEE 7th International Conference on Industrial Engineering and Applications, ICIEA 2020*, 1076–1081. <https://doi.org/10.1109/ICIEA49774.2020.9101940>
- Mengistie, H. S., & Worku, A. (2020). *Measuring customer's attitude towards internet banking adoption in Ethiopia*. 22(6), 22–32. <https://doi.org/10.9790/487X-2206052232>
- Mensah, J. (2019). Sustainable development: Meaning, history, principles, pillars, and implications for human action: Literature review. *Cogent Social Sciences*, 5(1). <https://doi.org/10.1080/23311886.2019.1653531>
- Merhi, M., Hone, K., & Tarhini, A. (2019). Technology in society a cross-cultural study of the intention to use mobile banking between Lebanese and British consumers: Extending UTAUT2 with security, privacy and trust. *Technology in Society*, 59(June), 101151. <https://doi.org/10.1016/j.techsoc.2019.101151>
- Miran, I. H. (2017). A mixed methods approach to investigate the electronic banking websites service quality : The case of Egypt. *Arab Academy for Science, Technology and Maritime Transport*.
- Mohamad, L., Osman, Z., Mohamad, R. K., Ismail, Z., & Mohd Din, M. I. (2023). The perceived attitude of bank customers towards the intention to use digital banking in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 13(1), 1308–1323. <https://doi.org/10.6007/ijarbs/v13-i1/15570>
- Mohd Thas Thaker, H., Mohd Thas Thaker, M. A., Khaliq, A., Allah Pitchay, A., & Iqbal Hussain, H. (2022). Behavioural intention and adoption of internet banking among clients' of islamic banks in Malaysia: An analysis using UTAUT2. *Journal of Islamic Marketing*, 13(5), 1171–1197. <https://doi.org/10.1108/JIMA-11-2019-0228>

- Moons, I., & De Pelsmacker, P. (2015). An extended decomposed theory of planned behaviour to predict the usage intention of the electric car: A multi-group comparison. *Sustainability (Switzerland)*, 7(5), 6212–6245. <https://doi.org/10.3390/su7056212>
- Moudatsou, M., Stavropoulou, A., Philalithis, A., & Koukouli, S. (2020). The Role of empathy in health and social care professionals. *Healthcare*, 7–9.
- Mufarih, M., Jayadi, R., & Sugandi, Y. (2020). Factors influencing customers to use digital banking application in Yogyakarta, Indonesia. *Journal of Asian Finance, Economics and Business*, 7(10), 897–908. <https://doi.org/10.13106/jafeb.2020.vol7.no10.897>
- Munusamy, J., De Run, E. C., Chelliah, S., & Annamalah, S. (2013). Adoption of retail internet banking: A study of demographic factors. *Journal of Internet Banking and Commerce*, 18(2–11), 10. <http://eprints.utm.my/8136/>
- Muresherwa, E., & Jita, L. C. (2022). The value of a pilot study in educational research learning: In search of a good theory-Method fit. *Journal of Educational and Social Research*, 12(2), 220–236. <https://doi.org/10.36941/jesr-2022-0047>
- Muslihin, H. Y., Suryana, D., Ahman, Suherman, U., & Dahlan, T. H. (2022). Analysis of the reliability and validity of the self-determination questionnaire using rasch model. *International Journal of Instruction*, 15(2), 207–222. <https://doi.org/10.29333/iji.2022.15212a>
- Naeem, M. (2021). Developing the antecedents of social influence for internet banking adoption through social networking platforms: Evidence from conventional and islamic banks. *Asia Pacific Journal of Marketing and Logistics*, 33(1), 185–204. <https://doi.org/10.1108/APJML-07-2019-0467>
- Nag, A. K., & Gilitwala, B. (2019). E-wallet: Factors affecting it's intention to use. *International Journal of Recent Technology and Engineering (IJRTE)*, 8(4), 3411–3415. <https://doi.org/10.35940/ijrte.D6756.118419>
- Nguyen-Viet, B., & Ngoc Huynh, K. (2021). Empirical analysis of internet banking adoption in Vietnam. *Cogent Economics and Finance*, 9(1). <https://doi.org/10.1080/23322039.2021.1992876>
- Nguyen, T. D., Nguyen, T. Q. L., Nguyen, T. V., & Tran, T. D. (2020). Intention to use m-banking: The role of E-WOM. *Advances in Intelligent Systems and Computing*, 940(April), 215–229. https://doi.org/10.1007/978-3-030-16657-1_20
- Nor, K. M., Pearson, J. M., & Abu-Shanab, E. (2008). Internet banking acceptance in Malaysia based on the theory of reasoned action. *Researchgate*, 5(1), 3–13. <https://doi.org/10.4301/10.4301>

- Normalini, M. K., Ramayah, T., & Shabbir, M. S. (2019). Investigating the impact of security factors in e-business and internet banking usage intention among Malaysians. *Industrial Engineering and Management Systems*, 18(3), 501–510. <https://doi.org/10.7232/iems.2019.18.3.501>
- Nyoni, S., Chiguvu, D., & Nhlane, P. (2017). The impact of customer service quality on customer satisfaction in islamic banking. *Journal of Islamic Marketing*, 8(4), 595–604. <https://doi.org/10.1108/JIMA-07-2015-0049>
- Ofori, K. S., Boateng, H., Okoe, A. F., & Gvozdanovic, I. (2017). Examining customers' continuance intentions towards internet banking usage. *Marketing Intelligence and Planning*, 35(6), 756–773. <https://doi.org/10.1108/MIP-11-2016-0214>
- Okoli, C. (2015). A guide to conducting a standalone systematic literature review. *Communications of the Association for Information Systems*, 37(1), 879–910. <https://doi.org/10.17705/1cais.03743>
- Olannye, A. P., Dedekuma, S. E., & Ndugbe, E. H. (2017). Enhancing customer retention through electronic service delivery channels in the Nigerian banking industry. *International Journal of Business Administration*, 8(5), 57. <https://doi.org/10.5430/ijba.v8n5p57>
- Ong, T. S., Hong, Y. H., Teh, B. H., Soh, P. C. H., & Tan, C. P. (2014). Factors that affect the adoption of internet banking in Malaysia. *International Business Management*, 8(2), 55–63.
- Osuagwu, L. (2020). Research methods: Issues and research direction. *Business and Management Research*, 9(3), 46. <https://doi.org/10.5430/bmr.v9n3p46>
- Othman, B., Harun, A., Ismail, D. A., Sadq, Z. M., Ali, S., & Ramsey, T. S. (2019). Malaysian consumer behaviour towards internet banking: An application of technology acceptance model. *International Journal of Psychosocial Rehabilitation*, 23(2), 689–703. <https://doi.org/10.37200/IJPR/V23I2/PR190324>
- Othman, N., Salleh, S. M., Hussin, H., & Wahid, H. A. (2014). Assessing construct validity and reliability of competitiveness scale using rasch model approach. *The 2014 WEI International Academic Conference Proceedings*, 113–120.
- Pakurár, M., Haddad, H., Nagy, J., Popp, J., & Oláh, J. (2019). The service quality dimensions that affect customer satisfaction in the Jordanian banking sector. *Sustainability (Switzerland)*, 11(4). <https://doi.org/10.3390/su11041113>
- Paudel, S., & Kumar, V. (2021). Critical success factors of information technology outsourcing for emerging markets. *Journal of Computer Science*, 17(5), 459–469. <https://doi.org/10.3844/jcssp.2021.459.469>
- Planinic, M., Boone, W. J., Susac, A., & Ivanjek, L. (2019). Rasch analysis in physics education research: Why measurement matters. *Physical Review Physics Education Research*, 15(2), 20111. <https://doi.org/10.1103/PhysRevPhysEducRes.15.020111>

- Priyanath, H. M. S. (2018). Impact of internet banking service quality on customer satisfaction. *Australasian Medical Journal*, 5(12), 690–692. <https://doi.org/10.1186/1749-8104-7-19>
- Qahri-saremi, H. Q., Reza, A., & Montazemi, M. R. (2019). Factors affecting the adoption of an electronic word of mouth message: A meta-analysis. *Journal of Management Information Systems*, 36(3), 969–1001. <https://doi.org/10.1080/07421222.2019.1628936>
- Rahaman, A. M., Luna, K. F., Kejing, Z., Ping, Z. L., & Taru, R. D. (2021). Determinants of accepting internet banking system: A case study in Bangladesh. *Journal of Asian Finance, Economics and Business*, 8(5), 931–937. <https://doi.org/10.13106/jafeb.2021.vol8.no5.0931>
- Rahi, S., Abd. Ghani, M., & MI Alnaser, F. (2017). Predicting customer's intentions to use internet banking: the role of technology acceptance model (TAM) in e-banking. *Management Science Letters*, August, 513–524. <https://doi.org/10.5267/j.msl.2017.8.004>
- Rahi, S., Ghani, M. A., & Ngah, A. H. (2020). Factors propelling the adoption of internet banking: The role of e-customer service, website design, brand image and customer satisfaction. *International Journal of Business Information Systems*, 33(4), 549–569. <https://doi.org/10.1504/IJBIS.2020.105870>
- Rahi, S., Othman Mansour, M. M., Alharafsheh, M., & Alghizzawi, M. (2021). The post-adoption behavior of internet banking users through the eyes of self-determination theory and expectation confirmation model. *Journal of Enterprise Information Management*, 34(6), 1874–1892. <https://doi.org/10.1108/JEIM-04-2020-0156>
- Rahman, M. M., Tabash, M. I., Salamzadeh, A., Abduli, S., & Rahaman, M. S. (2022). Sampling techniques (probability) for quantitative social science researchers: A conceptual guidelines with examples. *SEEU Review*, 17(1), 42–51. <https://doi.org/10.2478/seeur-2022-0023>
- Rajaobelina, L., Brun, I., Prom Tep, S., & Arcand, M. (2018). Towards a better understanding of mobile banking: The impact of customer experience on trust and commitment. *Journal of Financial Services Marketing*, 23(3–4), 141–152. <https://doi.org/10.1057/s41264-018-0051-z>
- Ranabhat, D., Poudel, H., & Ranabhat, M. (2022). Awareness and usage of internet banking facilities in Pokhara metropolitan, Nepal. *Journal of Business and Management*, 6(01), 18–30. <https://doi.org/10.3126/jbm.v6i01.46634>
- Rapidah, S., Ali, O., Nur, W., Wan, K., Shafini, N., Said, M., & Maizan, S. (2020). Perceived ease of use and trust towards intention to use online banking in Malaysia. *Jurnal Intelek*, 15(1).

- Raviadaran, H., Dastane, O., Ma'arif, M. Y. M., & Mohd Satar, N. S. (2019a). Impact of service quality dimensions on customer satisfaction in retail banking. *Journal of Advanced Research in Dynamical and Control Systems*, 11(4 Special Issue), 1002–1008.
- Raviadaran, H., Dastane, O., Ma'arif, M. Y., & Mohd Satar, N. (2019b). Impact of service quality dimensions on internet banking adoption, satisfaction and patronage. *Journal of Advanced Research in Dynamical and Control Systems*, 11(4 Special Issue), 1002–1008.
- Rawwash, H., Masa'd, F., Enaizan, O., Eanizan, B., Adaileh, M. J., Saleh, A. M., & Almestarihi, R. (2020). Factors affecting Jordanian electronic banking services. *Management Science Letters*, 10(4), 915–922. <https://doi.org/10.5267/j.msl.2019.10.004>
- Reepu, & Arora, R. (2022). The effect of perceived risk on intention to use online banking. *Universal Journal of Accounting and Finance*, 10(1), 62–71. <https://doi.org/10.13189/ujaf.2022.100107>
- Rehman, Z. U., & Shaikh, F. A. (2020). Critical factors influencing the behavioral intention of consumers towards mobile banking in Malaysia. *Engineering, Technology & Applied Science Research*, 10(1), 5265–5269.
- Riegler, M. (2023). Towards a definition of sustainable banking: A consolidated approach in the context of guidelines and strategies. *International Journal of Corporate Social Responsibility*, 8(1). <https://doi.org/10.1186/s40991-023-00078-0>
- Sabeh, H. N., Husin, M. H., Kee, D. M. H., Baharudin, A. S., & Abdullah, R. (2021). A systematic review of the DeLone and McLean model of information systems success in an e-learning context (2010-2020). *IEEE Access*, 9, 81210–81235. <https://doi.org/10.1109/ACCESS.2021.3084815>
- Saeidipour, B., Ranjbar, H., & Ranjbar, S. (2013). Adoption of internet banking. *IOSR Journal of Business and Management (IOSR-JBM)*, 11(2), 46–51.
- Safari, K., Bisimwa, A., & Buzera Armel, M. (2022). Attitudes and intentions toward internet banking in an under developed financial sector. *PSU Research Review*, 6(1), 39–58. <https://doi.org/10.1108/PRR-03-2020-0009>
- Saman, M. A. (2018). Factors that influence the adoptions of internet banking among customers. *American Finance & Banking Review*, 3(1), 35–41.
- Sana, P. A. A., Sri, S. N. W., Kerti, Y. N. N., & Gde, S. I. P. (2019). Technology acceptance model and trust in explaining customer intention to use internet banking. *Russian Journal of Agricultural and Socio-Economic Sciences*, 7(July), 254–262. <https://doi.org/10.18551/rjoas.2019-07.29>

- Saoula, O., Shamim, A., Mohd Suki, N., Ahmad, M. J., Abid, M. F., Patwary, A. K., & Abbasi, A. Z. (2023). Building e-trust and e-retention in online shopping: The role of website design, reliability and perceived ease of use. *Spanish Journal of Marketing - ESIC*, 27(2), 178–201. <https://doi.org/10.1108/SJME-07-2022-0159>
- Saprikis, V., Avlogiaris, G., & Katarachia, A. (2022). A comparative study of users versus non-users' behavioral intention towards m-banking apps' adoption. *Information (Switzerland)*, 13(1). <https://doi.org/10.3390/info13010030>
- Sasongko, D. T., Handayani, P. W., & Satria, R. (2021). Analysis of factors affecting continuance use intention of the electronic money application in Indonesia. *Procedia Computer Science*, 197(2021), 42–50. <https://doi.org/10.1016/j.procs.2021.12.116>
- Sathiyavany, N., & Shivany, S. (2018). E-banking service qualities, e-customer satisfaction and e-loyalty: A conceptual model. *The International Journal of Social Sciences and Humanities Invention*, 5(6), 4808–4819. <https://doi.org/10.18535/ijsshi/v5i6.08>
- Saunders, M. N. K., Lewis, P., & Thornhill, A. (2019). “Research methods for business students” Chapter 4: Understanding research philosophy and approaches to theory development. In *Researchgate.Net* (Issue January).
- Selvanathan, a, M., & Rabbi, F. (2016). Internet banking challenges among customers in Selangor, Malaysia. *International Journal of Human Resource Studies*, 6. <https://doi.org/10.5296/ijhrs.v6i3.9727>
- Selvanathan, M., Devi Krisnan, U., & Kar Jun, G. (2017). Acceptance of internet banking among consumers in Kota Damansara, Selangor, Malaysia. *International Journal of Business and Management*, 12(2), 103. <https://doi.org/10.5539/ijbm.v12n2p103>
- Selvanathan, M., Tan, P. J., Bow, T. F., & Supramaniam, M. (2016). The impact of cost, customer experience, ease of use, and trust towards adoption of online banking. *International Business Research*, 9(11), 235. <https://doi.org/10.5539/ibr.v9n11p235>
- Serrah, E. A., & Haja Maideen, M. (2022). E-Banking services and customer satisfaction: Focus on a private bank in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 12(10), 1489–1499. <https://doi.org/10.6007/ijarbss/v12-i10/13077>
- Shabbir, M. S., Ramayah, T., & M.K., N. (2019). Investigating the impact of security factors in e-business and internet banking usage intention among Malaysians. *Industrial Engineering and Management Systems*, 3(18), 501–510. <https://doi.org/10.7232/iems.2019.18.3.501>

- Shankar, A., & Jebarajakirthy, C. (2020). How do electronic word of mouth practices contribute to mobile banking adoption? *Journal of Retailing and Consumer Services*, 52(August 2018), 101920. <https://doi.org/10.1016/j.jretconser.2019.101920>
- Shanmugam, M. (2017). *An integrated continuance participation framework ofr online communities* (Issue September). Universiti Putra Malaysia.
- Showkat, N., & Parveen, H. (2017). Non-probability and probability sampling. *Communications Research*, August.
- Shrestha, S., Parajuli, S., & Paudel, U. R. (2019). Communication in banking sector: A systematic review. *Quest Journal of Management and Social Sciences*, 1(2), 272–284. <https://doi.org/10.3126/qjmss.v1i2.27445>
- Singh, Ajay, S., & Masuku, M. B. (2014). Sampling techniques and dertermining sample size in applied statistics research: An overview. *International Journal of Economics, Commerce and Management*, II(11), 1–22.
- Singh, S. (2019). Measuring e-service quality and customer satisfaction with internet banking in India. *Theoretical Economics Letters*, 09(02), 308–326. <https://doi.org/10.4236/tel.2019.92023>
- Skvarciany, V., & Jurevičiene, D. (2018). Factors influencing individual customers trust in internet banking: Case of Baltic states. *Sustainability*, 10(12). <https://doi.org/10.3390/su10124809>
- Slazus, B. J., & Bick, G. (2022). Factors that Influence FinTech adoption in South Africa: A study of consumer behaviour towards branchless mobile banking. *Athens Journal of Business & Economics*, 8(1), 429–450. <https://doi.org/10.30958/ajbe.8-1-3>
- Sohrabi, Maryam, Julie Yew Mei Yee, R. J. N., Sohrabi, M., Yee, J. Y. M., & Nathan, R. J. (2013). Critical success factors for the adoption of e-banking in Malaysia. In *International Arab Journal of e-Technology* (Vol. 3, Issue 2, pp. 1–7).
- Su, P., Wang, L., & Yan, J. (2018). How users' internet experience affects the adoption of mobile payment: A mediation model. *Technology Analysis and Strategic Management*, 30(2), 186–197. <https://doi.org/10.1080/09537325.2017.1297788>
- Sudarsono, H., Nugrohowati, R. N. I., & Tumewang, Y. K. (2020). The effect of Covid-19 pandemic on the adoption of internet banking in Indonesia: Islamic bank and conventional bank. *Journal of Asian Finance, Economics and Business*, 7(11), 789–800. <https://doi.org/10.13106/jafeb.2020.vol7.no11.789>
- Sulaiman, M. S., & Abdelkarim, N. (2019). Electronic banking strategies and their impact on customers' satisfaction: Empirical evidence from Palestine. *Asian Social Science*, 15(10). <https://doi.org/10.5539/ass.v15n10p20>

- Sundara, A., & Perera, A. (2018). The factors influencing on the customer adoption of internet banking system special reference to the Sampath bank in Colombo district. *International Journal of Scientific and Research Publications*, 8(2).
- Sundaram, N., Thomas, C., & Agilandeewari, L. (2019). A review: Customers online security on usage of banking technologies in smartphones and computers. *Pertanika Journal of Science and Technology*, 27(1), 1–31.
- Syahadiyanti, L., & Subriadi, A. P. (2018). Diffusion of innovation theory utilization online financial transaction: Literature review. *International Journal of Economics and Financial Issues*, 8(3), 219–226. <https://search.proquest.com/docview/2056362665?accountid=17242>
- Taherdoost, H. (2016). Sampling methods in research methodology: How to choose a sampling technique for research. *International Journal of Academic Research in Management (IJARM)*, 5(2), 18–27.
- Taherdoost, H. (2018). A review of technology acceptance and adoption models and theories. *Procedia Manufacturing*, 22, 960–967. <https://doi.org/10.1016/j.promfg.2018.03.137>
- Tahir, M., & Tummala, M. (2022). A Study of factors influencing customers' adoption of mobile banking in Oman. *Advances in Social Sciences Research Journal*, 9(5), 1–11. <https://doi.org/10.14738/assrj.95.12121>
- Talafha, H., & Abu-Shanab, E. (2015). Would gender, education and age influence internet banking adoption constructs in Jordan? *IADIS International Journal*, 13(2), 69–82.
- Tengli, M. B. (2020). Research Onion: A systematic approach for designing research methodology. *Research Gate*, August, 1–7. <https://www.researchgate.net/publication/368874144>
- Tharanikaran, V., Sritharan, S., & Thusyanthy, V. (2017). Service quality and customer satisfaction in the electronic banking. *International Journal of Business and Management*, 12(4), 67. <https://doi.org/10.5539/ijbm.v12n4p67>
- Tsourela, M., & Nerantzaki, D. (2020). An internet of things (IoT) acceptance model. Assessing consumer's behavior toward IoT products and applications. *MDPI*, 1–23.
- Uddin, B., Haque, A., Maulan, S., & Hasan, S. (2018). International students' satisfaction towards internet banking at international islamic university Malaysia: A qualitative study. *Journal of International Business and Management*, 1(1), 1–14.
- Usino, W., & Metri, W. (2018). Factors influencing customers' intention to use internet banking: MAYBANK2U in Indonesia. *3rd International Conference on Computing, Engineering, and Design, ICCED 2017, 2018-March*, 1–4. <https://doi.org/10.1109/CED.2017.8308133>

- Veja, M., & Štofa, T. (2017). *Influence of security and trust on electronic banking adoption*. December. <https://doi.org/10.15240/tul/001/2017-4-010>
- Vetrivel, S. C., Rajini, J., & Krishnamoorthy, V. (2020). Influence of internet banking service quality on customer satisfaction - An Indian experience. *Journal of Critical Reviews*, 7(2), 546–551. <https://doi.org/10.31838/jcr.07.02.102>
- Wakene, D. K., Munapo, E., & Olufemi, A. P. (2020). The effect of demographic factors on intention to use banking services: Evidence from Ethiopia. *Global Scientific Journals*, 8(6), 678–691.
- Wang, J., Liu, Y., Li, P., Lin, Z., Sindakis, S., & Aggarwal, S. (2023). Overview of data quality: Examining the dimensions, antecedents, and impacts of data quality. *Journal of the Knowledge Economy*, 0123456789. <https://doi.org/10.1007/s13132-022-01096-6>
- Wardani, D. A. K., & Riskayanto. (2019). Analysis of information system quality and user acceptance on internet banking industry. *Journal of Global Economics Wardani*, 7(1), 1–8. <https://doi.org/10.4172/2375-4389.1000331>
- Windasari, N. A., Kusumawati, N., Larasati, N., & Amelia, R. P. (2022). Digital-only banking experience: Insights from gen Y and gen Z. *Journal of Innovation and Knowledge*, 7(2), 100170. <https://doi.org/10.1016/j.jik.2022.100170>
- Wisdom, J. P., Suite, E. S., & Horwitz, S. M. (2014). Innovation adoption: A review of theories and constructs. *Administration and Policy in Mental Health and Mental Health Services Research*, 41(4), 480–502. <https://doi.org/10.1007/s10488-013-0486-4>.Innovation
- Xiao, C., Xiao, Y., Sukumar, A., Tipi, L., & Edgar, D. (2017). Factors influencing people's intention to adopt e-banking: An empirical study of consumers in Shandong Province, China. *Asian Journal of Computer and Information Systems*, 05(03), 2321–5658. <https://edshare.gcu.ac.uk/id/eprint/5179>
- Yakubu, M. N., & Dasuki, S. I. (2018). Assessing e-learning systems success in Nigeria: An application of the DeLone and McLean information systems success model. *Journal of Information Technology Education: Research*, 17, 182–202.
- Yang, M., Al Mamun, A., Mohiuddin, M., Naw, N. C., & Zainol, N. R. (2021). Cashless transactions: A study on intention and adoption of e-wallets. *Sustainability (Switzerland)*, 13(2), 1–18. <https://doi.org/10.3390/su13020831>
- Yaseen, S. G., & El Qirem, I. A. (2018). Intention to use e-banking services in the Jordanian commercial banks. *International Journal of Bank Marketing*, 36(3), 557–571. <https://doi.org/10.1108/IJBM-05-2017-0082>
- Yendra, Brasit, N., & Nursyamsi, I. (2017). An analysis on factors that influence customers' intention to use internet banking in Jayapura city. *Scientific Research Journal (SCIRJ)*, V(Viii), 29. www.scirj.org

- Yenyuen, Y., & Yeow, P. H. P. (2009). User acceptance of internet banking service in Malaysia. *Lecture Notes in Business Information Processing*, 18 LNBIP, 295–306. https://doi.org/10.1007/978-3-642-01344-7_22
- Yoon, C., & Lim, D. (2020). An empirical study on factors affecting customers' acceptance of internet-only banks in Korea. *Cogent Business and Management*, 7(1). <https://doi.org/10.1080/23311975.2020.1792259>
- Yousuf, A. I., & Shanyu, L. (2021). Examining the factors impact people's intention to adoption of e-banking in Mogadishu-Somalia. *American Journal of Industrial and Business Management*, 11(12), 1218–1236. <https://doi.org/10.4236/ajibm.2021.1112073>
- Yuan, Y., Lai, F., & Chu, Z. (2019). Continuous usage intention of Internet banking: A commitment-trust model. *Information Systems and E-Business Management*, 17(1). <https://doi.org/10.1007/s10257-018-0372-4>
- Zagalaz Jiménez, J. R., & Aguiar Díaz, I. (2019). Educational level and internet banking. *Journal of Behavioral and Experimental Finance*, 22, 31–40. <https://doi.org/10.1016/j.jbef.2019.01.004>