

A STUDY ON MOBILE AND DIGITAL PAYMENT ECOSYSTEM IN INDIA: INSIGHTS AND IMPLICATIONS FOR THE AFRICAN MARKET

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Abstract

This paper explores and contracts the potential of India's mobile and digital payment ecosystem as a model for African countries. It reviews existing literature on the subject, examines studies on digital payment adoption and success factors, and analyses the challenges faced by African countries in developing digital payment infrastructure. The paper also identifies key lessons learned from other countries' experiences in implementing digital payment solutions. The aim is to provide insights that could help African countries develop their own robust digital payment ecosystems. The purpose of this study is to contrast the dynamics of the mobile and digital payment ecosystem in India and its applicability to African countries. The study aims to identify the key factors that have contributed to the success of digital payments in India, understand the challenges faced by African countries in implementing similar systems, and draw lessons from other countries' experiences. The ultimate goal is to provide a roadmap for African countries to develop robust and efficient digital payment ecosystems. Below methodologies have been used in this paper are as follows:

1. Literature Review: A comprehensive review of existing literature on India's mobile and digital payment ecosystem, studies on digital payment adoption, challenges faced by African countries in developing digital payment infrastructure, and key lessons learned from other countries' experiences in implementing digital payment solutions.

2. Case Study Analysis: Detailed case studies of successful digital payment implementations in India and other countries will be conducted. This will involve collecting data from various sources, including government reports, industry publications, and academic articles.

3. Comparative Analysis: A comparative analysis will be carried out to identify the similarities and differences between the digital payment ecosystems in India and African countries. This will help in understanding the unique challenges faced by African countries and how they can be addressed.

Keywords: Digital Payment, Mobile Payment Systems, Mobile Payment Adoption and Mobile Commerce.

1. INTRODUCTION

The dawn of the internet era has drastically shifted the way the world operates, ranging from how business is transacted to the most basic day-to-day activities. The lenses through which the world was once perceived has been optimized, if not fully changed. This new digital era will go on to usher in the need for technological infrastructures never seen before. And so is the case with financial transactions (Chawla & Kathuria, 2019).

Three years short of a decade ago, the government of India introduced its Demonetization Policy with the primary objective of curtailing the cash flow in the economy and mitigating the use of counterfeits and fake banknotes. Subsequently, this policy later aimed at also fostering the adoption of digital payment systems (Ray, 2017).

On a global scale, digital payment systems have risen and continue to rise as a driving force in the financial industry, completely revolutionizing the way financial transactions are conducted (Tekker, Tekker & Orman, 2022). India being the fifth largest economy in the world is striving to keep up with global financial trends. The country has been affected by this global shift in the financial industry, making remarkable strides in the digital payment systems (Matyushok et al, 2021).

India can now be seen as a model for the African market to emulate. To achieve any success in this, the country's systems must be meticulously understood, providing valuable insights to be replicated in the African market wherever and whenever feasible. There could be a huge interest in understanding the insights gained from

India's digital payment systems and their applicability in African Markets.

Unlike India, many African countries are still striving to adapt to the digital payment era. Instituting this system in Africa comes with huge challenges but opportunities as well. There exist unique regulation, infrastructure and adoption barriers (Bruin & Solms, 2014).

This paper intends to leverage the already-existing literature on the Indian digital payment ecosystem, and drawing on that, wherever feasible, to build on the African ecosystem. It delves into the factors that have contributed to the success of this ecosystem in India. The paper further investigates how these insights can be applied to stimulate similar growth in Africa's digital payment landscape. The objective is to foster a deeper understanding of the potential benefits and challenges associated with implementing such a system in Africa, and to provide actionable recommendations for stakeholders involved in this process.

According to Manocha, Kejriwal & Upadhyaya (2019), India's journey in the realm of digital payment has been characterized by swift evolution and innovative solutions that have redefined the country's financial landscape. This has placed India as a dynamic player in digital payment, having overwhelmingly adopted it. Whether or not the adoption is working smoothly and meeting its objectives is an altogether different case. With thorough scrutiny of existing literature, this paper seeks to also answer this.

The success of a digital payment system relies significantly on infrastructure. In the digital payment realm, infrastructure is the bedrock upon which success is built. Infrastructure, technological infrastructure, is a

determinant of success for such systems (Singh et al, 2018). This makes it a great question to ask if the vast African market has the required infrastructure. Because a resilient technological foundation and secure platforms are non-negotiable prerequisites for a thriving digital payment system (Singh et al, 2018).

The advancements in technology, coupled with its seamless integration with information technology, have transformed mobile phones into a strategic and lucrative instrument for delivering products, services, and information (Shankar & Datta, 2018). With such advancement comes the evolution of mobile payments which are proposed to streamline micro-transactions in electronic and mobile commerce, and to serve as a substitute for the decreasing use of cash at Point of Sale (POS) (Mallat, 2007). Thus, the evolution of mobile and digital payment systems in India has been a transformative journey, aided by key milestones and driving factors that have shaped the ecosystem. Mobile payment is the process of exchanging financial value between two parties with the aid of a mobile device as a medium. The digital payments revolution in India started around 2015-2016, coinciding with the widespread adoption of smartphones (Chari, 2023). The introduction of the Unified Payment Interface (UPI) and the emergence of e-wallet players have played a significant role in this evolution. Basically, the Unified Payment Interface (UPI) is now a daily necessity and this trend indicates a shift towards a more digital economy, with vast potential.

The use of digital payments has spread evenly across the nation, with around 80% of transactions originating from smaller towns and cities, often referred to as tier 2 and 3 cities (Chari, 2023). This shows how UPI has become a part of daily life for people all over India. As per National Payments Corporation of India (2020), there is a powerful consumer trend towards digital payments and online banking, facilitated by a well-established ecosystem. Indian consumers are capable of discerning the pros and cons of various digital payment products, indicating a mature consumer environment. This implies that digital payments are not just confined to urban areas or tech-savvy individuals, but have permeated all levels of society, including smaller towns and rural areas. This is a significant development as it indicates a shift towards a more digital economy, with potential benefits such as increased efficiency, transparency, and convenience.

The Reserve Bank of India (RBI) and the Indian Banks' Association paved the establishment of the National Payments Corporation of India (NPCI) in December 2008. The NPCI provided the essential infrastructure for several payment systems. This is basically the framework that in turn fostered the rapid trend in digital payments and investments of Fintech in India.

The Reserve Bank of India (RBI) and the Indian Banks' Association established the National Payments Corporation of India (NPCI) in December 2008. The NPCI has played a pivotal role in transforming the digital payments landscape in India by providing robust, efficient, and secure infrastructure for various payment systems. This led to the rise of key digital payment methods such as Unified Payment Interface (UPI), Credit card payments and E-wallets.

2. OBJECTIVES

1. To understand the evolution of Mobile and Digital Payment Systems in India.

Trace the historical development and evolution of mobile and digital payment systems in India, highlighting the key milestones and driving factors that shaped the ecosystem.

2. To assess opportunities and challenges of Mobile and Digital Payments in India:

Evaluate the benefits and drawbacks of mobile and digital payment systems for businesses, consumers, and the economy in the Indian context.

3. To Explore future prospects and strategies for Mobile and Digital Payments in India:

Investigate the emerging trends, innovations, and strategies that are shaping the future of mobile and digital payments in India.

4. Analyze the current required state of infrastructure and ecosystem for Mobile and Digital Payments in Africa as compared to Indian ecosystem.

Examine the critical infrastructure components, such as technology, regulation, and partnerships that support the success of mobile and digital payment systems in India.

Contrast the insights and lessons from the Indian mobile and digital payment ecosystem with the existing conditions and challenges in select African markets.

2.1 SCOPE

The research will focus on a comprehensive examination of the mobile and digital payment ecosystem in India, covering its historical evolution, advantages, disadvantages, prospects, required infrastructure, and key strategies.

The findings will be used to draw meaningful comparisons with the current state of mobile and digital payments in African markets, allowing for the identification of transferable insights and recommendations for Africa.

2.2 EVOLUTION OF DIGITAL PAYMENT IN INDIA

The Indian digital payment market is booming thanks to several key factors. Firstly, the increased use of mobile internet is a big driver. This is because telecom companies have lowered their prices due to competition, making mobile internet affordable for more people (Saurabh Mittal, 2018). There is a wide use of cellular activities like LTE and 5G, and mobile internet has become cheap as compared to the early 2000s.

Fig.1. Market Share of Mobile Subscriber in India

The rise in smartphone usage is also crucial. Lower smartphone prices and data plan costs mean more people can afford internet-connected phones. Many smartphone companies like Oneplus and Realme have entered the Indian market, lowering smartphone prices. Digital payments are essential for the growing e-commerce industry in India (Nisha Chanana, 2012). As more people get smartphones and internet access, e-commerce companies are making strategic moves to expand which in turn promote digital payments as form of payment.

Moreover, users of digital payment modes in India get great discounts and cashback deals, which are a significant attraction. Indians love saving money, and these offers make them spend less. Finally, the ease and convenience of using mobile wallets for various transactions are key drivers thus Indian consumers can pay bills, insurance, and recharge cards with just a click from anywhere, saving time and hassle. These factors are powering the growth of digital payments in India.

3. SUMMARY REVIEW OF LITERATURE

Literature of Opportunities and challenges of Digital Payments in India and Africa: The dawn of mobile and digital payments has revolutionized the financial landscape in India, offering remarkable opportunities for economic growth and financial inclusion. However, this transformation is not without its challenges. To compare the current state of digital payment systems in Africa and India, it is essential to gain a deeper understanding of the realities in these two distinct regions of interest. One major aspect of digital payment systems that must be properly understood is the opportunities and challenges they present. These factors can either hinder the smooth operations of existing systems or impact the successful implementation of new ones. Simultaneously, it is crucial to examine how the African market currently benefits or stands to benefit from these digital payment systems.

3.1. OPPORTUNITIES OF MOBILE AND DIGITAL PAYMENTS IN INDIA AND AFRICA

3.1.1 ECONOMIC GROWTH AND FINANCIAL INCLUSION

Digital payments play a significant role in promoting financial inclusion (Kutumbale & Bhat, 2016) ensuring that citizens have easy access to their accounts and the ability to receive payments and make transactions using their mobile devices. Digital payments have extended financial inclusion and economic growth in India, making banking and financial services accessible to those who were previously excluded from the formal financial system (Bhat et al, 2022). By offering anytime, anywhere access to accounts, digital payments have not only enabled citizens to receive payments directly into their accounts but also to make transactions conveniently using their mobile phones. This shift towards financial inclusion has presented opportunities that benefit consumers, businesses, and the overall economy.

On the vast benefits on the Indian economy, Digital payments foster a reduction in operational costs and save time by eliminating manual cash handling and processing. Additionally, businesses expand their sales by offering diverse digital payment options, enhancing customer convenience and potentially increasing revenue (International Journal of Recent Technology and Engineering, 2019). That is businesses will accept payments from PhonePe, Paytm, Google Pay etc just so customers are comfortable to pay from any platform of their choice. These payment methods often come with lower transaction costs as compared to traditional alternatives such as POS.

In Africa, digital payment systems present the opportunity for economic growth and financial inclusion. The adoption of this digital system can go a great way in

driving economic development and improve access to financial products for the populations who previously had no access to banking services (Asongu & Odhiambo, 2019). Furthermore, digital payment systems can also play a key role in alleviating poverty in Africa. Mobile payment services such as Mobile Money can be vital in improving the lives of the slum and struggling African population, contributing to an overall boom in the economy (Tafotie, 2020).

Both India and Africa place key emphasis on financial inclusion. But in contrast, while India is also ensuring convenience for its population through the mass adoption of digital payment systems, Africa is more concerned about the alleviation of poverty and enhancing the lives of underserved communities, ultimately contributing to overall economic growth.

3.1.2 EFFICIENCY AND CONVENIENCE

Efficiency and convenience are vital elements that digital payments bring to the forefront of modern and current financial transactions. As the world increasingly embraces the digital age, these attributes play a critical role in reshaping the way individuals and businesses conduct financial affairs (Hinchliffe, 2012).

The adoption of digital payments has revolutionized the way businesses and consumers manage their finances, introducing simplicity, speed, and convenience to everyday transactions (Singh, 2019). This transformation seamlessly integrates into daily life, simplifying payments in various ways. With the convenience of digital payments, transactions can occur at any time and place, eliminating the need for visits to banks or ATMs. The speed of these transactions ensures instant processing, saving valuable time. Additionally, the heightened security of digital payments significantly reduces the risk of theft or fraud, offering peace of mind to users. The traceability of transactions through digital methods facilitates efficient tracking of expenses and personal financial management. Moreover, this accessibility empowers individuals in remote areas or those without access to traditional banking services to actively participate in the economy. This transformation thus fosters commerce and boost economic growth: With the rise of e-commerce in African countries (McKinsey, 2022) digital payments aid in improving efficiency in the payment of goods on the e-commerce platforms, they revolutionized the shopping experience, making it more efficient and user-friendly. On the business' perspective, digital payments foster increment in sales and generate data that can be invaluable for e-commerce businesses. This data can be used to analyse customer transaction data to gain insights into purchasing behaviours, preferences, and trends which makes it the most convenient and preferred form of payment by merchants, SME and companies.

Digital payments offer a variety of options, allowing customers to choose their preferred payment method. This flexibility caters to a wider audience and ensures that customers can use the payment method that is most convenient for them. Digital payments also facilitate international trade (Kavitha, Sunitha & Amberker, 2011), allowing both Indian and African e-commerce businesses to connect with customers from around the world. As a result of this expansion of the customer base, it leads to significant growth opportunities for e-commerce platforms.

The efficiency and convenience provided by digital payment systems in both India and Africa are transformational. In India, digital payment systems have brought speed, simplicity and convenience in daily transactions (Singh, 2019). Need for physical visits at banks have been eliminated. As for Africa, e-commerce platforms have experienced a significant boost due to digital payments. Digital payments have internationalized trade, connecting businesses with clients globally (McKinsey, 2022).

While both India and Africa prioritize and benefit from efficiency and convenience from digital payment systems, it is evident by the above literature that in Africa the focus is on the user-friendliness of online commercial transactions. In India, however, the primary focus is reducing or eliminating the need for physical visits to banks, ATMs, enhancing convenience.

3.1.3 INNOVATION AND INFRASTRUCTURE IMPROVEMENT

Digital payments are redesigning India and Africa's financial landscape, driving innovation and envisioning indispensable services across the continent. These progressions have catalysed the expansion access of the likes of healthcare, agriculture and education (Sztano & Xu, 2022).

Digital payments are driving innovation within the financial sector in India and Africa, leading to the creation of digital lending, insurance, and wealth management solutions. This infrastructure allowed quick loan approvals and easy financing applications and thus Fintech came into a huge (Gupta et al, 2023). This has led to the increase in fintech Solutions in the country and they in-turn aid in the improvement of the digital payment infrastructure. For instance, each would bring innovations on the digital payment infrastructure to stay competitive. According to McKinsey (2022), some Fintech enforced a disruptive wave of innovation, and introduced cryptocurrency movements to diversify and improve efficiency on digital payments.

These advancements increase access to critical healthcare and education services. For instance, patients can settle medical bills digitally, and parents can pay school fees online. Furthermore, these payment methods are instrumental in fostering the agricultural sector by facilitating payments for agricultural produce, providing access to crucial agricultural inputs, and offering crop insurance solutions that enhance productivity and sustainability (Korobeynikova et al, 2020). That is, producers can sell directly to consumers and distributors via digital payments, they also can order agricultural tools on e-commerce websites via the use of digital payments. These innovations play a pivotal role in fortifying Africa's financial ecosystem and enhancing the delivery of essential services across the continent.

Moreover, digital transactions facilitated advancement in global commerce, enabling Indian and African businesses to reach international markets, and allowing customers to make cross-border payments, thus broadening their market reach.

Digital payments also offer enhanced the increment of security in the financial spectrum, in-turn reducing the risk of theft or fraud as compared to physical cash payments.

Furthermore, Digital payments brought innovation such that consumers anywhere can instantly access their accounts, also making it easy for citizens to receive payments and carry out transactions promptly using their mobile devices rather than the traditional method of going to the banks (Mehta et al, 2020).

Gupta et al. highlight the transformative impact of digital payment systems leading to FinTech solutions across both Africa and India. Online payment systems have led to the rise of cryptocurrency, diversifying digital payments. As stated in the literature of Korobeynikova et al (2020), digital payment systems in Africa have been instrumental in the agricultural sector, making it possible to pay for produce and access crucial inputs.

The rise of Fintech solutions in India due to digital payment systems is significant in bringing about digital lending, insurance etc. It also enforced the use of cryptocurrency. The agricultural sector in Africa has been the most impacted by the digital payment systems, enabling systems for swift payment of produce and other agricultural products.

3.2 CHALLENGES OF MOBILE AND DIGITAL PAYMENTS IN INDIA AND AFRICA

While digital payments are becoming more popular in India and Africa, there exists obstacles to their widespread adoption.

3.2.1 REGULATORY CHALLENGES

In the words of Beck et al (2011), regulatory frameworks present challenges for the growth of digital payments in Africa. While crafting policies to guide the operations of such digital payments, policymakers struggle to find the right balance between encouraging this innovation while protecting user privacy at the same time. Some African countries operate with more relaxed regulations that provide room for innovations to thrive. Other African countries, on the other hand, are more stringent in their policies, especially financial policies and the protection of consumer data (Mullineux & Murinde, 2014). The challenge is finding the middle ground to encourage the innovation of digital payment while at the same time protecting consumers from potential risk and fraud. African nations like Nigeria and Zambia have already put in place regulations such as the Anti-Money Laundering Law and Know-Your-Customer Compliance, which are usually rigid and cannot be easily met by informal financial transactions especially in rural Africa (Okogbule, 2007).

It is undoubtedly proven that the evolving digital landscape in Africa is marked by complexities and difficulties. Policymakers and regulators are faced with the challenge of developing frameworks that will embrace innovations such as digital payments while simultaneously protecting users' privacy (Didenko, 2018). Regulators in Africa continue to pay more attention to crafting regulations that lead to financial inclusion. It is of paramount importance to African regulators that financial transactions and data be readily available to all African. The catch is, this should be achieved while ensuring the integrity of the platforms through which the inclusivity is driven.

A key challenge in regulating the digital payment systems as discovered by Mwencha, M.M & Ondego

(2017), is the fact that African countries have varying regulations and policies. This renders the digital payment systems of various African countries incompatible in cross-border cases (Kira et al, 2022).

On the other hand, digital mobile payments in India also face quite a lot of regulatory challenges that impact their seamless integration and effective functioning. The evolving nature of technology demands constant updates to regulations to ensure the security and stability of digital payment methods. These regulatory challenges comprise of data privacy, cybersecurity and the financial landscape in India comprising of traditional banks and innovative fintech startups which adds vast complexity to the regulatory framework in India, thus requiring a balance between encouraging innovation and ensuring the robustness of digital payment systems. Overcoming these obstacles is crucial for maintaining the expansion of digital mobile transactions and cultivating a dependable and robust digital financial infrastructure in India (Bijender et al, 2017).

In Africa, the growth of digital payments is hindered by the diverse and often rigorous regulatory frameworks, with a challenge of finding a balance in between encouraging innovation and protecting user privacy. Many African nations face difficulties meeting rigid regulations, impacting financial transactions, particularly in rural areas.

Conversely, in India, regulatory challenges for digital payments constitute data privacy, cybersecurity, and the coexistence of traditional banks and innovative fintech startups. Finding a balance in between encouraging innovation and ensuring the robustness of digital payment systems is crucial for India's evolving financial landscape.

3.2.2 DIGITAL LITERACY AND INCLUSIVITY

Digital literacy, which means the ability to use technology and digital systems is crucial for inclusivity, which is also key in the success of digital payment systems. It is reported by Reedy & Parker (2017) that fundamental to inclusivity is ensuring digital literacy. Attention must be directed to the vulnerable populations who are digitally illiterate to avoid leaving them behind.

The majority of people in semi-urban and rural areas often struggle to understand and effectively use technology (Malladi, Soni, & Srinivasan, 2021). That is people in the rural areas of India are not tech savvy people and have a difficult time operating mobile device. Some do not have smartphones but use basic phones which the only SMS and USSD apps not web or mobile apps limiting the number of people who can use UPI apps.

Fig.2. Awareness of E-Wallet

There remains a gap between digital payment systems and the digital literacy of South Africa and a vast majority of African population. It is vital for more efforts to be applied in making sure that marginalized populations can benefit from digital payment systems (Bornman, 2016). Vulnerable populations in Africa are at risk of being left out. According to Ellis (2006), ensuring inclusivity means implementing strategies that will reach the most vulnerable groups such as rural and low-income communities.

In addition to the Indian scope, lack of financial literacy and awareness on financial cybercrimes has resulted in general mistrust among rural population which leads to reduced digital penetration (Shankar & Datta,

2018). As Mayer, Davis & Schoorman (1995) defined trust as keenness of a positive experience from a service provider by the consumer, customers often find it challenging to trust digital platforms, particularly those who are illiterate or live in rural areas. Even tech-savvy consumers can be wary, as they understand that any platform connected to internet servers could potentially compromise their data privacy. This perception often makes them hesitant to use these platforms.

Digital payment providers are investing in user education to bridge the literacy gaps. Promoting digital literacy is a key component of financial inclusion efforts. Education plays a vital role in addressing digital literacy challenges. Incorporating digital literacy into the curriculums of formal and informal education systems is crucial to building the skills needed for digital financial inclusion (Ray, Morgan & Thakus, 2022).

Initiatives to promote inclusivity target marginalized groups. A major aspect of the digital gap in Africa is gender-based. More attention needs to be paid to the gender gap in digital access and literacy to ensure that women have equal access for financial inclusion (Kwami, 2020).

According to Qadir et al (2016), there is a rural-urban disparity in digital literacy, and this is significant. There are limited efforts to bridge the digital divide in rural areas where access to digital literacy is low. In India, rural and semi-urban populations often struggle with technology, especially the use of smartphones required for digital payment apps. The lack of digital literacy and awareness of financial cybercrimes contributes to general mistrust, hampering digital penetration (Jauhari, 2018).

Conversely, it is mentioned by Qureshi (2014) that digital divides remain active in Africa. Efforts in both regions focus on promoting digital literacy to bridge these gaps and foster inclusivity. India highlights the importance of integrating digital literacy into formal and informal education systems, while Africa places emphasis on targeted interventions, particularly addressing the gender gap in digital access and literacy. A notable rural-urban digital literacy disparity exists, with limited efforts to bridge this divide in rural areas.

3.2.3 INFRASTRUCTURE LIMITATIONS

A key challenge in the digitization of payment processes in Africa is the limited infrastructure and technological architecture Africa suffers from. Power supply and network coverage is vital for accommodating such systems and Africa struggles with these two. Infrastructure challenges such as erratic power supply and network coverage serve as significant impediments to the overall adoption of digital payment systems in Africa (Soutter, Ferguson & Neubert, 2019). In rural Africa, the challenge of digital limitation is more pronounced. As reported by Wyche & Murphy (2012), the lack of electricity and internet connectivity in rural regions hinders the efforts for mobile payment systems.

A partnership between African governments and private firms can significantly mitigate the infrastructure issues. Such collaborations can help improve the struggling digital infrastructure (Leruth, 2012). Similarly, the introduction of interconnected infrastructure is vital. Infrastructure should not be viewed from an isolated point of view, but it is an interconnected system of electricity,

telecommunications and roads. All these elements play a massively significant role in the infrastructure, one to the other (Lamberton, 2014).

In the Indian Sector, cumbersome additions due to limitations in technological infrastructure bring in the requirement for customers to have a pre-existing bank account to use most mobile payment platforms thus poses a significant challenge, particularly in Indian markets where a large number of people still do not have bank accounts (Saurabh Mittal, 2018). Customers often face more cumbersome processes when opening bank accounts, especially in tier 2 and tier 3 cities where bank branches are not easily accessible. This issue is further aggravated for illiterate individuals in rural areas who also find it a tedious process than just using traditional and old or cash methods for transactional purposes.

In Africa, the primary hurdles are erratic power supply and network coverage, with rural areas facing even more pronounced limitations in terms of electricity and internet connectivity. Sustainable investment in technological infrastructure is crucial to overcome these challenges, with a focus on extending network coverage to remote communities. Collaborations between governments and private firms can significantly improve digital infrastructure.

Conversely, India faces the challenge of customers to have pre-existing bank accounts to use most mobile payment platforms. Cumbersome bank account opening processes, especially in tier 2 and tier 3 cities do hinder the adoption, particularly among illiterate individuals in rural areas. India faces obstacles related to banking access, demonstrating the varying infrastructure-related challenges in digital payment adoption.

3.3 SUMMARY OF LITERATURE REVIEW

Of all said, digital payments have ushered a transformative role in enriching and enhancing financial inclusion in both India and Africa, extending banking and financial services to various tier populations. These payment systems have revolutionized financial management for both businesses and consumers, introducing simplicity, speed, and convenience to everyday transactions. Despite the positive impacts on operational costs, time savings, and revenue potential, challenges persist, particularly for those without bank accounts, facing cumbersome account opening processes, and dealing with issues of mistrust due to a lack of awareness about privacy.

4. PROSPECTS AND STRATEGIES FOR DIGITAL PAYMENTS IN AFRICA

As things continue to change, so does the landscape of the African market. It is pivotal to understand the prospects of digital payment systems in Africa and what strategies have been employed and should be employed and what is effective or not.

4.1 EVOLUTION OF DIGITAL PAYMENTS IN AFRICA

The journey of digital payments in Africa has been transformative, playing a significant role in enhancing financial inclusion (Shipalana, 2019). To begin with, the digital payment sector had to grapple with infrastructure challenges such as erratic power supply and network coverage issues. However, with a focus on inclusivity,

digital payments have emerged as a driving force for economic growth. The landscape has been shaped by various challenges, such as the need for improved digital literacy. These issues have led to the implementation of interventions designed to bridge skill gaps and foster a more accessible and efficient digital financial ecosystem across the continent (Pazarbasioglu et al, 2020). As Africa continues to navigate these complexities, it acknowledges the crucial role of digital payments in shaping its economic future. The continent remains committed to overcoming these hurdles and leveraging digital payments as a tool for economic advancement and projected to have 152% improvement in 2025 by McKinsey & Company.

Fig.3. Revenue from Electronic Payments for Africa

4.2 EMERGING TRENDS

Digital payment methods are now a notable trend. In a report by PwC (2020), consumers in the African market are continuously gravitating towards digital payment systems due to its convenience and accessibility. On the other hand, mobile wallets have significantly risen in Africa. As reported by McKinsey & Company (2019), the increase in mobile wallets usage has redefined how people carry out transactions, thereby putting it amongst the important trends in the financial industry of the African Market.

A key emerging trend in the digital payment category is the peer-to-peer payments; which is the transfer of funds between two persons. P2P payment platforms are growing rapidly in Africa, making it easier to transfer funds from person to person (Mark Cankett, 2020). Another major emerging trend is digital lending and credit scoring. As mentioned by FSD Africa (2020), innovations in digital lending and credit scoring are opening up access to credit for underserved populations in Africa.

4.3 INNOVATIONS

Digital payment systems have seen many innovations in the African market. These innovations are undoubtedly transforming the financial inclusion on the continent. Digital payment systems such as mobile money keep introducing new features and services that allow customers access to savings products and merchant payments meant to penetrate to larger proportion of users (CGAP, 2021).

Innovations in financial technology (fintech) continue to serve as a major driving force for financial inclusion in Africa. In a report by Accenture (2019), it is mentioned that fintech companies in Africa are playing a pivotal role in creating innovative solutions that leverage mobile technology to expand access to financial services.

A major innovation in this sphere is the digital identity and biometric innovations that are enhancing security measures in digital payment systems. The introduction of biometrics and digital identity solutions is rapidly growing and is contributing to safer and more convenient transactions (ID4Africa, 2020).

Blockchain technology is another major innovation which is reshaping the supply chain payments. According to BCG (2021), the blockchain technology makes possible a transparent and efficient supply chain financing, which thereby reduces fraud and improves trust amongst users.

In the digital payment ecosystem, partnerships stand as a strategic innovation. Partnership initiatives among governments, financial institutions, and technology

companies are the driver of innovations in the space of digital financial services. Fintech built specifically for agricultural services is not to be ignored. Agri-fintech is creating opportunities for small farmers. Digital payment systems made specifically for agriculture is giving rise to financial inclusion and improving access to credit for farmers (Rubanov, 2019).

5. STRATEGIES

A major strategy of the digital payment systems in Africa is the Mobile Money expansion strategies such as reducing the dependency of cash in conjunction with efficiency and transparency and financial inclusion, which have been effective in reaching underserved populations in Africa.

1. Financial Inclusion: This expansion allocated a crucial role in bringing financial services to illiterate populations, encouraging financial inclusion and empowering individuals who were previously excluded from the formal financial sector.

2. Reduction in cash dependency: reduction in cash dependency, solicitates a shift to digital transactions that embrace and enhance both transparency and efficiency in financial operations. This vastly promotes accountability and mitigates fraud risks, contributing to a more streamlined and transparent financial landscape. Mobile money acts as a dual catalyst for modernizing payment methods and improving overall financial veracity in Africa.

Many studies support the assertion that providers' efforts in expanding their agent networks and forming partnerships' that are strategic have greatly impacted and improved financial inclusion and access to digital payments in Africa. (Mpfu, & Mhlanga, 2022)

Efforts to bridge the knowledge gap between African users and digital payment systems have given rise to digital literacy and education programs in Africa. These literacy and education program lead to more conscious usage of digital payment systems and more informed financial decisions (CGAP, 2019).

On the other hand, major strategy of the digital payment systems in India:

1. Promotion of Digital Literacy: Efforts to increase awareness and educate users about the advantages and operation of digital payment systems, coupled with training programs aimed at a wide range of demographic groups, including both rural and urban populations, are being undertaken.

Table.1. Awareness Campaigns Feedback

Feedback on Awareness Campaigns	
Parameter	Percentage
News (Newspaper, TV, Internet)	19
Ads on Internet or TV	54.3
YouTube, Blogs	5
Bank employees/ Customer care	2
RBI's/ NCPI's website, Service provider's website	8
Family/Friends	12

2. Incentives and Cashback Programs: Marketing strategies such as introduction of promotional schemes, discounts, and cashback programs for digital transactions, as well as collaborating with merchants and businesses to offer exclusive benefits for digital payment users.

6. CONCLUSION

The research accentuates opportunities presented by the widespread adoption of digital payments in Africa and India. Foremost, among these opportunities is the potential for vast economic growth and enhanced financial inclusion in Africa and India. As digital payment ecosystems expand, they pave the way for increased financial accessibility, especially for underserved populations. This widespread of financial services not only contributes to economic empowerment at the individual level but also stimulates overall economic growth by creating a more comprehensive financial landscape.

Furthermore, the research highlights the role of digital payments in driving innovation and improving infrastructure. The integration of advanced payment technologies not only encourages financial transactions but also serves as a catalyst for broader technological advancements. The synergy between digital payments and innovation not only transforms the financial sector but also improves the overall technological infrastructure. These creates a foster of conducive environments that are ideal for entrepreneurial endeavours, technological advancements, and ultimately sustained economic development.

However, amidst these opportunities, the research also points in light of the daunting challenges that must be addressed to unlock the full potential of digital payments in Africa and India. Regulatory challenges pose a significant hurdle, requiring adaptive frameworks to accommodate the ever-evolving nature of digital transactions. Moreover, digital literacy and inclusivity issues must be tackled to ensure that the benefits of digital payments reach all portions of the population. Lastly, infrastructure limitations, such as inadequate network connectivity and technological infrastructure create a strong foundation for the unified integration of digital payment systems. Overcoming these challenges will be instrumental in connecting the transformative power-edge of digital payments for sustainable economic development in Africa and India.

REFERENCES

- [1] Asongu, S. A., & Odhiambo, N. M., "The role of economic growth in modulating mobile connectivity dynamics for financial inclusion in developing countries", *World Affairs*, 185(3), pp 530-556, 2022.
- [2] Beck, T., Maimbo, S., Faye, I., & Triki, T., "Financing Africa: Through the crisis and beyond", *Annals of Hematology*, 2011.
- [3] Bijender et al., "Cash to Cashless Economy: Challenges and Opportunities", *International Journal of Research*, 4, 2476-2480, 2017.
- [4] Bornman, E., "Information society and digital divide in South Africa: results of longitudinal surveys", *Information, Communication & Society*, 19, 264-278, 2016.
- [5] Bruin, R., & Solms, S., "Securing mobile applications in hostile rural environments", 2014 IST-Africa Conference Proceedings, 1-9, 2014.

- [6] Bhat, V., & K.T., D., "Role of Technology in Driving Financial Inclusion in Indian Banking Sector", *International Journal of Scientific Research and Management*, 2022.
- [7] Chari, R., "The evolution of digital payments and its impact on consumer spending", Retrieved from *The Times of India*: <https://timesofindia.indiatimes.com/blogs/voices/the-evolution-of-digital-payments-and-its-impact-on-consumer-spending/>, 2023.
- [8] Chanana, N., & Goele, S., "Future of e-commerce in India", *International Journal of Computing & Business Research*, 8(1), 2012.
- [9] Chawla, H., & Kathuria, H., "Evolution of Micro services Architecture", *Building Micro-services Applications on Microsoft Azure*, 2019.
- [10] CGAP, "Annual Report 2021", Retrieved from <https://www.cgap.org/story/annualreport2021>, 2021.
- [11] CGAP, "Annual Report 2021", Retrieved from <https://www.cgap.org/story/annualreport2021>, 2021.
- [12] Didenko, A., "Regulating FinTech: Lessons from Africa", IRPN: Innovation & Cyberlaw & Policy (Topic), 2018.
- [13] Ellis, F. (2006). Agrarian change and rising vulnerability in rural sub-Saharan Africa. *New Political Economy*, 11, 387-397, 2006.
- [14] Financial Sector Deepening Africa (FSD Africa). (n.d.). Digital Innovation. Retrieved from <https://fsdafrica.org/our-work/digital-innovation/>
- [15] Gupta, N., Agarwal, A., & Agarwal, V., "Journey of FinTechs in India From Evolution to Revolution", In *Handbook of Research on the Interplay Between Service Quality and Customer Delight*, IGI Global, pp. 252-271, 2023.
- [16] Hinchliffe, S., "Money or Monies Worth? Beware the Transaction 'Cost' of Payment Systems", *Microeconomics: Production*, 2012.
- [17] Jauhari, S., "Barriers in the Adoption of Mobile Wallet In reference to Lucknow city", *Journal of emerging technologies and innovative research*, 2018.
- [18] Kavitha, M., Sunitha, N., & Amberker, B., "A New Transferable Digital Cash Protocol Using Proxy Re-signature Scheme" pp 194-199, 2011.
- [19] Korobeynikova et. Al, "Supranational transfer of digital innovation in agribusiness through payment market mechanisms", *E3S Web of Conferences*, 2020.
- [20] Kira, B., Tavengerwei, R., & Mumbo, V., "Points a examiner a l'approche des negociations de Phase II de la ZLECAf: enjeux de la politique commerciale numerique dans quatre pays d'Afrique subsaharienne", 2022.
- [21] Kutumbale, V., & Bhat, M., "Payment Banks-A Step towards Financial Inclusion", *International Journal of Research*, 3, 991-1003, 2016.
- [22] Lambertson, D., "Infrastructure: A nebulous and overworked construct?", *International Journal of Technology Management*, 2014.
- [23] Leruth, L., "Public-Private Cooperation in Infrastructure Development: A Principal-Agent Story of Contingent Liabilities, Fiscal Risks, and Other (Un) pleasant Surprises", *Networks and Spatial Economics*, 12, 223-237, 2012.
- [24] Malladi, C. M., Soni, R. K., & Srinivasan, S., "Digital financial inclusion: Next frontiers—Challenges and opportunities", *CSI Transactions on ICT*, 9(2), 127-134, 2021.
- [25] Mark Cankett, S. F., "Changes and Concerns in the Peer-to-peer (P2P) lending market", Retrieved from *Deloitte UK*: <https://www2.deloitte.com/uk/en/blog/auditandassurance/2020/changes-and-concerns-in-the-peer-to-peer-p2p-lending-market.html>, 2020.
- [26] Mayer, R. C., Davis, J. H., & Schoorman, F. D., "An integrative model of organizational trust", *Academy of management review*, 20(3), 709-734, 1995.
- [27] McKinsey & Company, "The future of payments in Africa", Retrieved from <https://www.mckinsey.com/industries/financial-services/our-insights/the-future-of-payments-in-africa>
- [28] Mehta, D., & S., "Payment Banks: Digital Revolution in Indian Banking System", *Emerging Markets: Finance eJournal*, 2020.
- [29] Mpofu, F. Y., & Mhlanga, D., "Digital financial inclusion, digital financial services tax and financial inclusion in the fourth industrial revolution era in africa", *Economies*, 10(8), 184, 2020.
- [30] Mullineux, A., & Murinde, V., "Financial sector policies for enterprise development in Africa", *Review of Development Finance*, 4, 66-72, 2014.
- [31] Nisha Chanana, S. G., "Future of E-Commerce in India", *International Journal of Computing & Business Research*, 1, 2012.
- [32] Okogbule, N., "Regulation of money laundering in Africa: the Nigerian and Zambian approaches", *Journal of Money Laundering Control*, 10, 449-463, 2007.
- [33] Pazarbasioglu, C. et. al, "Digital financial services", *World Bank*, 2020.
- [34] PricewaterhouseCoopers (PwC) India. (n.d.), "The Indian Payments Handbook 2020-2025", Retrieved from <https://www.pwc.in/assets/pdfs/consulting/financial-services/fintech/payments-transformation/the-indian-payments-handbook-2020-2025.pdf> 36.
- [35] Rubanov, P. M., "Transformation of the banking sector in the digital era", 2019.
- [36] Rushikesh, K., Sakore, D., & Bhalerao, D., "A critical analysis of consumer perception for e-payment", *The Online Journal of Distance Education and e-Learning*, 11, 2023.
- [37] Saurabh Mittal, V. K., "Adoption of Mobile Wallets in India", *IUP Journal of Information Technology*, 42-57, 2018.
- [38] Shankar, A., & Datta, B., "Factors Affecting Mobile Payment Adoption Intention: An Indian Perspective", *Global Business Review*, 72-89, 2018.
- [39] Singh, G., "A review of factors affecting digital payments and adoption behaviour for mobile e-wallets", *International Journal of Research in Management & Business Studies*, 6(4), 89-96, 2019.