

# FACTORS INFLUENCING THE ADOPTION OF DIGITAL FINANCE AMONG MICROENTREPRENEURS

Norhaziah Nawai

Faculty of Economics and Muamalat  
Universiti Sains Islam Malaysia  
Bandar Baru Nilai Nilai Negeri Sembilan  
[norhaziahn@usim.edu.my](mailto:norhaziahn@usim.edu.my)

**Abstract:** *Digital finance has significantly transformed the microentrepreneurs landscape, particularly in developing countries. By leveraging digital platforms, these entrepreneurs can manage their finances more effectively, access new markets, and integrate into the formal economy. Digital finance can empower microentrepreneurs by providing them greater financial autonomy, reducing their dependence on informal and often exploitative financial arrangements, and offering them tools to better manage their business risks. This paper aims to explore the factors that influence the adoption of digital finance among microentrepreneurs by using a qualitative approach through content analysis. The findings show that digital literacy and skills, trust, accessibility, perceived ease of use, financial literacy, social influence, regulatory and cultural factors are the factors that influence the adoption of digital finance among microentrepreneurs. Therefore, it is suggested that policymakers, financial institutions, technology providers, and related organizations work together to create an enabling environment that supports the adoption of digital finance, particularly for underserved and vulnerable populations.*

**Keywords:** Digital finance, adoption, microentrepreneurs

## 1. Introduction

The global economy is increasingly driven by the dynamism of micro, small, and medium-sized enterprises (MSMEs), with microentrepreneurs constituting the backbone of this sector in many developing countries. In Malaysia, according to the Department of Statistics, out of 1,101,725 MSMEs registered for business in 2023, around 69.7% or 767,421 were micro businesses (DOS, 2023). Microentrepreneurs have a very important role in the national economy, such as reducing unemployment and contribution toward gross domestic product (GDP). Microentrepreneurs typically operate small businesses, often within the informal economy, and are characterized by limited access to capital, markets, and formal financial services. Despite their small scale, these entrepreneurs are pivotal to job creation, poverty alleviation, and local economic development, especially in low-income communities where they often serve as the primary source of employment and livelihood.

However, one of the most significant challenges microentrepreneurs' faces is access to traditional financial services (Trianto et al. 2023). Conventional banking systems tend to cater to larger businesses with established credit histories and sufficient collateral, leaving microentrepreneurs with limited access to essential financial services such as credit, savings,

insurance, and payment systems. This financial exclusion hampers their ability to grow, invest in their businesses, and mitigate risks, thus limiting their potential to contribute fully to economic development. The advent of digital finance has emerged as a transformative force capable of addressing these challenges. Some previous studies have pointed out the importance of technological adoption and capabilities for micro, small and medium enterprises particularly in improving their competitiveness and performance (Duch-Brown et al., 2017; Papadopoulos et al., 2020; Affandi et al., 2024; Savvakis et al., 2024).

Commencing with the global financial crisis spanning from 2007 to 2009, a multitude of financial institutions initiated the implementation of digital technology for the facilitation of cross-border payments, and the administration of customer accounts that sparked the development of fintech (Suryono et al. 2020). The proliferation of such technological adoptions has been notably accentuated during the period of the Covid-19 pandemic. The Covid-19 pandemic has led to a change in individuals' conduct as a result of limitations on movement and lockdown measures, resulting in the enforcement of 'social distancing'. According to Papadopoulos et al. (2020), there is an argument that digital technologies have gained increased significance for Small and Medium Enterprises (SMEs) in the context of Covid-19, particularly in their operational processes. In a similar vein, Caballero-Morales (2021) demonstrates that digital tools such as the internet and communication platforms (such as WhatsApp, ZOOM, Skype) play a crucial role as the primary enablers for SMEs to sustain their networks and foster innovation, ultimately aiding their survival both during and post the Covid-19 era.

Digital technology in finance has aided the rapid development of the financial sector and contributed to high levels of financial inclusion especially in developing countries (Aziz and Naima, 2021; Ozili, 2023). Digital finance has become a key tool for reducing social inequality and promoting economic growth (Liu et al. 2022; Ozturk and Ullah, 2022). Digital finance, which encompasses a range of financial services delivered through digital channels such as mobile phones, the internet, and digital payment systems, offers a new pathway for financial inclusion. By leveraging technology, digital finance can overcome traditional barriers to financial services, providing microentrepreneurs with accessible, affordable, and efficient financial solutions. This shift is particularly significant in regions where mobile phone penetration is high, even in remote and underserved areas, creating opportunities for financial services to reach previously excluded populations.

The adoption of digital finance among microentrepreneurs has the potential to revolutionize the way they conduct business. It enables them to manage their finances more effectively, access new markets, and integrate into the formal economy. Moreover, digital finance can empower microentrepreneurs by providing them with greater financial autonomy, reducing their dependence on informal and often exploitative financial arrangements, and offering them tools to better manage their business risks. Previous studies showed that the higher the adoption of digital among entrepreneurs, the more likely is their business success (Arifin et al., 2023; Lex et al., 2020; Suminah & Anantanyu, 2020).

However, the adoption of digital finance is not without its challenges. It requires a conducive ecosystem, including reliable digital infrastructure, financial literacy, trust in digital platforms, and supportive regulatory frameworks. Moreover, factors such as technological literacy, socio-cultural norms, and the perceived value of digital financial services play a crucial role in influencing whether and how microentrepreneurs embrace digital finance.

This paper aims to explore the factors that influence the adoption of digital finance among microentrepreneurs. The paper is divided into five sections. It starts with an introduction in section one, followed by a literature review in section two. Section three explains the

methodology and section four discusses the findings. The article ends with the conclusion in section five.

## **2. Literature Review**

### **Understanding Digital Finance in the Context of Microentrepreneurs**

Artificial intelligence, big data, and digital technology have all become more popular academic topics, resulting in the emergence of a new idea known as Fintech (Awotunde, 2021). Fintech was changing the financial services landscape from physical to digital financial services. Digital finance refers to the provision of financial services through digital channels, including mobile phones, computers, and the internet. It is a process of using digital devices and digital technology to acquire, use and distribute financial resources to economic agents such as individuals, households, firms and government (Siddik & Kabiraj, 2020; Ozili, 2018). Digital finance plays a key role in enhancing service efficiency and saving a large amount of processing costs incurred by using traditional financial services (Koh et.al, 2018). The costs related to transactions are reduced through the use of digital finance, as it helps conserve both time and human resources. Therefore, it is crucial to assess the role of innovation in conjunction with digital finance to promote the sustainable development of microenterprises in the digital era.

Mobile money and payment such as Touch n Go, GrabPay, and BigPay allow microentrepreneurs to send and receive payments, pay bills, and transfer money using their mobile phones. These services are crucial for microentrepreneurs who may not have access to traditional banking infrastructure. Mobile payments enable businesses to conduct transactions with customers, suppliers, and partners, regardless of geographic location (Gherghina et al, 2020; Ozili, 2018). It encompasses various services such as digital payments, online lending, mobile banking, crowdfunding, and insurance products. For microentrepreneurs, digital finance offers a way to bypass traditional banking obstacles, enabling them to manage their finances more effectively, access credit, and expand their businesses with lower transaction costs (Mushtaq & Bruneau, 2019). Amar et al. (2024) revealed that digital financial inclusion (DFI) significantly aids micro enterprises in overcoming regulatory obstacles and managing market externalities. It also highlights that factor such as internet access, education, and the experience of the owner are crucial for enhancing DFI among these enterprises.

## **3. Methodology**

This study employs a purely qualitative approach, primarily using the exploratory method for data collection, with references to sources gathered through library research. Content analysis is employed to comprehensively review the literature related to the factors influencing the adoption of digital finance among microentrepreneurs.

## **4. Findings and Discussions**

### **Factors Influencing the Adoption of Digital Finance**

Based on the previous empirical studies, there are eight main factors that motivate the adoption of digital finance among microentrepreneurs. The adoption of digital finance by

microentrepreneurs is influenced by a complex interplay of factors. These factors range from individual-level characteristics such as technological literacy and trust to broader contextual elements like infrastructure availability and regulatory environment. Understanding these factors is crucial for designing strategies that promote the effective use of digital financial services among microentrepreneurs.

## **1. Technological/Digital Literacy and Digital Skills**

Technological literacy refers to an individual's ability to effectively use digital tools, including smartphones, computers, and digital platforms (Mohammadyari & Singh, 2015). Digital skills and access to technology are vital in exploring important untapped areas relating to learning and everyday life (UNESCO, 2017). For microentrepreneurs, technological literacy is a critical determinant of digital finance adoption. Ghosh (2020) in his study found that microentrepreneurs with higher levels of digital literacy are more likely to understand and leverage digital financial services and utilize digital financial services such as mobile banking, e-wallets, and online payment systems. Whereas Frimpong et al (2022) reported that access to digital finance improve SME performance and using digital platforms to trade would boost business performance in Ghana.

However, in many developing countries, a significant digital divide exists, especially between urban and rural areas, as well as among different demographic groups. Rural populations, older individuals, and those with lower levels of education often have limited access to digital tools and training (Hilbert, 2011). For example, in Pakistan the people are more inclined towards paper-based cash transactions than internet-based and mobile phone-based banking transactions (Ullah et al., 2022). This digital divide can prevent microentrepreneurs from adopting digital finance, as they may lack the skills to navigate these platforms effectively. Bridging this gap through targeted digital literacy programs and training initiatives is essential for fostering broader adoption of digital finance among microentrepreneurs. Trinugroho et al. (2022) reveal that younger age, younger firm, higher education, and availability of fast internet could be significant factors to increase the micro and small firm's probability to adopt digital technology.

## **2. Trust and Perception of Security**

Trust in digital platforms is another fundamental factor influencing the adoption of digital finance. Trust encompasses the belief that digital financial services are secure, reliable, and capable of protecting user data and funds. Microentrepreneurs need to have confidence in the security of digital transactions to feel comfortable using digital financial services. Money is a sensitive issue, therefore many previous research include security and trust dimensions (Merhi et al., 2019). Trust is also one of the best predictors of intention to continue using digital financial services (Jung et al, 2020). Individuals who feel more open to innovation or achieve some enjoyment while using these types of solutions are more willing to use them (Rahman et al., 2020), given the great impact of personal innovativeness and hedonic motivations. In many developing countries, the regulatory frameworks that govern digital financial services are still evolving, and there may be inadequate protections against fraud or misuse of data (Mazer & McKee, 2017).

Asongu & Nwachukwu (2017) argued that concerns about fraud, cyber-attacks, and data privacy are significant barriers to adoption, particularly in regions where incidents of digital fraud are prevalent or where regulatory protections are weak. To build trust, it is crucial

to implement robust regulatory frameworks that ensure the security of digital financial transactions, as well as consumer protection policies that safeguard users' rights (Patel & Patel, 2018). Microentrepreneurs who are unfamiliar with digital technology may be particularly wary of these risks, fearing that they could lose money or have their personal information compromised. Educating microentrepreneurs about best practices for securing their digital transactions can help mitigate fears and build confidence in these platforms.

### **3. Accessibility and Infrastructure**

Accessibility to the necessary digital infrastructure, such as reliable internet connectivity, mobile network coverage, and access to digital devices, is a prerequisite for the adoption of digital finance. Rahman et al (2020) suggest the regulator needs to develop an infrastructure that will address the safety concerns of consumers. In many developing countries, especially in remote and rural areas, the lack of such infrastructure is a significant barrier. Without consistent and affordable access to the internet, microentrepreneurs cannot fully utilize digital financial services (Donovan, 2012).

The availability of mobile devices is also a critical component of accessibility. Mobile phones, particularly smartphones, have become the primary means of accessing digital financial services in many parts of the world. The utilization of mobile payment applications that are supported by smartphones has facilitated the emergence of mobile financial services (Laukkanen, 2016). However, the cost of acquiring and maintaining these devices can be prohibitive for some microentrepreneurs, especially those operating on thin margins. Therefore, efforts to improve digital infrastructure, reduce the cost of mobile devices, and expand network coverage are vital to enabling the widespread adoption of digital finance among microentrepreneurs.

### **4. Perceived Ease of Use and Usefulness**

The perceived ease of use and usefulness of digital financial services are key determinants of their adoption among microentrepreneurs. According to the Technology Acceptance Model (TAM), an individual's intention to use a technology is influenced by their perception of how easy it is to use and how beneficial it is to their activities (Davis, 1989). Neves et al (2023) showed that the most important predictors of intention to use financial services overall are dimensions from Technology Acceptance Models, such as attitude, perceived usefulness, perceived ease of use, compatibility, and price value. Tiong (2020) revealed that a positive relationship between perceived usefulness, perceived ease of use and social influence with intention of adopting digital banking services in Malaysia. The findings of study also showed that perceived ease of use is the most important predictor of Malaysian's behavioural intention to adopt digital banking services.

For microentrepreneurs, digital financial services must be intuitive and straightforward to use, especially given their limited time and resources. Complex or cumbersome platforms are likely to deter adoption. Additionally, entrepreneurs must perceive clear benefits from using these services, such as time savings, cost reductions, and enhanced business efficiency. If digital finance solutions can demonstrably improve business operations for instance, by speeding up payments, reducing transaction costs, or improving financial record-keeping, micro entrepreneurs are more likely to adopt them (Venkatesh, Thong, & Xu, 2012).

## **5. Financial Literacy**

In the studies conducted by Izquierdo and Tuesta (2015), Frempong (2009), and Johri et al. (2024) found that education stands out as an important driver for financial inclusion in enterprises. Education motivates entrepreneurs and improves exploration, communication, and foresight (Smallbone and Wyer, 2000). Financial literacy incorporates multiple dimensions, where the focus can be on the knowledge itself and/or the ability to gain and use the knowledge (Zait & Berteau, 2014). Financial literacy refers to the ability to understand and effectively manage various financial aspects, including budgeting, saving, investing, and using credit. For microentrepreneurs, financial literacy is crucial for making informed decisions about adopting and using digital financial services. A lack of financial literacy can lead to mismanagement of digital tools, resulting in financial losses and fostering mistrust in digital platforms (Xu & Zia, 2012).

Many microentrepreneurs, particularly those in low-income or rural areas, may lack formal financial education. This can create a barrier to adopting digital finance, as they may not fully understand how to use these tools to their advantage. Panos and Wilson (2020) found that adults who do not have digital or financial literacy skills cannot use the digital financial services effectively. Further, if individuals do not understand financial principles, they will not be able to benefit from the increased access to financial information (World Bank, 2018). Therefore, many studies have suggested a potential relationship between the adoption of digital inclusive finance products and the individuals' knowledge of inclusive finance as well as financial literacy (Aisaiti et al, 2019; Yang et al, 2023). Financial literacy programs aimed at microentrepreneurs can play a significant role in promoting the adoption of digital finance by equipping them with the knowledge and skills needed to manage their finances effectively using digital platforms.

## **6. Social Influence**

Social influence is defined as a person's perception that most people who are important to them think they should or should not perform the behavior in question (Fishbein and Ajzen, 1975). Lyu et al. (2024) indicates that peers' participation choices in digital inclusive finance (DIF) have a positive impact on the individual's participation choices in DIF, primarily through an information transmission mechanism. Slade et al. (2015) and Jung et al. (2020) demonstrate that social influence has a positive impact on individuals' intentions to use mobile payment. Similarly, social influence is a powerful driver of digital finance adoption among microentrepreneurs. The decision to adopt new technologies is often influenced by the behavior and experiences of peers, community leaders, and trusted advisors. When microentrepreneurs observe the successful adoption of digital finance by their peers, they are more likely to follow suit (Rogers, 2003).

Community-based training programs, where local entrepreneurs who have successfully adopted digital finance share their experiences, can be particularly effective. These programs leverage existing social networks to promote adoption, helping to build trust and reduce the perceived risk of using new technologies. Additionally, endorsements from respected community figures or influencers can encourage hesitant microentrepreneurs to explore digital finance options.

## **7. Regulatory and Legal Environment**

The regulatory and legal environment plays a crucial role in shaping the adoption of digital finance. Clear, consistent, and supportive regulations are necessary to foster trust and encourage the use of digital financial services. In many developing countries, however, regulatory frameworks may be underdeveloped or inconsistently enforced, leading to uncertainty and reluctance among microentrepreneurs to engage with digital finance (Zins & Weill, 2016).

Moreover, regulations that protect consumers and ensure fair practices in digital finance are essential for building confidence among users. Inadequate consumer protection laws can leave microentrepreneurs vulnerable to fraud or exploitation, deterring them from adopting digital finance. Governments and regulatory bodies must work to create an enabling environment that supports innovation in digital finance while safeguarding the interests of users.

## **8. Cultural and Socio-Economic Factors**

Cultural and socio-economic factors also influence the adoption of digital finance. In some cultures, traditional methods of conducting business, such as cash transactions or reliance on informal lending networks, are deeply ingrained and may be resistant to change. Socio-cultural norms can also affect how financial services are perceived and used, particularly among women entrepreneurs, who may face additional barriers due to gender roles and expectations (Suri & Jack, 2016).

Additionally, socio-economic status influences access to digital tools and financial services. Microentrepreneurs from lower-income backgrounds may lack the resources to invest in the necessary technology or may prioritize immediate business needs over adopting new financial tools. Addressing these cultural and socio-economic barriers requires tailored interventions that consider the specific needs and contexts of different micro-entrepreneur populations.

## **The Impact of Digital Finance on Microentrepreneurs**

The adoption of digital finance can significantly impact the business operations and economic well-being of microentrepreneurs. Digital finance platforms, such as peer-to-peer lending and mobile-based credit services, provide microentrepreneurs with access to credit that would otherwise be unavailable through traditional banking channels. These platforms often use alternative credit scoring models, such as social media activity or mobile money transaction history, to assess creditworthiness, enabling microentrepreneurs to obtain loans without the need for collateral (Mazer & McKee, 2017). Access to credit can empower entrepreneurs to invest in their businesses, purchase inventory, and expand their operations.

In addition, digital finance tools can streamline business operations by providing entrepreneurs with efficient payment processing, inventory management, and record-keeping solutions. Mobile money services, for example, allow microentrepreneurs to receive payments quickly and securely, reducing the need for cash transactions and the associated risks (Jack & Suri, 2014). Digital platforms also enable entrepreneurs to track their income and expenses more effectively, leading to better financial management and decision-making.

One of the most significant impacts of digital finance is its ability to promote financial inclusion. By providing microentrepreneurs with access to formal financial services, digital finance can reduce reliance on informal financial systems, which are often expensive and

unreliable. Financial inclusion enhances the resilience of microentrepreneurs, allowing them to save, invest, and insure themselves against risks (Demirgüç-Kunt et al., 2018). Moreover, increased financial inclusion contributes to broader economic development by integrating more individuals and businesses into the formal economy.

Digital finance has the potential to empower women microentrepreneurs by giving them greater control over their finances and reducing their dependency on male-dominated financial systems. Mobile banking, for instance, allows women to independently manage their money and conduct transactions without needing to visit a bank branch, which may be socially restrictive in certain cultures (Suri & Jack, 2016). This empowerment can lead to improved economic outcomes for women and their families, contributing to gender equality and poverty reduction.

## 5. Conclusion

The adoption of digital finance among microentrepreneurs is shaped by a variety of factors, each of which plays a significant role in determining whether and how these entrepreneurs engage with digital financial services. Technological literacy, trust, accessibility, and financial literacy are among the most critical determinants, while social influence, regulatory frameworks, and cultural factors also significantly impact adoption rates.

To promote the adoption of digital finance, it is essential to address these factors through comprehensive strategies that include improving digital and financial literacy, enhancing digital infrastructure, fostering trust through robust security measures, and creating supportive regulatory environments. By doing so, stakeholders can help microentrepreneurs leverage digital finance to grow their businesses, increase financial inclusion, and contribute to broader economic development.

While the benefits are clear, the challenges and barriers to adoption must be addressed to ensure that microentrepreneurs can fully realize the potential of digital finance. Policymakers, financial institutions, technology providers, and related organizations must work together to create an enabling environment that supports the adoption of digital finance, particularly for underserved and vulnerable populations. By doing so, they can help unlock the full economic potential of microentrepreneurs and contribute to more inclusive and sustainable economic development.

## References

- Affandi, Y., M. Ridhwan, M., Trinugroho, I., & Adiwibowo, D.H. (2024). Digital adoption, business performance, and financial literacy in ultra-micro, micro, and small enterprises in Indonesia, *Research in International Business and Finance*, 70, Part B. doi.org/10.1016/j.ribaf.2024.102376.
- Aisaiti, G., Liu, L., Xie, J. & Yang, J. (2019), "An empirical analysis of rural farmers' financing intention of inclusive finance in China: The moderating role of digital finance and social enterprise embeddedness", *Industrial Management & Data Systems*, 119 (7), 1535-1563. <https://doi.org/10.1108/IMDS-08-2018-0374>
- Amar, Johri., Mohammad, Asif., Preeti, Tarkar., Waseem, Khan., Rahisha., & Mohammad, Wasif. (2024). Digital financial inclusion in micro enterprises: understanding the



- determinants and impact on ease of doing business from World Bank survey. *Humanities & social sciences communications*, [https://doi: 10.1057/s41599-024-02856-2](https://doi.org/10.1057/s41599-024-02856-2)
- Arifin, M. A., Zakaria, M., & Bustaman, H. A. (2023). Digital adoption, self-efficacy, and business success – towards resilience and sustainability microentrepreneurs in the post-pandemic world. *Cogent Business & Management*, 10(3).<https://doi.org/10.1080/23311975.2023.2260128>
- Asongu, S. A., & Nwachukwu, J. C. (2017). Mobile phone penetration, mobile banking, and inclusive development in Africa. *African Finance Journal*, 19(1), 26-65.
- Awotunde JB, Adeniyi EA, Ogundokun RO, & Ayo FE. (2021). Application of big data with fintech in financial services. *Fintech with artificial intelligence, big data, and blockchain*. Springer Nature, Singapore. 107–139. [doi.org/10.1007/978-981-33-6137-9](https://doi.org/10.1007/978-981-33-6137-9)
- Aziz. A, Naima. U. (2021) Rethinking digital financial inclusion: Evidence from Bangladesh. *Technology in Society*, 64:101509
- Caballero-Morales.S.O. (2021). Innovation as recovery strategy for SMEs in emerging economies during the COVID-19 pandemic, *Research in International Business and Finance*,57,
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
- Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2018). *The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution*. World Bank Group.
- Department of Statistics (DOS). (2023). *Economic Census 2023*. Department of Statistics Malaysia. Putrajaya.
- Donovan, K. (2012). Mobile money for financial inclusion. In T. Kelly & M. Mingos (Eds.), *Information and Communications for Development 2012: Maximizing Mobile* (pp. 61-73). World Bank Group.
- Duch-Brown. N, Grzybowski. L, Romahn. A, & Verboven.F. (2017). The impact of online sales on consumers and firms. Evidence from consumer electronics, *International Journal of Industrial Organization*, 52, 30-62. [doi.org/10.1016/j.ijindorg.2017.01.009](https://doi.org/10.1016/j.ijindorg.2017.01.009).
- Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.
- Frempong ,G. (2009). Mobile telephone opportunities: the case of micro-and small enterprises in Ghana. *Info*,11(2), 79–94.
- Frimpong, S. E., Agyapong, G., & Agyapong, D. (2022). Financial literacy, access to digital finance and performance of SMEs: Evidence From Central region of Ghana. *Cogent Economics & Finance*, 10(1). <https://doi.org/10.1080/23322039.2022.2121356>
- Gherghina Ş.C, Botezatu M.A, Hosszu A, & Simionescu L.N. (2020). Small and medium-sized enterprises (SMEs): the engine of economic growth through investments and innovation. *Sustainability*,12(1),347. [doi.org/10.3390/su12010347](https://doi.org/10.3390/su12010347).
- Ghosh, S. (2020). Factors influencing the adoption of mobile payment services in Bangladesh: An empirical analysis. *Journal of Asian Finance, Economics, and Business*, 7(3), 73-83.
- Hilbert, M. (2011). Digital gender divide or technologically empowered women in developing countries? A typical case of lies, damned lies, and statistics. *Women's Studies International Forum*, 34(6), 479-489.

- Izquierdo N. & Tuesta D. (2015). Factors that matter for financial inclusion: Evidence from Peru. *Aestimatio: IEB Int J Financ*, 10,10-31.
- Jack, W., & Suri, T. (2014). Risk sharing and transactions costs: Evidence from Kenya's mobile money revolution. *American Economic Review*, 104(1), 183-223.
- Johri, A., Asif, M., & Tarkar, P. (2024). Digital financial inclusion in micro enterprises: understanding the determinants and impact on ease of doing business from World Bank survey. *Humanities and Social Science Communities*,11, 361. <https://doi.org/10.1057/s41599-024-02856-2>.
- Jung, J.-H., Kwon, E., & Kim, D.H. (2020). Mobile payment service usage: U.S. Consumers' motivations and intentions. *Computers in Human Behavior Reports*,1.
- Klapper, L. (2020). Financial inclusion and inclusive growth: A review of recent empirical evidence. *Annual Review of Financial Economics*, 12, 35-57.
- Laukkanen, T. (2016). Consumer adoption versus rejection decisions in seemingly similar service innovations: The case of the Internet and mobile banking. *Journal of Business Research*, 69(7), 2432–2439.
- Lex, M., Gielnik, M. M., Spitzmuller, M., Jacob, G. H., & Frese, M. (2020). How passion in entrepreneurship develops over time: A self-regulation perspective. *Entrepreneurship Theory and Practice*, 46(4), 1–34. <https://doi.org/10.1177/1042258720929894>
- Liu D, Zhang Y, Hafeez M, Ullah S (2022) Financial inclusion and its influence on economic-environmental performance: demand and supply perspectives. *Environ Sci Pollut Res* 29(38),58212–58221.
- Lyu, W., Yu, L., & Zhang, J. (2024). Peer effects in digital inclusive finance participation decisions: Evidence from rural China, *Technological Forecasting and Social Change*, 208, <https://doi.org/10.1016/j.techfore.2024.123645>.
- Mazer, R., & McKee, K. (2017). Consumer protection in digital credit. *CGAP Brief*. Consultative Group to Assist the Poor (CGAP).
- Merhi, M. Hone, K. & Tarhini, A. (2019). 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. <https://doi.org/10.1016/j.techsoc.2019.101151>.
- Mohammadyari, S., and Singh, H. (2015). Understanding the effect of e-learning on individual performance: the role of digital literacy. *Computers & Education*. 82, 11–25. doi: 10.1016/j.compedu.2014.10.025
- Mothobi, O., & Grzybowski, L. (2017). Infrastructure deficiencies and adoption of mobile money in sub-Saharan Africa. *Telecommunications Policy*, 41(7-8), 615-633.
- Mushtaq R, & Bruneau C. (2019). Microfinance, financial inclusion and ICT: implications for poverty and inequality. *Technology in Society*. 59. doi.org/10.1016/j.techsoc.2019.101154.
- Neves, C., Oliveira, T., Santini, F., & Gutman, L. (2023). Adoption and use of digital financial services: A meta analysis of barriers and facilitators, *International Journal of Information Management Data Insights*, 3 (2). <https://doi.org/10.1016/j.ijime.2023.100201>.
- Ozili P.K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review*,18(4):329–40. doi.org/10.1016/j.bir.2017.12.003.

- Ozili.P.K. (2023). Digital finance research and developments around the world: a literature review. *International Journal of Business Forecasting and Marketing Intelligence*, 8 (1), 35-51.
- Panos, G. A., & Wilson, J. O. (2020). Financial literacy and responsible finance in the fintech era: Capabilities and challenges. *The European Journal of Finance*, 26(4-5).
- Papadopoulos. T, Baltas. K.N, & Balta. M.E. (2020). The use of digital technologies by small and medium enterprises during COVID-19: Implications for theory and practice, *International Journal of Information Management*, 55.
- Patel, K.J., & Patel, H.J. (2018). Adoption of internet banking services in Gujarat: an extension of TAM with perceived security and social influence. *International Journal of Bank Marketing*, 36,147-169.
- Rahman. M, Ismail. I, & Bahri.S. (2020). Analysing consumer adoption of cashless payment in Malaysia, *Digital Business*,1(1). <https://doi.org/10.1016/j.digbus.2021.100004>.
- Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). Free Press.
- Savvakis, G. A., Kenourgios, D., & Trakadas, P. (2024). Digitalization as a driver of European SMEs' financial performance during COVID-19, *Finance Research Letters*,67, Part A. [doi.org/10.1016/j.frl.2024.105848](https://doi.org/10.1016/j.frl.2024.105848).
- Slade, E. L., Dwivedi, Y. K., Piercy, N. C., & Williams, M. D. (2015). Modeling consumers' adoption intentions of remote mobile payments in the United Kingdom: extending UTAUT with innovativeness, risk, and trust. *Psychol. Market.*, 32(8), 860–873.
- Smallbone, D. & Wyer, P. (2000). Growth and development in the small firm. *Enterprise Small Business*, 25, 100–126.
- Suminah, S., & Anantanyu, S. (2020). Empowering poor households and women in productive economy businesses in Indonesia. *The Journal of Asian Finance, Economics & Business*, 7(9), 769–779. <https://doi.org/10.13106/jafeb.2020.vol7.no9.769>
- Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. *Science*, 354(6317), 1288-1292.
- Suryono, Ryan Randy, Indra Budi, & Betty Purwandari. 2020. Challenges and trends of financial technology (Fintech): A systematic literature review. *Information* 11: 590.
- Trianto, B., Nik Azman, N.H. & Masrizal, M. (2023), E-payment adoption and utilization among micro-entrepreneurs: a comparative analysis between Indonesia and Malaysia, *Journal of Science and Technology Policy Management*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/JSTPM-12-2022-0207>
- Trinugroho, I., Pamungkas, P., Wiwoho, J., Damayanti, S.M., & Pramono, T. (2022). Adoption of digital technologies for micro and small business in Indonesia, *Finance Research Letters*, 45.
- Ullah, S., Kiani, U. S., Raza, B., & Mustafa, A. (2022). Consumers' Intention to Adopt m-payment/m-banking: The Role of Their Financial Skills and Digital Literacy. *Frontiers in Psychology*, 13, 873708. <https://doi.org/10.3389/fpsyg.2022.873708>
- UNESCO (2017). *Working Group on Education: Digital Skills for Life and Work*. New York: Broadband Commission for Sustainable Development.
- Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157-178.

- Xu, L., & Zia, B. (2012). Financial literacy around the world: An overview of the evidence with practical suggestions for the way forward. *World Bank Policy Research Working Paper No. 6107*.
- Yang, J., Wu, Y., & Huang, B. (2023). Digital finance and financial literacy: Evidence from Chinese households, *Journal of Banking & Finance*, 156. <https://doi.org/10.1016/j.jbankfin.2023.107005>.
- World Bank. (2018). Lifelong learning. [https://elibrary.worldbank.org/doi/10.1596/978-1-4648-1328-3\\_ch4](https://elibrary.worldbank.org/doi/10.1596/978-1-4648-1328-3_ch4)
- Zait, A., & Berteau, P. (2014). Financial literacy –conceptual definition and proposed approach for a measurement instrument. *Journal of Accounting and Management*, 4(3), 37-42. <https://EconPapers.repec.org/RePEc:dug:jaccma:y:2014:i:3:p:37-42>
- Zins, A., & Weill, L. (2016). The determinants of financial inclusion in Africa. *Review of Development Finance*, 6(1), 46-57.