

## EXAMINE THE IMPACT OF USING DIGITAL PAYMENT ON SMALL AND MEDIUM ENTERPRISES IN RWANDA

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**Abstract:** Rwanda's economic growth has come a long way in diverse sectors, including small and medium-sized firms (SMEs). The trend toward digitalization has made digital fee systems crucial for marketplaces to get access to and achieve financial efficiency. even as there were big-scale debates in the literature over the pros and cons of digital payments, there may be no clear adoption direction for Rwandan SMEs. This examination examines the readiness of SMEs to embrace digital payments using evaluating key enablers, which include regulatory backing, technological infrastructure, and investment competencies. Based on qualitative evidence, the research expounds on the impact of virtual payments on SME performance, monetary inclusion, and enterprise resilience. Findings imply that digital payments decorate transactional performance, lessen operating fees, and improve marketplace get right of entry to. Notwithstanding this, massive-scale adoption is being stifled by way of vulnerable virtual infrastructure, inadequate virtual literacy, and security. Addressing the virtual divide, it's proposed that the private and non-private sectors converge through funding incentives, virtual literacy training, and bolstering cybersecurity. Private universities can partner with SMEs as a good way to power innovation and knowledge sharing, and government-supported schooling applications can drive the correct use of digital payments. Availability of strong internet connectivity and an excellent knowledge of digital finance may be critical for SMEs to contribute meaningfully to the virtual economy.

**Keywords:** *SMEs, Digital payments and adoption barriers, financial inclusion, Rwanda*

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### 1. Introduction

Digital transformation has reshaped the global economic system, allowing groups to leverage modern technologies for more advantageous productivity, operational performance, and sustainability (Egbumokei et al., n.d.2024). Amongst those improvements, digital payment structures have emerged as essential drivers of economic growth and economic inclusion. Platforms, along with PayPal inside the U.S.A. and Paytm in India, illustrate the transformative capacity of digital payments, improving transaction performance and client satisfaction (Nwokolo et al., 2024).

In Africa, digital payment systems have substantially stimulated monetary transactions, addressed regional demanding situations, and enabled small and medium-sized businesses

(SMEs) to develop. For instance, M-Pesa in Kenya and various cell phone price structures in Nigeria have helped companies overcome obstacles, which include restricted get right of entry to conventional banking offerings, fostering market growth and monetary opportunities (ALADAG, 2023).

Rwanda, like many African nations, has actively embraced virtual transformation. SMEs play a vital part in Rwanda's economic system, contributing to employment and GDP (Najib & Fahma, 2020). However, digital payment adoption faces chronic challenges, including underdeveloped infrastructure, low virtual literacy, and cybersecurity concerns. Rwanda has launched projects together with the 2010 SMEs improvement strategy and in 2019, entrepreneurship development software to stimulate SME growth and sell virtual innovation (RDB, 2022). But current efforts depart from gaps in adoption strategies, signaling the need for tailor-made interventions that deal with specific SME demanding situations.

This study looks at investigates the adoption of digital fee structures among Rwandan SMEs using analyzing monetary capability, technological infrastructure, and regulatory support. Through examining global, nearby, and regional contexts, the research identifies key barriers and proposes strategic tips to enhance financial inclusion and monetary resilience. This research aims to address the following key questions:

1. What are the key factors influencing the adoption of digital payment systems among SMEs in Rwanda?
2. How do digital payment systems contribute to the efficiency, financial inclusion, and market access of SMEs in Rwanda?
3. What challenges do SMEs face in adopting digital payment systems, and what are the recommended strategies to overcome these challenges?

## **2. Research Methodology**

This current research employs a qualitative approach in assessing the effect of the adoption of digital payment among Rwandan SMEs in detail. The approach involves an extensive review of literature, evaluation, and research in global, in addition to local contexts, to gain a broad understanding of troubles, factors, challenges, and advantages of the phenomenon in query. This study comparatively analyzes instructional journal articles, government reports, and beyond studies on virtual bills and SME development in Rwanda. Records are accrued with established content evaluation, which extracts foremost drivers, inclusive of financial resources, technological framework, and policies.

Review of Studies on Digital Payment Adoption and Its Impact on SMEs

No	Authors	Years	Article titles	Objectives	Methodology	Findings	Implications
1	Najib, Mukhamad, and Farah Fahma	2021	Investigating the Adoption of Digital Payment Systems through an Extended Technology Acceptance Model: An Insight from the Indonesian Small and Medium Enterprises.	Analysis of factors affecting the digital payment system adoption in SMEs.	Questionnaires	The intention to use digital payment was determined by the perceived ease of usage, perceived usefulness, attitude toward digital payment, and trust.	Highlights that Indonesian SMEs should put efforts into training programs on digital payments to enhance adoption while boosting financial inclusion, trust, and resilience during crises.
2	Samuel Chukwujindu Nwokolo, Eyime Echeng Eyime, Anthony Umunnakwe Obiwulu, and Julie C. Ogbulezie	2023	Africa's path to sustainability: harnessing technology, policy, and collaboration.	Explore the significant role of technological advancements, strategic policies, and collaborations in driving Africa towards a more sustainable future.	Mixed methods: interviews, surveys, case studies.	Key findings highlight technology adoption, challenges, and improved cooperation among public, private, and international organizations.	Investigation on how innovative technologies and supportive policies drive sustainability, climate solutions, and energy access through cooperation in African countries.
3	Catalin Mihail Barbu, Dorian Laurențiu Florea, Dan-Cristian Dabija, and Mihai Constantin Razvan Barbu	2021	Customer Experience in Fintech.	To analyze customer experience in the fintech sector.	Questionnaire & descriptive method for data analysis	Indicates a positive correlation between perceived value, customer support, assurance, speed, and perceived firm innovativeness in fintech customer experience.	Fintech success requires advanced technology, cost reduction, personalized pricing, strong security, and fast service.
4	Dilber Ulas	2019	Digital Transformation Process and SMEs	Investigate the obstacles and factors encountered by SMEs in implementing digital technologies.	Qualitative: studies and case studies analysis.	Emphasizes the significance of innovation, employee training, and technology partnerships in SMEs' digital transformation.	Understanding SME challenges and drivers aids strategy creation and policy formulation for digital technology adoption.
5	Uwamariya, Marthe, and Claudia Loebbecke	2020	Learning from the mobile payment role model: lessons from Kenya for neighboring Rwanda.	Examines the factors that could enhance m-payment adoption in Rwanda.	Qualitative: case study, literature review, stakeholder interviews.	Highlights the importance of user-centric design, interoperability, regulatory support, financial literacy, and partnerships.	Rwanda should prioritize user-focused designs, interoperability, regulation, literacy, and partnerships to enhance mobile payments.
6	Algan, Neşe	2019	The importance of SMEs on world economies.	The researcher reports an analysis of SMEs' role in fostering economic growth and development globally.	Qualitative: in-depth review, case analysis.	SMEs drive economic growth and innovation but face market, regulatory, and financial challenges.	Policy makers should support SMEs with regulations, financial aid, and initiatives to drive growth.

Review of Studies on Digital Payment Adoption and Its Impact on SMEs

No	Authors	Years	Article titles	Objectives	Methodology	Findings	Implications
7	Apasrawirotea, Darlin, and Kritcha Yawisedb	2021	The Factors Influencing the Adoption of E-Payment Systems by SMEs	The paper examines factors shaping mobile payment adoption and offers insights into digital finance behavior.	Qualitative interviews and thematic analysis.	SMEs contribute to economic growth, innovation, and regional development but face market, regulatory, and financial hurdles.	Decision-makers should strengthen confidence in e-payments through enhanced security, awareness programs, and financial rewards.
8	Kumar, A. Senthil, and Y. Arun Palanisamy	2019	Examining the consumers' preference towards adopting the mobile payment system.	The paper investigates consumer preferences, adoption factors, and digital finance behaviors in mobile payments.	Quantitative survey, data analysis, descriptive and inferential statistics.	Results show SMEs adopt e-payment systems due to ease, usefulness, trust, cost, and government support.	Designing user-friendly mobile payment systems, addressing security concerns, and enhancing marketing strategies can encourage widespread adoption.
9	Gyamfi-Yeboah Kwabena, Mei Qiang, Li Wenyuan, Sikandar Ali Qalati & Daria Erusalkina	2019	Effects of the digital payment system on SMEs' performance in developing countries: A case of Ghana.	The article examines digital payments' impact on SMEs' performance using the TOE and DOI frameworks.	Online survey, random sampling, questionnaire, PLS-SEM data analysis.	Results reveal that consumer preferences rely on ease, usefulness, trust, security, and social influence.	Implementing digital payment systems significantly enhances the performance of small and medium-sized enterprises.
10	Piere Celestin Rwigema	2020	Effect of COVID-19 on micro, small, and medium enterprises (MSMEs) in Rwanda.	To analyze COVID-19's economic impact on MSMEs in Rwanda.	Exploratory design, questionnaires, interviews, mixed methods & descriptive statistics.	The findings indicate that technology, organizational factors, environment, and digital payments significantly improve SME performance.	Rwanda should expand the distribution of essential needs beyond Kigali to mitigate the impact of COVID-19 on poverty.
11	Priyono, Anjar, Abdul Moin, and Vera Nur Aini Oktaviani Putri	2020	Identifying digital transformation in the business model of SMEs during the COVID-19 pandemic.	To examine SMEs' digital transformation during the COVID-19 crisis.	Case study, qualitative data, interviews, observations, iterative analysis.	SMEs adopted diverse digital strategies based on maturity, challenges, and social capital during COVID-19.	Promote SME resilience, digital innovation, agility, and customized strategies for navigating crisis challenges.
12	Vinicius Barreto Klein & José Leomar Todesco	2021	COVID-19 crisis and SMEs responses: The role of digital transformation.	To explore SMEs' COVID-19 responses, challenges, and KM-driven digital transformation.	Systematic literature review & content analysis.	SMEs faced job cuts, closures, and knowledge gaps, yet achieved accelerated digitalization and redefined business models.	KM empowers SMEs' resilience, adaptation, innovation, competitive edge, and strategic digital transformation efforts.



Review of Studies on Digital Payment Adoption and Its Impact on SMEs

No	Authors	Years	Article titles	Objectives	Methodology	Findings	Implications
13	Rabia Rasheed, Sulaman Hafeez Siddiqui, Iqbal Mahmood, Sajjad Nawaz Khan	2019	Financial inclusion for SMEs: Role of digital micro-financial services.	This study examines digital microfinance's role in improving SME financial inclusion.	A qualitative approach, literature review, secondary data, and digital services analysis.	SMEs face financial barriers but benefit from improved transactions, reduced costs, and digital access.	The research improves SME growth, fintech adoption, reduces costs, promotes inclusivity, and digital financial service diversification.
14	Brijesh Sivathanu	2019	Adoption of Digital Payment Systems in the Era of Demonetization in India: An Empirical Study.	Investigate digital payment adoption during India's demonetization using UTAUT2 and IRT frameworks.	The quantitative survey, UTAUT2 and IRT framework, PLS-SEM analysis.	This study highlights that behavioral intention boosts usage; innovation resistance and cash preference hinder digital payment adoption.	Guide policymakers to address barriers and boost awareness, education, and security for digital payment adoption.
15	Munaf Al-Okaily, Abdalwali Lutfi, Abdallah Alsaad, Abdallah Taamneh and Adi Alsyounf	2020	The Determinants of Digital Payment Systems' Acceptance under Cultural Orientation Differences: The Case of Uncertainty.	To explore factors influencing JoMoPay acceptance using a modified UTAUT2 model.	Field survey, 270 respondents, PLS analysis, UTAUT2 with added constructs.	The article emphasized that performance expectancy, social influence, price value, security, and privacy influenced JoMoPay usage; culture didn't moderate.	Enhance performance, ensure security, leverage social influence, explore cultural factors, and inform policymakers.
16	Mbonigaba Celestin, M. Vasuki and A. Dinesh Kumar	2024	How Digital Platforms Empower SMEs: A Comparative Analysis of E-Commerce Strategies in Developed and Emerging Markets.	Analyze digital platforms' role in empowering SMEs via comparison of e-commerce strategies.	Comparative analysis, literature review, and case studies.	The results pointed out that SMEs improve efficiency with e-commerce, face digital literacy gaps, and need AI innovation and regulatory harmonization.	Foster SME digital literacy, innovate platforms, reform regulations, and boost global e-commerce and economic growth.
17	Richard Boateng and Maame Yaa Prempeh Sarpong	2019	A Literature Review of Mobile Payments in Sub-Saharan Africa.	Synthesize research on mobile payments in Sub-Saharan Africa, methods, evidence, gaps, and future directions.	Comprehensive literature search and classification of mobile payment studies.	Focus on platforms, consumer adoption, gaps in socio-cultural and traditional systems, and methodological approaches.	Investigate regional disparities, diversify methods, explore socio-cultural impacts, and strengthen mobile payment frameworks.
18	Bernardo Caldarola, Marco Grazi, M. Occelli & Marco Sanfilippo	2023	Mobile internet, skills, and structural transformation in Rwanda.	Exploring the mobile internet's impact on Rwanda's economy and workforce.	Quantitative data and econometrics were utilized.	The research finds that Mobile internet boosts employment, supports high-value industries and education, and increases worker migration.	Mobile internet drives transformation, job creation, and equitable access, and demands digital literacy and policy support.

The above 18 research studies reviewed have shared subject matters: digital fee adoption is substantially driven by using such factors as ease of use, usefulness, accept as true with, protection, authorities' help, and technology readiness. Such impediments like financial limitation, digital divide, regulatory barriers, and socio-cultural elements, are also regularly noted.

The findings discover that electronic bills play an important role in the overall performance of SMEs using improving efficiency, resilience, customer pride, and economic inclusion. Success, however, relies heavily on complementary efforts such as policy support, innovation, worker education, accept as true with-building applications, and interoperability among platforms. The evaluation, in addition, identifies that the drivers are the same throughout developed and growing settings but differ in terms of challenges because of the infrastructure and socio-economic environment.

Generally, the observer underscores Rwanda's SMEs to invest in digital ability building, improved public-private partnerships, more potent regulatory frameworks, and talent training packages for them to gain completely benefit from virtual price systems.

### **3. Results and Discussion**

#### **3.1. Results**

##### **Effect of Digital Payment on SMEs**

With the implementation of digital payments, the observer unearths an extensive change in the economic operations of SMEs in Rwanda. Today, extra efficient systems have improved coin glide management and reduced transaction times by 80% (RDB, 2022). For example, when the usage of mobile payment systems like M-Pesa, customers could make instantaneous payments through their smartphones, disposing of the need for physical cash or checks. This no longer simply speeds up the transaction procedure but also enhances convenience for both the business and its customers (Uwamariya & Loebbecke, 2020). By way of putting off the prices associated with coping with cash and processing assessments, they may also be less expensive to run (Kumar & Arun Palanisamy, 2019). Cost-effectiveness is vital for small companies with limited funding. SMEs can direct extra finances into their core business by way of cutting prices. All matters considered, virtual bills help SMEs' growth and sustainability with the aid of changing their financial environment (Uwamariya & Loebbecke, 2020).

Geographically, with the aid of getting rid of constraints and barriers, SMEs can get right of entry to a prolonged market with digital pricing solutions. They could interact with customers and suppliers regionally and globally, to be able to pressure their expansion and turnover (Priyono et al., 2020). Moreover, virtual systems offer real-time facts, which assist owners in maximizing operations and making informed decisions. Using optimized resource allocation, these insights beautify profitability and overall performance. Furthermore, by giving SMEs access to formal economic services, digital bills promote financial inclusion. This helps to reinforce monetary growth, improve transactions, and construct self-belief (Al-Okaily et al., 2020).

##### **1. Adoption Trends Among SMEs**

This study highlights an outstanding style of SMEs transitioning from traditional coins- primarily based transactions to digital payment systems, especially among agencies running in urban areas. According to (RDB, 2022), this shift is attributed to the growing attention of virtual payments' benefits, including advanced performance, reduced transaction

fees, and entry to broader markets. City SMEs are increasingly embracing the one system as they may be attempting to modernize their operations and live aggressively in a suddenly evolving digital monetary system. The ease and safety provided through digital payments have ended up as key drivers of this adoption, as groups recognize the benefits of streamlined transactions and improved financial management (Shofawati, 2019).

Apasrawirote & Yawised (2021) pointed out that the adoption of digital rate structures is slower in rural areas because of confined digital infrastructure and net connectivity. This urban- rural disparity highlights the digital divide in the United States of America. SMEs in rural regions face challenges along with horrible technological infrastructure, unreliable internet, and espresso digital literacy. However, the Rwandan authorities actively promote economic inclusion and virtual charge adoption (World Bank Group, 2020). Projects like the clever Rwanda grasp Plan and RIPPS manual SMEs by way of manner of improving infrastructure and connectivity (Nwokolo et al., 2024). These packages additionally offer schooling to help companies triumph over adoption barriers. Such efforts are important in bridging the digital divide and making sure all SMEs benefit from digital payments.

## **2. Advantages of Adopting Digital Payment**

Digital payment structures make transactions simpler to carry out and, therefore, make commercial enterprises less complicated for SMEs (Klein & Todesco, 2021). In step with Shofawati (2019), these systems lessen the need for coin management, thereby decreasing the dangers associated with coin management and operational fees. Shifting towards digital bills can save up to 1-3% of annual revenues for SMEs. Those figures might appear modest, but such financial savings can be invested in greater increase-oriented sports, along with upgrading the generation and schooling personnel (Sivathanu, 2019).

Digital payments foster financial inclusion by way of presenting SMEs with more access to formal financial offerings (Rasheed et al., 2019). via transparent transaction data, SMEs can build credit score histories, enhancing their eligibility for loans and other economic products. According to (Rasheed et al., 2019) This increased financial get right of entry to empowers corporations to put money into growth opportunities, improving typical resilience.

Contemporary clients are seeking convenience and flexibility, both of which can be feasible with digital pricing methods (Kumar & Arun Palanisamy, 2019). The diverse SMEs supplying multiple modes of payment, along with cell wallets and online banking, might lead to more customer loyalty. As cautioned, agencies with numerous digital payment options often see extended repeat purchases and positive purchaser stories, driving organic growth through referrals (Barbu et al., 2021).

Digital bills allow SMEs to transcend geographical boundaries, permitting them to reach worldwide markets (Celestin et al., 2024). Platforms supporting more than one currency facilitate seamless worldwide transactions, helping groups faucet into new patron bases and connect with providers beyond their conventional reach. This capability is essential in an era of globalization, where customer demands are increasingly more numerous (Ulas, 2019). (Daly et al., 2023) mentioned that Security remains an excellent concern for SMEs, even as virtual fee systems recommend a reaction using superior encryption technology together with fraud detection mechanisms. Multi-factor authentication and other security measures keep corporations from financial losses, hence gaining their customers' agreement. Reviews using the Federal Reserve Bank of Boston (2021) imply that fraud instances are uncommon in SMEs, the use of current virtual price structures that enhance economic stability, and the integrity of operations.

### **3. Challenges Faced by SMEs in Adopting Digital Payments**

The study highlights a notable trend of SMEs transitioning from traditional cash-based transactions to digital payment systems, especially among businesses operating in urban areas (Najib & Fahma, 2020). This shift is attributed to the growing awareness of the benefits of digital payments, including increased efficiency, reduced transaction costs, and access to broader markets. According to Priyono et al. (2020), in urban areas, SMEs increasingly embrace these systems as they seek to modernize their operations and stay competitive in a rapidly evolving digital economy. The convenience and security offered by digital payments have become key drivers of this adoption, as businesses recognize the advantages of streamlined transactions and improved financial management (Rasheed et al., 2019).

Despite the growing importance of digital charge structures, several boundaries preclude SMEs' adoption of them. Today, along with inadequate infrastructure, low virtual literacy, cybersecurity threats, and the high initial cost of putting in place digital infrastructure, there are enormous barriers (Nwokolo et al., 2024). These limitations are addressed so SMEs can successfully adopt and benefit from digital price structures.

Nowadays, people want Flexibility and comfort in their routine activities, digital payment structures are being used in transactions (Sivathanu, 2019). Digital fee usage with the aid of SMEs is hampered by numerous hurdles. Some areas are nonetheless afflicted by bad infrastructure, which can negatively affect the effective use of digital payment systems via SMEs (Sivathanu, 2019). Inadequate virtual literacy among everyday people and proprietors of agencies is another strong barrier, as this could mean investment in education and training. Moreover, the preliminary fee of implementing digital charge systems is sizeable for small corporations that could already be running on thin margins (Nwokolo et al., 2024).

In one way or another, virtual payments allow SMEs to overcome day-to-day geographical boundaries, permitting them to sell internationally every day. But multi-forex systems that facilitate seamless international transactions face issues such as everyday worries and the threat of currency trading fluctuations (Celestin et al., 2024).

Protection remains a considerable difficulty for SMEs. Whilst superior encryption technology and fraud prevention mechanisms exist in digital charge structures, SMEs also shield towards cyber threats (Boateng & Sarpong, 2019). Multi-issue authentication and further protection controls will be important for defensive corporations against monetary loss as well as undermining customer belief. But applying these safety controls is high priced and calls for steady vigilance and upgrades daily, keeping in keeping with emergent threats (Boateng & Sarpong, 2019). Reviews by way of the Federal Reserve Bank of Boston (2021) imply that fraud cases are uncommon in SMEs that use contemporary digital payment systems that enhance economic stability and the integrity of operations.

#### **Challenges Faced by SMEs in Adopting Digital Payments in Rwanda**

The inadequacy of infrastructure is one of the major obstacles faced by Rwandan SMEs in adopting digital transformation (Nwokolo et al., 2024). If digital charge structures are to work, there needs to be dependable get of entry to the internet and cellular network insurance. It's vital to note that telephone possession and internet get the right of entry to play an essential role in the adoption of digital price systems. According to facts from the report, over 90% of Rwanda's population had energetic cellular connections by 2021 (Celestin et al., 2024). This understanding has a great capacity for the use of generation in each city and rural area. In rural areas, where infrastructure could be very poorly advanced, SMEs face massive demanding situations in accessing those fundamental services. This digital divide limits the capacity of



rural businesses to participate in a developing digital financial system, placing them at a disadvantage in comparison to their urban counterparts (Nwokolo et al., 2024).

Generally, a low degree of virtual literacy among SME owners and employees is considered a significant barrier. (Nwokolo et al., 2024) again mentioned that many SMEs lack the technical know-how and skills necessary for the implementation and management of digital payment systems. This hole not only hinders the adoption of these systems' expertise, additionally will also increase the probability of errors and inefficiencies when they are introduced. Providing ok schooling and help to SMEs can assist in bridging this gap and ensure a smoother transition to virtual bills (Rasheed et al., 2019). Training applications and consciousness campaigns are essential to bridge this gap and ensure that SMEs can correctly leverage virtual price technologies.

Security problems are another important subject and barrier to adopting virtual fee systems. SMEs are skeptical of the risks concerning cyberattacks, data breaches, and fraud, which can cause monetary losses and a lack of recognition (Boateng & Sarpong, 2019). In case there may be a loss of important security features, companies may not be ready to move away from cash- primarily based transactions to digital structures. Constructing agreement with digital fee systems through superior security protocols and person education may be essential to achieving this level of technological transformation (Boateng & Sarpong, 2019).

The preliminary investment in digital payments for small organizations is just too high for many SMEs to manage payment transactions (Nwokolo et al., 2024). Costs that come with buying hardware, software program integration, or even educating employees increase the economic burden on agencies that have narrow margins. Against the backdrop of these excessive costs of going virtual, smaller businesses keep away from switching until subsidized or through other sorts of incentives to inspire them to do so (Nwokolo et al., 2024).

#### **4. Government and Private Sector Interventions**

To deal with these challenges, various stakeholders have taken projects to boost the adoption of virtual payments within the U.S.A. (Rasheed et al., 2019). The authorities have brought tax incentives and subsidies for SMEs to invest in virtual price infrastructure (Celestin et al., 2024). Additionally, the authorities have partnered with mobile network operators and fintech companies to expand extra affordable and consumer-friendly digital price solutions. Those partnerships' goal is to make virtual bills accessible to a broader range of SMEs, thereby promoting economic inclusion. Whilst digital payment structures present a clean route closer to multiplied performance for SMEs and economic inclusion, several infrastructural, academic, and regulatory barriers need to be addressed to gain widespread adoption (Nwokolo et al., 2024). Overcoming those limitations requires endured efforts from the government, the private sector, and different stakeholders. Funding for reliable net connectivity, cybersecurity schooling, and monetary assistance for SMEs is critical (Rasheed et al., 2019). Moreover, addressing cultural and psychological limitations, which include fears of cyber fraud and the perceived complexity of virtual systems, via focus campaigns and consumer-friendly price interfaces would possibly similarly inspire adoption (Rasheed et al., 2019).

Public-personal partnerships, collaboration with FinTech providers, and coverage reforms will play a significant role in developing a conducive environment for digital payments amongst SMEs (Rasheed et al., 2019). By imposing these measures, Rwanda can leverage virtual price systems to force SME efficiency, sell monetary inclusion, and make contributions to long-term financial growth.

### **3.2. Discussions**

#### **Impact of Digital Payments on the Operations of SMEs**

The transition from cash to electronic payment systems has greatly benefited SMEs through enhancing transaction performance, lowering the fees of doing commercial enterprise, and broadening access to the market. Notwithstanding present barriers, specifically in rural regions, Shofawati illustrates that virtual payments store up to 80% of processing time for transactions, which is important to corporations with thin margins (Shofawati, 2019). Besides this, digital platform analytics also facilitates data-driven decisions for SMEs, allowing resource optimization and reinvestment (Kumar & Arun Palanisamy, 2019).

Digital payments also sell economic inclusion by affording SMEs get right of entry to formal banking services, which improves their creditworthiness and access to loans for business expansion (Rasheed et al., 2019). Improved safety via encryption and fraud detection lowers financial risks as compared to cash transactions. But SMEs in Rwanda nonetheless face demanding situations in completely adopting digital payment platforms, for this reason calling for focused interventions (World Bank Group, 2020).

#### **Challenges of Adopting Digital Payments**

Despite the benefits, SMEs in Rwanda face various barriers to adopting digital payment systems, which can be grouped into technological, organizational, environmental, and cultural factors.

##### **a. Technological Barriers**

The adoption of digital payment structures relies upon perceived comfort and compatibility with present commercial enterprise processes (Celestin et al., 2024). But concerns about cybersecurity threats, data breaches, and technical instability deter many SMEs from completely embracing digital payments. Collaborations between SMEs and monetary institutions, fintech groups, or government businesses can deal with those challenges with the aid of presenting tailor-made solutions, inclusive funding education programs, providing subsidies for generation adoption, and ensuring access to easy and user-friendly payment structures (Najib & Fahma, 2020).

Building consideration is vital, which may be carried out through sturdy encryption, fraud detection measures, and clear privacy guidelines (Barbu et al., 2021). Additionally, setting up nearby networks of SMEs to percentage best practices and advice for supportive regulations can strengthen their potential to transition to digital fee systems efficiently.

##### **b. Organizational Barriers**

Managerial competencies of SMEs are strongly influential in adopting virtual payments. Managers with advanced digital literacy might be capable of promoting the uptake of virtual transformation (Ulas, 2019). Collaboration with huge businesses for the usage of this generation may help SMEs in surmounting obstacles and growing digital capability. Pazarbasioglu (Kwabena et al., 2019) talked about that price in terms of budget, particularly for acquiring and keeping the infrastructure of digital bills, is a number one venture. The authorities are running to counteract those accusations using strategies like the Smart Rwanda master Plan, collectively with fintech corporations (RDB, 2022).

##### **c. Environmental Barriers**

The adoption of digital charge systems is affected by diverse demanding situations, which include regulatory frameworks, taxation policies, and competitive pressures within the market. Those environmental barriers may affect the adoption of virtual transactions by SMEs (Najib & Fahma, 2020). While Rwanda's authorities' guidelines help digital bills,

regulatory uncertainties and transaction fees are nevertheless obstacles. Additionally, competitive pressures in superior markets force SMEs to undertake digital fee structures to stay competitive. Partnerships, along with fintech providers and mobile community operators, have been instrumental in enabling digital price solutions to turn out to be greater handy and low-priced (Uwamariya & Loebbecke, 2020).

d. Cultural and Social Barriers

Cultural attitudes and patron behavior determine the rate at which digital payments are adopted. In Rwanda, cash transactions have become deeply embedded in the business subculture, and lots of SMEs and consumers opt for coins over the virtual method of transaction (Uwamariya & Loebbecke, 2020). Public recognition campaigns and monetary literacy programs are, consequently, very crucial to converting these perceptions and instilling confidence in digital transactions.

According to (Apasrawirote & Yawised, 2021), fostering digital acceptance as true with with narrative campaigns on SMEs succeeding with virtual bills can assist in using cultural change. Influencers and community leaders can also be critical in selling digital trade, and incentives such as lowered transaction expenses or bonuses for pioneers may be used to facilitate faster popularity. That is aligned with the authorities' vision of constructing a digital economic environment enabling SMEs (World Bank Group, 2020).

#### **4. Conclusion**

The adoption of virtual price systems is an important step in transforming the SME region in Rwanda. Those systems hold the key to unlocking Rwanda's potential for monetary increase, financial inclusion, and resilience. To harness the benefits of digital bills, it is crucial to address current challenges, inclusive of infrastructure deficits, gaps in virtual literacy, and regulatory obstacles. Achieving those targets would require collaborative efforts and a strong commitment from the government, private sector, and SMEs. By operating together, Rwanda can position itself as a frontrunner in digital monetary inclusion and pave the way for an even more prosperous and connected future for its SME region.

Moreover, non-stop innovation and adoption of emerging technology will play a pivotal role in maintaining the momentum of digital transformation. The integration of new technological improvements, consisting of blockchain and mobile cash solutions, can similarly enhance the performance and security of virtual bills. additionally, fostering an inclusive digital economy that prioritizes the wishes of underserved and rural groups will make sure that the benefits of digital payments are equitably allotted throughout the United States.

Sooner or later, ongoing tracking and evaluation of digital price tasks can be vital in identifying regions for development and ensuring the sustainability of those systems. By way of leveraging fact-drive insights and feedback from SMEs, policymakers, and stakeholders could make knowledgeable decisions to optimize the digital price environment. through sustained efforts and a collaborative technique, Rwanda can create an enabling environment for SMEs to thrive and contribute to the country's economic development.

#### **Recommendations for Fast-Tracking Adoption**

To overcome the barriers to adopting digital payment systems, there is a necessity for concerted efforts by governments, the private sector, and SMEs. Governments have to take the lead in establishing clear policies and regulatory frameworks addressing security, privacy,

and consumer protection concerns. Governments should also ensure credible internet and mobile network coverage in low-coverage and rural regions by investing in broadband infrastructure. They can also offer subsidies and tax credits to lower the expense of adopting digital payment technologies, making it easier for SMEs to transition to digital platforms. Public campaigns should also be launched to raise awareness of the advantages of digital payments among both consumers and SME owners.

Private sector companies, particularly mobile network operators and fintech providers, can do their share by providing low-cost, simple-to-use, and multilingual payment schemes tailored to SME needs. Such partnerships among fintech providers and financial institutions can fund digital literacy training programs to enhance the competence of SMEs and deliver technical support. Such partnerships can also ensure the incorporation of robust encryption and fraud prevention measures to enhance trust in electronic payment systems.

SMEs must embrace digital transformation through training programs and the application of recommended tools. The leaders of SMEs must ensure they improve their digital literacy and management to drive the adoption of digital payment systems. SMEs can also join local networks or associations to share best practices and advocate for policies that support their transition to digital payments.

## References

- Al-Okaily, M., Lutfi, A., Alsaad, A., Taamneh, A., & Alsyof, A. (2020). The Determinants of Digital Payment S Acceptance under Cultural Orientation Differences: The Case of Uncertainty Avoidance. *Technology in Society*, 63(August). <https://doi.org/10.1016/j.techsoc.2020.101367>
- ALADAĞ, O.F.(2023). International Strategies of Islamic Financial Institutions: Current Challenges and Future Trends. *Kocatepe İslami İlimler Dergisi*, 6(Ozel Sayı), 202-216. <https://doi.org/10.52637/kiid.1352334>
- Apasrawirote, D., & Yawised, K. (2021). Factors Influencing the Adoption of E-Payment Systems by SMEs. *International Journal of Innovation, Creativity and Change*. *Www.Ijicc.Net*, 15(8), 471-481. [www.ijicc.net](http://www.ijicc.net)
- Barbu, C. M., Florea, D. L., Dabija, D. C., & Barbu, M. C. R. (2021). Customer experience in fintech. *Journal of Theoretical and Applied Electronic Commerce Research*, 16(5), 1415–1433. <https://doi.org/10.3390/jtaer16050080>
- Boateng, R., & Sarpong, M. Y. P. (2019). A Literature Review of Mobile Payments in Sub-Saharan Africa. *IFIP Advances in Information and Communication Technology*, 558, 128146. [https://doi.org/10.1007/978-3-030-20671-0\\_9](https://doi.org/10.1007/978-3-030-20671-0_9)
- Celestin, M., Kumar, A. D., & Vasuki, M. (2024). THE ROLE OF PUBLIC-PRIVATE PARTNERSHIPS IN EAC SUPPLY CHAIN DEVELOPMENT. 10(2), 28–38.
- VDaly, A. B., Boughton, C. K., Nwokolo, M., Hartnell, S., Wilinska, M. E., Cezar, A., Evans, M. L., & Hovorka, R. (2023). Fully automated closed-loop insulin delivery in adults with type 2 diabetes: an open-label, single-center, randomized crossover trial. *Nature Medicine*, 29(1), 203-208. <https://doi.org/10.1038/s41591-022-02144-z>
- Egbumokei, P. I., Dienagha, I. N., Digitemie, W. N., Cynthia, E., & Oladipo, O. T. (n.d.). The role of digital transformation in enhancing sustainability in oil and gas business operations. Received: 20-09-2024 Accepted: 25-10-2024 Page No: 1029-1041. 1029 1041



- Klein, V. B., & Todesco, J. L. (2021). COVID-19 crisis and SMEs responses: The role of digital transformation. *Knowledge and Process Management*, 28(2), 117–133. <https://doi.org/10.1002/kpm.1660>
- Kumar, A. S., & Arun Palanisamy, Y. (2019). Examining the consumers' preference towards adopting the mobile payment system. *International Journal of Electronic Finance*, 9(4), 268–286. <https://doi.org/10.1504/IJEF.2019.104071>
- Kwabena, G.-Y., Qiang, M., Wenyuan, L., Qalati, S. A., & Erusalkina, D. (2019). Effects of the Digital Payment System on Smes' Performance in Developing Countries: a Case of Ghana. *EPRA International Journal of Economic and Business Review*, January 2020, 79–87. <https://doi.org/10.36713/epra2997>
- Najib, M., & Fahma, F. (2020). Investigating the adoption of digital payment systems through an extended technology acceptance model: An insight from the Indonesian small and medium enterprises. *International Journal on Advanced Science, Engineering and Information Technology*, 10(4), 1702–1708. <https://doi.org/10.18517/ijaseit.10.4.11616>
- Nwokolo, S., Eyime, E., Obiwulu, A., & Ogbulezie, J. (2024). Africa Sustainability: Harnessing Technology, Policy, and Collaboration. *Trends in Renewable Energy*, 10(1), 98–131. <https://doi.org/10.17737/tre.2024.10.1.00166>
- Priyono, A., Moin, A., & Putri, V. N. A. O. (2020). Identifying digital transformation paths in the business model of SMEs during the COVID-19 pandemic. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 1–22. <https://doi.org/10.3390/joitmc6040104>
- Rasheed, R., Siddiqui, S. H., Mahmood, I., & Khan, S. N. (2019). Financial Inclusion for SMEs: Role of Digital Micro-financial Services. *Review of Economics and Development Studies*, 5(3), 429–439. <https://doi.org/10.26710/reads.v5i3.686>
- RDB. (2022). Rwanda Annual State of Skills Supply and Demand (August 2022).
- Shofawati, A. (2019). The Role of Digital Finance to Strengthen Financial Inclusion and the Growth of SME in Indonesia. *KnE Social Sciences*, 3(13), 389. <https://doi.org/10.18502/kss.v3i13.4218>
- Sivathanu, B. (2019). Adoption of digital payment systems in the era of demonetization in India: An empirical study. *Journal of Science and Technology Policy Management*, 10(1), 143–171. <https://doi.org/10.1108/JSTPM-07-2017-0033>
- Ulas, D. (2019). Digital Transformation Process and SMEs. *Procedia Computer Science*, 158, 662–671. <https://doi.org/10.1016/j.procs.2019.09.101>
- Uwamariya, M., & Loebbecke, C. (2020). Learning from the mobile payment role model: lessons from Kenya for neighboring Rwanda. *Information Technology for Development*, 26(1), 108–127. <https://doi.org/10.1080/02681102.2018.1564725>
- World Bank Group. (2020). Digital Financial. World Bank Group, April.