

The Evolving Landscape of Financial Payments in the Digital Age - Fintech, financial wellbeing, corruption, fraud and policymaking

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ABSTRACT

The present study aims to explore the implications of digitization of payments around the world and provide an overview of how financial payments are managed in the Digital Age. Emphasis is put on the globalizing concepts of digital technologies. Studies conducted in various parts of the world are reviewed in a thematic manner to showcase how diverse the digital economy is. The paper is particularly focusing on exploring the socioeconomic impact of financial technologies and the present imbalance in socio-economic divisions, by showcasing the implications of the digitalisation of payments in the Global South. Simultaneously, it examines the transformative effects on corruption and financial fraud. Ultimately, it calls to attention the government's role in policy making.

Keywords: Digitalisation of payments, demonetisation, fintech, financial corruption and fraud, policy making, digital transactions, banking innovation, financial wellbeing.

1. Introduction

The advent of digital payments has presented a shift in the world's digital landscape. Financial technology has emerged as a phenomenon that has become a vital part of the agenda for many (Kumar and Shobana, 2024). Several nations around the globe have felt its implications and have constantly made its presence known (Dzogbenuku, Amoako, Kumi & Bonsu, 2021). One particular country worth noting is Kenya, where through the influence of financial technologies, lifted one million (2% of its population) out of poverty. Additionally, Kenya saw an increase in consumption between female-headed and male-headed households, improving families' lives (Bandura and Ramanuam, 2021). The same can be said in the context of Kumar and Shobana's

(2024) study based in India, which found that digital payments reduced gender disparities and increased account ownership.

The surge in financial services presents opportunities for enhancing financial inclusion by extending access to previously underserved populations. Kumar and Shobana (2024) observed that financial inclusion in low financial development countries reduces inflation and acts as a catalyst for financial stability in India. It improved access to financial services for all segments of the population, increased economic growth and productivity, reduced transaction costs and increased efficiency. Hence, when it comes to the implications of digital payments on financial inclusion, a variety of areas can be explored.

In particular, the current study delves into the backgrounds of several countries and economies, with particular emphasis on the Global South, and investigates the effects and implications of digital payments. Moreover, this paper examines the present policies, laws, and regulations that combat digital technology issues. Therefore, it aims to add action points that financial sectors or countries can employ to help counter the risks posed by these technologies and payment methods. Across the globe, nations are increasingly transitioning from traditional systems and embracing the intangible - digital payments - that form a broader movement toward technological innovations and modernization. Druhova, Hirna, and Fostyak's (2021) study emphasized how digital technologies, and innovation surpassed the banking industry as it was deemed a more attractive payment method compared to the traditional ways, such as cash transactions or bank notes and paper checks.

Another study from Ferrari (2022), highlighted the importance of merging payment services with other more isolated services that form a broader digital ecosystem, such as digital wallets, mobile payment apps, online bank transfers, and the rising cryptocurrency. Consequently, it is vital to analyze and examine the implications of digital payments on a diverse array of sectors - financial decision-making, poor and vulnerable, corruption and financial fraud, and policymaking. Hence, the next sections provide a detailed background and analysis of these matters.

2. Digitalisation of payments and fintech - implications and effects on financial decision making

Electronic money is the transfer of funds electronically through a payment interface. It is all about moving from tangible to intangible. Fintechs are thus disrupting the traditional payment model around the world and facilitating digital payment systems in the economy (Baiju & RadhaKumari, 2017). The word digital cash was first introduced by David Chaum, a founder of an American company named DigiCash (Baiju & RadhaKumari, 2017). While digital

technologies are emerging as a catalyst for rapid economic growth as well as empowerment of citizens around the world, the digital divide is also emerging.

Digital divide is a gap between the information rich and information poor. It can divide people into categories of those who have access to the internet, telephone, and those who are deprived of the same. Interestingly the government of India has defined digital transactions as “transactions in which the customers authorize the transfer of money through electronic means, and the funds flow directly from one account to another. These accounts could be held in banks, or with entities / providers. These transfers could be done through means of cards (debit/credit), mobile wallets, mobile apps, net banking, prepaid services, or other similar means.” (Bajju & RadhaKumari, 2017, p. 5).

While financial technology affects people, it also has a grave impact on the banking industry. Druhova, Hirna and Fostyak (2021) observed that throughout the time fintech companies were emerging, banks were not as fully engaged with digital technologies and innovations. Therefore, fintech companies quickly competed with banks. They offer more attractive online payments and lower fees which causes banks to reduce the cost of payments, reducing profitability. Hence, it is appropriate for banks to use digital technologies not only to increase sales and improve the quality of customer service but also to improve scoring and financial monitoring systems. The ease of making online payments and the convenience of getting online loans can provoke serious problems when not accompanied by an appropriate level of financial literacy. Therefore, banks must take the initiative to educate their customers as well through financial technology (Druhova, Hirna & Fostyak, 2021).

Undeniably the digitalisation of payments has changed the financial landscape substantially; both from the business perspective and from the consumer perspective. One area of concern is the financial risk associated. Looking into this from the consumption perspective, a study by Pintér, Bagó, Berényi, Molnár, Deutsch, Szigeti and Pintér (2021) aims to profile the complex financial, risk and digital attitudes of Generation Z. A total of 3543 responses from the 18-23 age group completed the questionnaire in Hungary. Based on the findings, Generation Z has the highest number of mid-level risk takers, meaning we could expect that young people have stable financial and digital knowledge. It has also been identified that men are much more confident in their financial knowledge than women. While financial literacy, confidence and experience increase with age. In addition, most people make financial decisions with their families and few with a bank clerk or financial advisor. Those with higher financial literacy are more likely to make their own decisions and rely less on their families but are more likely to turn to professionals for advice. Based on the analysis of the data, it was discovered that the young generation look to the internet for advice as well. Social media also plays a big part in generating communication. Most young people today are willing to take risks. They have an outstanding

digital attitude, welcome banking innovation and are open to novelty. The study concluded that most young people assume a trade-off between financial literacy and digital attitudes. Generation Z is willing to take risks, but they have criteria they adhere to. They are open to new innovation and do not rely on traditional forms of financial services (Pintér et al, 2021).

A study performed by Shahid and Razag (2017) uses the term “demonetisation” to refer to stripping a transaction of its cost for customers. Thus, springs forth the phenomenon of digitisation of payments which is the process of exchanging of value between the payer and payee from analogue to electronic. One of the many avenues to digitize payments is through financial technology. With their structure, fintechs have the ability, flexibility, and agility to accommodate changing customers behaviors and introduce innovative products with shar focus. They mainly utilise the social, mobile, analytic, and cloud technology to create emerging financial services for the new age. Baiju & RadhaKumari (2017) listed several reasons as to why one digitises payments. One of the main reasons for reducing cash transactions is high cost. Managing a physical bank and printing bank notes demand a more sophisticated structure. Another chief concern is fake notes. Monitoring the circulation of notes proves to be difficult. Therefore, shifting to digital payments would increase transparency. Lastly, digitising payments reduces black money in the economy. Thus, reducing corruption.

For people to use financial technologies, Shahid and Razaq (2017) enumerated two important points: usefulness and ease of use. The number of steps a consumer must go through to start using digital payment affects the usefulness and ease of use the instruments developed. The process should be simple and easy to learn. Digitisation results in simplicity and unconditional access while demonetisation results in affordability. Financial technologies are open to anyone and everyone around the world. However, emerging markets claim the lowest financial inclusion ratios. Therefore, it presents the largest opportunity for fintechs. The rate of adoption is faster as the market gaps are significant. Any technology-led business models have the potential to fulfil gaps. The important thing about digital payment is that it creates new forms of value in the form of documenting the economy and creating a record of payments for consumers. Financial technology has a promising future in this world’s economy. From a general viewpoint, it offers countless advantages and positive effects on financial decision making. Nonetheless, it is important to bring to the attention the pieces that form the bigger picture. To start with, the next section discusses the implications of digitalisation of payment services and systems for the less privileged and the vulnerable.

3. Digitalisation of payments and financial wellbeing in the Global South - Implications for the poor and the vulnerable

A rising sector of the scholarly literature related to digitalisation of payments is the implications of financial technology to the poor. A study directed by Dzogbenuku, Amoako, Kumi & Bonsu (2021) aimed to evaluate the financial wellbeing experiences of digital payment systems in Ghana using a case study approach. Quantitative data was obtained from this study. The sample utilized two poor rural districts in Ghana. The paper's results show that users' perception of wellbeing was positively influenced by digital payments. It revealed that males appeared to value the ease of use rather than great customer experience, whereas females valued security over great customer experience.

Dzogbenuku, Amoako, Kumi and Bonsu's (2021) study indicates that great customer experience leads to stronger trust levels among female users than males. Moreover, results show that the age of users has a significant effect on digital payment behaviour and technological acceptance. The findings of this study demonstrate the importance of digital payment systems as an important tool for the poor customers and financial wellbeing. It was discovered that the link between security and financial wellbeing was stronger among older users than younger users. The study established a significant positive association between security and satisfaction, ease of use and satisfaction, and convenience and satisfaction of digital payment systems in emerging markets. However, some limitations should be taken note of the study was conducted in Ghana, there was no explanation in the sampling and in selecting the rural districts, and no structured age group division.

On similar grounds Fouillet, Guerin and Servet (2021) argued that demonetization had a central impact on the digitization of payments. They established that digitization is a means of formalizing the economy and protecting the poor. The authors are using the Reserve Bank of India Data as reference, they analyze the nationwide evolution of monetary and financial practices, focusing particularly on electronic payments via ATM, POS, and mobile banking. The study is based on secondary sources and using India as a country's context so primary data could enhance the findings of their study. The existing results of their study show that users' perception of wellbeing was positively influenced by digital payments. Hence some in-depth interviews could assist with further contextual details, underlying factors and implications of that. The findings of their study demonstrate the importance of digital payment systems as an important tool for the poor customers and their financial wellbeing.

However, as the perspective of digital payments and financial technologies expands, the phenomenon of platformization emerges with further implications for the customers. Platformization is defined as the transformation of digital systems from simple transactional tools to complex platforms that offer not just payment services. They embed and integrate payment services with other more isolated services that form a broader digital ecosystem. This, then, allows the companies to take control of not just the platforms, but also the flow of data and

customer interactions. The main concern here is that the platforms are not meeting consumer's needs and demands. Fintechs are merely innovating on assumptions of consumer's desires and wants. In this vein, the goal of sole customer independence and responsibility is being defeated (Ferrari, 2022).

Lastly, Fouillet, Guerin and Servet (2021) through data gathered from the Reserve Bank of India from 2014 to 2020, they show that the demonetization period brought a decline in Automatic Teller Machines (ATM) withdrawals, and a faster adoption of digital means of payments via Point of Sale Terminals (POS) and mobile banking, dating back to demonetization. ATM numbers and usage show a much more mixed situation, and even a decline, depending on the leapfrog process: users are moving away from a purely manual use of cash to its digital usage. Their study established a significant positive association between security and satisfaction, ease of use and satisfaction, and convenience and satisfaction of digital payment systems in emerging markets. A significant part of illegal activities and corruption in India is now concentrated in precious metals and therefore could not be affected by demonetization. Political analysts suggest that the agenda of the government was primarily political. In time for the Spring elections in 2017, the government wanted to prevent other political parties from handing out banknotes to buy their electors' votes. Whilst there is documented evidence that digitalisation of payments has helped in certain aspects, there is another area that needs to be explored; that of the implications towards fraud and corruption. The next section discusses this.

4. The wider implications of the digitalisation of payments - Corruption and financial fraud

An area that has raised concerns in the financial landscape due to the digitalisation of payments and fintech, is that of the link between digital payments, corruption and fraud. To start with, a study by Setor, Senyo and Addo (2021) has analysed the relationship between digital payment transactions and corruption within developing countries. Its hypothesis is that digital payment is negatively associated with corruption in developing countries. The study used three global datasets to test its hypothesis: Global Financial Inclusion (Global Findex), Corruption Perception Index (CPI), and World Development Indicators (WDI). CPI was used to measure corruption on a 0-100 scale, where 0 is very corrupt and 100 is clean. Global Findex was used to measure digital payment transactions by setting up a proportion of the population who have sent or received digital payment in the past year. To test the relationship between digital payment transaction and corruption, the linear unobserved model specifications were used. Based on the findings, digital payment transactions are negatively associated with corruption. Hence, digital payment is a viable tool to reduce corruption (Setor, Senyo & Addo, 2021).

Developing countries need to address underlying problems such as financial illiteracy and poverty first. While the results from Setor, Senyo and Addo's (2021) study prove this to be true

under the conditions set in developing countries, several implications also should be taken note of. First, digital payment can reduce corruption given the fact that developing countries addressed underlying problems such as digital illiteracy and poverty. Second, digital payment can increase government revenue by blocking corruption loopholes. Overall, this can improve a country's economy. One point to raise is that Setor, Senyo and Addo's (2021) research only focuses on corruption in developing countries from a public sector perspective as there is limited data on private sector corruption, while the time-variant variable characteristics that are correlated with digital payments could bias the coefficient estimates of fixed effects analysis. These areas open up avenues for further analysis and research.

Later on, a study by Brici, Achimb, Borleac and Rusd (2022) has identified several reasons for the high level of economic and financial crime, and their study focuses on the poor public governance quality and the lack of proper education in both financial and cyber-protection fields. Online interactions allow criminals to maintain their anonymous identity, which makes it an incentive to commit these acts. With digitalization, there seems to be a decrease in economic and financial crimes. The risk is definitely not zero and consumers still need to be vigilant at all costs. If cybersecurity increases, it does not necessarily mean that cybercrime will decrease. This again provides avenues for investigation on a country-level basis, as well as in the wider global economy.

By testing the relationship between digitalization and the degree of perception of corruption, it can be concluded that there is an increase in the awareness of these crimes and a lower rate of their occurrence. It is still not enough evidence to justify the entirety of the problems, unless we look into cases of corruption and crimes and under the underlying parameters. In light of this, Brici, Achimb, Borleac and Rusd (2022) tested the relationship between digitalization and money laundering, and concluded that with the development of digitalization, money laundering decreases. The commitment of countries for cybersecurity is growing at the same time raising awareness of its importance. The main point here is that education, specifically financial education, must remain the main lever that will lead to the improvement of all the performances of a nation.

Moving further in the matter of digital payments and fraud, Kjørven (2020) points to how losses following online financial fraud are allocated, and focuses on third-party online financial fraud, that is fraud related to the online use of financial services. Their review paper tackled several case studies that show whether or not present laws are effective and if they work against fraudulent motives. The study concludes that those who fall victims to financial fraud are the ones who are left to deal with the losses. Consumers are held to unreasonably high standards in order to avoid liability (Kjørven, 2020). Protections and laws are in place, but they are not that effective. Hence, the paper urges that financial institutions should shoulder a more significant

portion of that losses. While the study sheds light to important aspects related to digital payments and fraud, it only focuses on Scandinavia and Europe, tackles case studies from Scandinavia and European background, and expounds on Scandinavian and European laws. This can limit the generalizability power of the study's findings and practical implications.

As technology evolves, it provides new opportunities for economic growth but also creates countless avenues for financial fraudsters to exploit. One significant impact of technological advancements is the increased complexity and sophistication of financial fraud schemes. Fraudsters have been committing intricate and hard-to-detect financial crimes. This has challenged traditional fraud detection mechanisms and called for more advanced and efficient solutions. Data analysis is a must when it comes to detecting both present and upcoming risks and fraud. However, the process of actually preventing illegal motives is costly, time-consuming, and a complicated process. At the present, most companies invest in technology to prevent fraud, since fraud is a business problem which can hinder growth and affect reputation negatively when done wrong. As frauds become more sophisticated, more advanced and modern technologies are always needed. A new dilemma for the companies now is when, where, and what innovative technologies should they invest in (Donning, Eriksson, Martikainen & Lehner, 2019).

In addition, financial fraud can lead to significant losses for businesses, which affects businesses' trust in the financial systems. This lack of trust can have far-reaching consequences, affecting innovation and economic growth as a whole in the sector and the broader economy (Daraojimba, Farayola, Olatoye, Mhlongo and Oke, 2023). A common way of detecting fraud is through forensic accounting. However, the traditional way is time-consuming and extremely prone to human-made errors. Therefore, a new way of forensic accounting, namely digital forensic accounting, came to light. With the assistance of technology, forensic accountants are able to process and analyze data at a scale and speed that is not possible with traditional methods. While it does come in handy especially in terms of being efficient, digital forensic accounting poses several disadvantages (Daraojimba, Farayola, Olatoye, Mhlongo and Oke, 2023). Next, we elaborate on this.

One challenge is that forensic accounts are required to possess a more diverse skill set that extends beyond traditional accounting. They must now be adept in information technology, cyber forensics, and digital data analysis. They must gain knowledge in law, auditing, business management, psychology, crime science, and computer technologies. Tapping into each of these sectors is not enough, continuous learning is imperative. With the ongoing evolutions of technology and cybercrimes, data analytics have necessitated the integration of big data techniques which, then again, requires additional skills and training. Another challenge is the acceptance and integration of new technologies in forensic accounting practices. Factors such as ease of use, security, privacy, and customer satisfaction are crucial in determining the successful

integration of new technologies both for the forensic accountant and the company. A legal challenge in digital forensic accounting is the handling of digital evidence. Forensic accountants must adhere to strict ethical standards to maintain public trust and credibility in their profession. This includes ensuring the confidentiality and security of sensitive financial data, avoiding conflicts of interest, and maintaining objectivity in their investigations. There is also a need for a standardized system. This is crucial for ensuring that digital forensic accounting practices are consistent, reliable, and legally compliant (Daraojimba, Farayola, Olatoye, Mhlongo and Oke, 2023).

Digital technologies have improved significantly in terms of transparency, accountability, and the ability to detect fraud. Hence, making it more difficult for corrupt practices and cyber fraud to go unnoticed. However, as technology evolves, so do the risks. Constant vigilance and the development of digital strategies to combat corruption and fraud are therefore essential. A recent study by Dobrovolska & Rozhkova (2024) analyzed the levels of Information and Communication Technology (ICT) and the levels of corruption, it was found that the countries with high levels of ICT development and cybersecurity have low levels of corruption. A strong positive correlation was found between ICT development and corruption reduction, emphasizing the role of digital technologies in increasing transparency and reducing corruption. Countries with high CPI (Consumer Price Index) scores also have high NCSI (National Cyber Security Index) and ICT scores, indicating that they are effectively fighting corruption and developing digital infrastructure. The correlation between CPI and ICT indicates a strong relationship between corruption and digital technologies, confirming digitalization's impact on the transparency of government processes. The strong positive correlation between NCSI and ICT emphasizes the importance of information technology development for cybersecurity. The findings suggest that investments in digital infrastructure and cybersecurity can improve anti-corruption movements. The study also highlights the risks of digital transformation, such as the rising threat of cyber fraud, which complicates anti-corruption efforts. Hence, there is an immediate call for reformation in security for countries that scored low on all three indicators.

While cybercrime has grown at an alarming rate it is imperative that there are provisions for cyber-education to help us protect both our personal data and financial resources, as well as the professionals in the sector. Technology should be used as a friend right next to us in every situation to help, not as an instrument to endanger others. We need to learn to use technology properly, but also to learn to fight against all existing types of economic and financial crimes (Daraojimba, Farayola, Olatoye, Mhlongo and Oke, 2023). Considering all the above, as technology continues to evolve, it is imperative for financial institutions and regulatory bodies to stay ahead of these trends and develop robust strategies to mitigate the risks associated with financial fraud. Predictive analytics and AI are revolutionizing forensic accounting by providing

advanced tools for detecting and preventing financial fraud. The integration of data science, machine learning, and AI techniques into forensic accounting practices is essential for addressing the complexities of financial fraud in the digital age. The big concern however is the role of the government. The following section discusses the government's practice for policy making in the emergence of financial technology.

5. Implications for policy making on an international level

While the EU has an initiative called the Revised Payment Services Directive (PSD2) which encourages innovation among companies, the regulations and initiatives (including the PSD2) across the world need to be reassessed. Laws should protect businesses and consumers alike. Policies and regulations in place should support customers' privacy, follow ethical methods, and bear sustainable services. Payment services cannot just merely push through and operate for the sole interest of the companies behind them by bypassing consumer safety. Therefore, financial technologies should not assume right away that consumers benefit from them. While digital payments pose avenues for innovation, they still pose risks especially to consumers with regards to data privacy and autonomy. Considering this, more rigid, critical, and consumer-related regulations should be put into place to minimize and obstruct any possible underlying agendas of big fintech companies (Ferrari, 2022).

Despite the fact that digital technologies in the financial sector have increased customer satisfaction, ease of use and convenience, and thus have contributed positively in the overall wellbeing as recorded by some of the studies above (e.g. Fouillet, Guerin and Servet, 2021), at the same time digital payments reveal the present imbalance in power dynamics between social classes, consumers and fintech companies (Ferrari, 2022). Demonetization and digitization have been proven to reduce corruption in several nations (Fouillet, Guerin, and Servet, 2021; Setor, Senyo, and Addo, 2021). Hence investments in digital infrastructure and cybersecurity shall be prioritised for improving anti-corruption movements especially in nations that scored low on three economic indicators (Dobrovolska and Rozhkova, 2024). However, financial and technological innovation can only work given the fact that countries address underlying problems such as digital illiteracy and poverty. Hence, we concluded that financial education lays one of the most important groundworks in order for digital innovation to succeed.

Furthermore, fraud is a business problem that can hinder growth and affect a company's reputation negatively. Kjørven (2020) points to how losses following financial fraud are allocated. Those who fall victim to financial fraud are the ones left to deal with the losses. Hence, there needs to be protections and laws in place that are effective in preventing this from happening. More specifically, financial institutions should shoulder a more significant portion of that loss. As frauds become sophisticated, more advanced and modern technologies are needed

(Donning, Eriksson, Martikainen & Lehner, 2019). Daraojimba, Farayola, Olatoye, Mhlongo and Oke (2023) noted that predictive analytics and AI are revolutionizing forensic accounting by providing advanced tools to detect and prevent financial fraud. However, the process is costly, time-consuming, and a complicated task. This mixed reality calls for further investigation into the broader implications of the digitalised economy and the policies governing it. Hence, policymakers should focus on creating robust and efficient frameworks that are effective in combating financial fraud but also ensure data privacy and hold ethical standards. International cooperations and standardization of practices across the world can also play a significant role in this, and hence can foster a safe, efficient and effective globalised digital economy.

While the above are important aspects to consider, Kumar and Shobana (2024) have observed that financial inclusion in low financial development countries reduces inflation and acts as a catalyst for financial stability; however, it can worsen financial instability in high financial development countries. The pursuit of financial inclusion has been a long-term goal for many economies. The surge in financial services presents opportunities for enhancing financial inclusion by extending access to previously underserved populations. Kumar and Shobana (2024) in their study investigated the complex interplay between digital payment adoption, financial inclusions, and their implications for the effectiveness of monetary policy. Additionally, they assessed how digital payments influence key monetary policy goals, such as price stability, economic growth, and employment. When concerned about financial inclusion, which involves providing access to financial services for all segments of the population, everything pointed towards the role of social and economic development. Hence, when it comes to the implications of digital payment systems on financial inclusion a number of areas can be explored, for example increasing accounts ownership, rising the usage of formal financial services, accessing credit and loans, reducing gender disparities, considering rural financial inclusion and even changing transaction volumes. There are also macroeconomic implications of enhanced financial inclusion through digital payments that can be obtained, such as increased economic growth and productivity, reduced transaction costs and increased efficiency, improved monetary policy transmissions, reduction in informal economy, enhanced financial stability, job creation and poverty alleviation, and enhanced resilience to economic shocks.

With the utilisation and implied digital payments there is resilience introduced in the payment ecosystems through monetary policy implementations, such as improved policy transmissions, enhanced policy tools, and reduced informality (Kumar & Shobana, 2024) However, there are also risks associated and introduced by the digital payment ecosystems. These are operational and cyber risks, privacy and data security concerns, financial stability challenges, and inclusivity risks, as presented and discussed in previous sections of this paper. In order to deal with these several proposed regulatory frameworks can be considered. For example, facilitating financial

stability, enhancing policy transmission mechanisms, ensuring inclusivity and equal access, mitigating risks and safeguarding consumers, and promoting innovation and competition. These proposals and policy frameworks are in alignment with the suggested course of direction by the current literature and policy making bodies on a global scale.

Further along, it is integral to take note of the implications of the Covid-19 Pandemic on the emergence of digital payments. Ahmad, Amran, Ali, and Yusuf (2023) conducted a study in Malaysia to investigate selected payment channels and instruments' influence on the retail e-payment transaction during the recent pandemic. They particularly examined the effects of the pandemic on the relationship between credit card usage and retail e-payment transactions. The study's starting point was that traditional e-payment channels such as ATMs do not support the emergence of e-payment development in the country. The study's findings reveal that Covid-19 significantly influenced the emergence of e-payments in various ways. Firstly, internet banking usage showed great potential with a substantial increment from 2020. E-payment is competitive in terms of higher operational efficiency from expedient payments and receipts of funds. On top of that, e-payment represents an eco-friendlier environment and offers a lower transaction cost. Traditionally, consumers carry cash with them, exposing them to the risk of being snatched while having a lot of notes with them. However, the Covid-19 pandemic limited person-to-person contact and mobility therefore increasing the usage of e-payment methods. Unfortunately, not all businesses are ready to adopt card-based terminals or any e-payment systems. This is due to businesses unwilling to absorb the fees charged on the credit card or transactions. Aside from the convenience it brings, consumers prefer credit and debit cards because of the points and cashback received. Despite the ease of use, credit cards induce consumers to spend more and achieve the reward goals.

Looking into various countries' examples, consumers based on Sri Lanka prefer to use debit cards for transactions. However, because of the unavailability of the payment terminal, consumers still prefer to use cash in their transactions. On the other hand, in the case of Thailand people prefer debit cards to pay utility bills. This is because it is directly deducted from their deposit accounts. Similarly, debit cards in Russia are also very popular relative to credit cards. In general, E-wallet users tend to spend more than credit card users. This is due to the e-wallet being more convenient and providing a seamless transaction. It is also crucial to highlight that it is a two-sided market. The users can and are only able to use related payment instruments if the retailer provides the system/facility. Retailers in Zimbabwe prefer to use e-wallets rather than other instruments. Withdrawing cash from the ATM is costly due the different charges imposed per transaction. Cash withdrawal incurs a high cost which includes the fee charge and the time needed to reach the bank and time taken for withdrawing the cash (Ahmad, Amran, Ali, & Yusuf, 2023).

During the hit of the covid 19 pandemic, users prefer to use the internet banking which is more secure and safe as compared to other means of payment. Users opt for online banking than other payment methods due to online banking contactless payment and ease of use. Access to conventional payment methods were hindered and blocked due to health and safety measures taken by authorities. Before the crisis, this was not fully embraced by merchants due to fee charges and the cost factor. Greater debit card usage fosters a more e-payment system as a whole. On the other hand, greater use of credit cards does not promote the emergence of e-payment systems. More specifically, taxation imposed on credit cards by the government of Malaysia is also one way to dampen the usage of credit cards. However, banks still rely on the credit card to earn more income from finance charges. Hence, banks are still encouraged to issue credit cards despite the adverse effects on the emergence of the retail e-payment systems in Malaysia. ATM payment is negatively correlated with the rise of e-payment, while ATM withdrawal is positively correlated. Internet banking is found to positively influence the e-payment system and is very significant. However, one of the main hindrances was trust and security. The study also indicates that greater unemployment causes lower individual income levels, thus impeding the emergence of the retail e-payment system. As Malaysia is heading towards a cashless society, ATM payment and withdrawal are becoming less favorable channels for the development of the retail e-payment system. Many banks have also minimized their investment in ATMs as investment is now diverted to other financial technology initiatives, as credit cards and internet banking are vital in supporting the emergence of the retail e-payment systems in Malaysia (Ahmad, Amran, Ali, & Yusuf, 2023). To summarize, the Covid-19 pandemic has affected traditional payment methods. However, despite that, it reflected a shift in the digital government, gearing towards a more cashless society.

Digitalization enabled 700 million people in developing countries access to formal financial services between 2011 and 2014, with 62% of adults owning an account through a bank or mobile phone (Bandura & Ramanuam, 2021). Studies have also shown that in the long run, digital financial services can help improve people's income-earning potential, increase women's economic participation, and lead to more inclusive societies. Bandura and Ramanuam (2021) investigated the state of several countries in terms of payment methods and how those modes affect the societies of each country. In Kenya, for example, the spread of mobile money from 2008 to 2014 lifted 1 million people (2% of the whole population) out of extreme poverty. The emergence of digital payments rose around the globe making its presence known in Africa, Latin America (Brazil, Argentina, Chile, Colombia, Mexico, Peru, and Uruguay), and Asia (China, India). As a result, in 2020, consumer transactions that were made over the internet and through smartphone-enabled payments at point-of-sales hit \$5.4 trillions in value (with Chinese consumers leading this market at \$2.9 trillion). Despite these trends, there is still a significant share of the world remaining outside the digital economy, relying on hard cash to receive

income, save “under the mattress,” and pay for services. This is prevalent in developing countries, where approximately 2.5 billion adults rely on cash to conduct business transactions. Digital payments, known for reducing time and associated expenses to collect payment, goes beyond just the efficiency of their operations. It allows individuals to connect to the broader economy. Providing individuals with formal alternatives reduces the risk of illicit money flow. In the case of the governments, digital payments reduce leakage and incidents of ghost receipts, and they improve the traceability of the payment processes. However, it comes with safety concerns.

It is important to note that designing products / systems that are simple and secure is key to realizing the benefits of digitalization. Additionally, in order to maximize the benefits posed by digital payments, users need to have a basic understanding of how the system operates. Customers living in isolated areas and recipients of social welfare are particularly vulnerable, since they might not have access to support in case of problems and may not have the financial literacy required to understand the transactions. In this regard, security still remains the top concern. Countries need to attract underserved clients - especially women and those with low financial and technological capability - in order to enhance financial inclusion and to encourage societies to be more equitable. An inclusive digital payment system should have the following: accessible, reliable, valuable, affordable, profitable, and interoperable. Most importantly, it calls for a high degree of user awareness, along with technological and financial literacy, given the fact that women and members of low-income households have historically lacked the rights to education.

Bandura and Ramanuam (2021) investigate ‘Better than Cash Alliance’, an alliance of several companies that promote the transition from cash to electronic payments. Through this global effort along with many others, between 2011 and 2017, Bandura and Ramanuam (2021) found that 1.2 billion people worldwide have gained access to bank and mobile money accounts. China is currently leading the world in the digital payment revolution. With a global market of \$5.4 trillion in transaction value in digital commerce and mobile payments, Chinese firms generated an estimated \$2.9 trillion in transaction value in 2022, while the United States came second with \$1.3 trillion according to the USAID’s (United States Agency for International Development, 2020) approach aims to promote digitalization abroad, specifically by focusing on improvising development and humanitarian outcomes through the responsible use of digital technology and providing technical assistance to strengthen open, interoperable, reliable, and secure digital infrastructure and cybersecurity best practices.

It is worth mentioning that Bandura and Ramanuam (2021) highlighted how the shift of digital payments affected Kenya’s society and the overall digital landscape. Since its development in 2008, M-Pesa has 42 million active customers who have carried out over 12 billion transactions. It has expanded to Tanzania, Mozambique, the Democratic Republic of Congo, Lesotho, Ghana,

Egypt, Afghanistan, and South Africa. It also increased the daily per capita consumption levels of 194,000 Kenyan households (2% of the total), lifting them out of extreme poverty. Female-headed families saw even more significant increases in consumption than male-headed households, and an estimated 185,000 women moved from farming to business occupations. This economic growth reduced extreme poverty among female-headed households by 92% and reduced the poverty of households in general by 8.6%. M-Pesa transformed the lives of many Kenyans by disrupting the traditional banking system and providing the country's unbanked population with access to digital payments and other financial services. Another country this paper highlighted was Mexico. Only 54% of Mexican citizens are banked, compared to 82% in Kenya and 80% in India. To address this low level of financial inclusion, the Central Bank of Mexico launched Cobro Digital (CoDi), a new digital payment system, in September 2019. By December 2020, CoDi garnered 6.4 million users. CoDi aims to eliminate the need for banks to develop their own mobile offerings to send and receive money. Additionally, the Mexican government is aiming to include finance into the school curriculum. In conclusion, with the right framework and execution, digital payments have a high potential to improve a country's economy.

Further, Tan's (2021) study focuses on digital payments, or electric payments in its critical reflection on smart urbanism and smart citizenship. The technicity of code powers Singapore's discursive construction of the Smart Nation. The multiple discourses of digital payments are framed around economic competitiveness, technological progress, climate change, and public health and safety. This nudges individuals toward greater technology adoption by appealing to their duty as "urban citizens". Singapore's digital payments journey illuminates the emergent nature of a deeply transformative project in urban governance. However, the nation's ambitious smart city project may reveal tensions and possible contradictions as the government seeks to reconcile multiple facets of "smartness". Smart cities create a new set of challenges that cannot be adequately dealt with by existing institutions and traditional governance practices. Therefore, new and advanced hardware and training is the straightforward solution to overcoming problems of inclusion. The lessons gleaned from Singapore's digital payments project may be extended to other Asian cities harbouring 'smart' aspirations.

Miglionico's (2022) paper examines the alternative provision of access to low-cost zero-friction payments from the perspective of the underbanked, while discussing further technologies that can impact the adoption and development of the digitalisation of payments. Access to digital technology supports financial inclusion and data sharing, which means banks provide financial services at affordable costs to disadvantaged customers. The digitalisation of lending transactions can enhance the traceability of customers and disclosure of information, which aids the area of anti-money laundering and could mitigate the cyber risk of crypto assets being used for criminal

purposes. Unfortunately, with the current frameworks and digital environment, there is an urgent call to develop advanced automated regulations. Additionally, technology replaces traditional forms of financial intermediation by digital intermediary channels which aim to include the underbanked and vulnerable customers in mainstream credit systems. Automated decision-making involves information gathering and the communication of prudential risk to investors and regulators, particularly in relation to bank capital rules. Algorithmic systems expedite the operation of bank intermediaries through sophisticated software which affords the opportunity to analyse legal texts without manual intervention.

The following presents the applications for AI models which generate predictions with respect to desired outcomes: the decision-making process is based on trained machine learning and underlying computer programmes which give rise to opacity in the data patterns. Automated decision-making could reduce reliance on banks' sources of information about the creditworthiness of borrowers and firms' lending decisions through a shared data platform. This would limit the discretionary review of banks in granting loans while, in parallel, enhancing timely monitoring of risk and the predictability of unexpected losses. The use of automated methods involves initial cost, risk of error in the system, risk of over-reliance and increased systemic risk if all firms follow similar artificial intelligence solutions that lead to highly homogenous market behaviour. Another challenge involves the implications of machine disruption for privacy protection and data security. Regtech is often viewed as a technological response to the vastly increased burden of compliance on financial firms since the global financial crisis. The potential of regtech goes beyond reducing compliance costs and expediting decision-making processes, it extends to reshape the way customers engage with financial services. Regtech promotes financial inclusion by providing real-time information and data to map financial access and usage to identify gaps in provision by providing open access to digital data and a wide offer of credit products (Miglionico, 2022).

Used properly, technology has the potential to track the global flow of funds as well as improving current institutional operations and governance. The quality of financial services available to vulnerable persons is limited in terms of what is on offer on account of constraints affecting the sources of information and unfamiliarity with the operating procedures of artificial systems. Through the use of digital ID and other identification techniques it can secure access to the unbanked, giving the opportunity to keep the bulk of the remittances in safe storage. Safe storage of savings emanating from the remittances, once a part of them has gone into consumption, gives poor households and the previously unbanked the possibility to receive stable and predictable returns on savings, which would allow for better planning of the households' consumption and investment needs. Then, the transfer of some of the balances into savings accounts would allow the very poor and the unbanked to use some of the funds to buy

insurance to cover the impact on earnings of health and other contingencies. Moreover, turning part of the remittances into savings in a seamless process constrains consumption for instant gratification and can boost the long-term investment plans of low-income households (Miglionico, 2022).

The most important point to take note of is that the adoption of any new technologies should therefore be expected to reduce bias, alongside improvements in process efficiency. In the long term, there is a scope for AI to be used as a service-provider for network interconnectedness and as a tool to monitor the business conduct of financial institutions. Although machines can be more reliable than humans, new risks can also be built into the systems. Financial services innovation and new software solutions for delivering financial services require constant dialogue between regulators and regulated institutions on the appropriate design of regulation and its technological implications. To summarize, any type of technology brings about risks. How to combat them will be determined by the current regulatory frameworks present. Hence, as technology evolves over time, so should the safety, security and reliability regulations. Considering the areas explored by the studies reviewed in this paper, the following recommendations can be considered for interventions and policy-making strategies:

a. Address digital illiteracy and poverty

Digital Payments and Financial Wellbeing of the Rural poor: According to (Dzogbenuku, Amoako, Kumi & Bonsu, 2021), the poor are defined as the marginalized and the often socially excluded from the access to market opportunities. However, despite them being at the bottom of the pyramid in the social hierarchy, they present a great opportunity for multinational businesses in profit and business sustainability. For example, 340 million adults in sub-Saharan Africa have limited financial literacy. In line with the world's sustainable development goals (SDGs), financial wellbeing of citizens has a great impact. High financial literacy and good financial behaviour impact the future wellbeing of communities, and overall, the economy. Financial inclusion remains a challenge and a complex concept. Hence, telecommunications must cater to the level of users. Providing a digital payment system that focuses on customer satisfaction - from whatever social class - will serve as a key antecedent and driver of trust and innovation for service users.

b. Improve government practices

Digital payment transactions and corruption: According to (Setor, Senyo & Addo, 2021), a cashless economy will do wonders. Transitioning from cash to online through digital payment can offer benefits such as increased government transparency and ultimately improved government practices through corruption reduction. For example, Christian Aid reported an

estimated corruption cost of \$160 billion revenue losses in developing countries each year due to tax evasion alone. Corruption is a stumbling block to ending severe poverty and increasing government revenue. Digitization enables financial transparency by improving business record systems.

c. Invest in reputable companies and educational programs

Developing inclusive Digital Payment Systems: One of the case studies done by Bandura and Ramanujam investigates Better than Cash Alliance, an alliance of several companies that promote the transition from cash to electronic payments. Through this global effort along with many others, between 2011 and 2017, Bandura and Ramanuam (2021) found that 1.2 billion people worldwide have gained access to bank and mobile money accounts.

d. Pass laws and regulations that both protect the company and consumer on equal and fair grounds

The Platformization of Digital Payments: The Fabrication of Consumer Interest in the EU FinTech Agenda: In 2016 (Ferrari, 2022), the European Commission set up a Financial Technology Task Force to help financial technologies reach its full potential. Then, in 2017, the European Parliament called the Commission to draw up a comprehensive Fintech Action Plan. The Fintech Action Plan, launched in 2018, consisted of three things: enabling innovative business models to scale up at the EU level using common standards and interoperable solutions; supporting the uptake of innovation in the financial sector by ensuring the absence of legal obstacles to the adoption of new technologies; and, enhancing the security and integrity of the financial system. On September 24, 2020, the European Commission released a statement supporting the digital transformation in finance. Formulating policies always requires making predictions about the future - unexpected threat, desired outcome, improving on previous policies. Regulations require a balance between the rights of consumers and citizens and the business sectors.

e. Be open to innovation that enables efficiency, effectiveness and transparency and Implement technologies that ensure and advance matters of safety, security and reliability

Digital payments system and market disruption: Miglionico (2022) highlighted the urgent call to develop advanced automated regulations. Currently, machine disruptions are interrelated to privacy protection and data security. For this reason, regtech emerged as a key combat tool to the excessive burden compliance on financial firms since the global crisis. Regulatory technologies (Regtechs) go beyond just expediting decision-making processes. It extends to reshape how

consumers engage with financial services. Regtech promotes financial inclusion as well by providing real-time information and data to map financial access and usage to identify gaps between socio-economic divisions.

6. Conclusion and future avenues

There is no denying the fact that there is an ever-rising trend of the utilization of digital technologies in our world today. Innovation has become such a big part of the world that there are new developments almost yearly. Doing a comprehensive analysis of how digital technologies, specifically the digitization of payments, impact society is integral in the 21st century.

As previously said, technology has its advantages, such as lifting a portion of a country's population out of poverty, providing avenues for more women to control their expenses over men, including different sectors of the population to have access to money, and improving the government's systems in being more transparent in transactions. However, it also comes with challenges such as losing trust in business operating systems and contributing to cybercrimes that would impede innovation and economic growth. One of the alarming problems right now is the policies and regulations on using digital technologies and payments. The current policies utilized by different companies and economies around the globe need further amendments. For that reason, the present study has proposed several key recommendations. First, to address digital illiteracy and poverty. Second, to improve government practices. Third, to invest in reputable companies and educational programs. Fourth, to introduce and pass laws and regulations that protect the company and consumer on equal and fair grounds. Fifth, to be open to innovation that enables efficiency, effectiveness, and transparency. Lastly, to implement technologies that ensure and advance safety, security, and reliability through relevant regulations, governance, and governmental funding.

Whilst the present study sheds light to the aforementioned matters, it is imperative to note that it does not come without any limitations. The main limitations of this study are:

- *Potential bias in source selection:* Though google scholar was used, there was no systematic process employed in the selection of sources. This is where biases come in and may affect the objectivity of the findings and insights.
- *Inadequate explorations on other broader implications:* While the study has addressed key implications, there is still a full range of investigations and analysis that can be done on the same subject matter. The broader picture could provide various insights that could enhance the importance of researching the particular topic of digital payments.

- *Restricted scope*: The study only focused on the impact and implications of financial technologies on decision making, socio-economic divisions, corruption, and financial fraud. An avenue for further research can be on the implications on environmental concerns and sustainability or on the accessibility of marginalized communities in the different countries. Further analysis and data gathering would be beneficial in giving out a holistics and comprehensive view of the implications of digitizing technologies.

Considering that, a call for more in-depth research is needed, specifically in Asian countries on current policies and laws where studies are lacking. In conclusion, this research has helped raise concerns about implementing digital technology policies. A call for more rigid and innovative laws and regulations should be amended and developed to match the ever-rising changes in the digital economy landscape.

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