

Impact of National Innovation System on Digital Payment Systems in Mauritius

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Abstract

The study examines how the National Innovation System (NIS) impacted the development and adoption of digital payment technologies in the country. This system played a vital role in promoting financial inclusion, enhancing operational efficiency, and supporting economic growth. The research evaluated the current landscape of digital payments in Mauritius, focusing on factors like infrastructure, adoption trends, and regulatory frameworks. A mixed-methods approach was used, blending quantitative data collection with qualitative policy analysis. Quantitative data was gathered through questionnaires, while qualitative insights were obtained from analyzing relevant policy documents. This dual approach allowed for a comprehensive assessment of key elements that influenced digital payment systems. The analysis explored various factors, including government regulations by investigating how the legal and regulatory environment shaped digital payment adoption; capacity for innovation by assessing the ability of the country's innovation ecosystem to support the growth of digital payment solutions; technological infrastructure by examining the availability of the technological resources necessary for digital transactions; socio-economic influences by analyzing how societal and economic conditions, such as income levels and access to technology, affected adoption rates; and competitive landscape by considering how competition among digital payment providers impacted innovation and service delivery. The study identified both opportunities and challenges within Mauritius' NIS, offering suggestions for improvements to foster greater digital payment adoption. The findings underscored the importance of nurturing a robust innovation ecosystem to drive digital transformation and economic development in emerging economies like Mauritius, highlighting how innovation could support wider access to financial services and contribute to national growth.

Keywords: innovation; digital payment; technology; economy; Mauritius

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1. Introduction

In the contemporary era, technological innovations, including fintech, particularly digital payment services, have significantly simplified payment transactions and various activities in the online age (Pambudi, 2019). Innovation plays a crucial role in the success of economic and social entities, driving competitiveness, growth, and organizational advancement (Chesbrough, 2003; Damanpour, 1991). The global financial landscape has witnessed substantial transformations with the widespread integration of digital payment systems, responding to technological advancements and evolving consumer demands (OECD, 2016). In Mauritius, a small island nation in the Indian Ocean, transitioning toward a cashless economy presents both opportunities and challenges for its financial ecosystem. Embracing digital payment systems could enhance efficiency, promote financial inclusion, and foster economic development (World Bank, 2019). However, cybersecurity vulnerabilities, infrastructure constraints, and the necessity for robust regulatory frameworks may hinder the seamless adoption of digital payments (BIS, 2018; IMF, 2020).

Mauritius, nestled in the Indian Ocean, boasts cultural richness, picturesque landscapes, and a resilient economy (Smith, 2020). Despite its small size, it has emerged as a dynamic economic player in the region, thanks to its diversified economy transitioning from agriculture to a robust services sector encompassing tourism, finance, and manufacturing (Jones & Patel, 2019). Strategic policies promoting investment, entrepreneurship, and export-oriented industries have underpinned this transformation (Government of Mauritius, 2020). Embracing digitalization, Mauritius has launched initiatives to modernize infrastructure and spur innovation in the digital sphere (White & Green, 2019), with digitalization holding promise for enhancing efficiency, productivity, and competitiveness (Black et al., 2020). Given its aspirations to become a regional finance and technology hub, the successful adoption of digital payments is paramount for fostering financial inclusion, economic growth, and innovation (Government of Mauritius, 2020). Mauritius' digital journey offers valuable insights into the nexus of economic development, innovation, and technology (Smith & Johnson, 2022), particularly relevant for small island economies seeking progress (Brown & Patel, 2019). In Mauritius, various digital payment options cater to diverse consumer and business needs, including mobile payment apps like Juice, MyT Money, and Masterpass, internet banking, debit/credit cards, Electronic Funds Transfer (EFT), Point of Sale (POS) terminals, online payment gateways, and contactless payments using NFC technology, especially relevant during the COVID-19 pandemic (Smith et al., 2021). These avenues drive the growth of cashless transactions, reshaping Mauritius' payment landscape toward digitization. In Mauritius, digital payment systems are increasingly recognized for their potential to enhance efficiency, financial inclusion, and economic growth. However, their widespread adoption faces significant hurdles, including complex regulatory frameworks, limited research and development funding, skill shortages, and inadequate stakeholder collaboration (BIS, 2018; IMF, 2020). Moreover, there is a lack of understanding regarding the role of the National Innovation System (NIS) in addressing these challenges (Tufano & Seidman, 2019). Urgent research is required to assess the effectiveness of Mauritius' NIS in fostering digital payment innovation and to devise strategies for overcoming existing barriers. By tackling these issues, Mauritius stands to fully exploit digital payment systems to fuel economic growth, advance financial inclusion, and enhance societal well-being (World Bank, 2019).

The study aimed to explore and comprehend the role played by the NIS of Mauritius in facilitating the development and adoption of digital payment systems within the country. It was significant for global academic research and policymaking, not just in Mauritius. By analyzing the NIS's influence on digital payment implementation, it addressed the interaction between innovation ecosystems, technology, and economic development. It can advance theoretical frameworks in innovation, economics, and digitalization, guiding policymakers and stakeholders in shaping effective policies and strategies. The focus on Mauritius provided practical insights for similar economies, leveraging its experience for economic progress through digital technologies. The study faced several limitations, such as incomplete coverage of digital payment implementation or NIS components due to constraints like time, resources, or data access. Data availability and reliability issues may have affected the analysis's accuracy, and the findings might not be broadly applicable to other countries due to regulatory and socio-economic differences. Additionally, researcher bias, subjective interpretations, and stakeholder interests could have influenced the findings, while external factors like policy changes may not have been fully considered. Challenges in measuring complex constructs and methodological limitations may have impacted the precision of the findings.

2. Literature Review

2.1. Technology Acceptance Model

The Technology Acceptance Model (TAM) offers a robust framework for examining and understanding the factors influencing strategic innovation in the implementation of digital payment systems in Mauritius. By considering user perspectives, addressing usability issues, harnessing social influence, and adapting to external factors, stakeholders can drive innovation initiatives to improve the adoption and efficacy of digital payment systems. This, in turn, fosters economic development and financial inclusion in Mauritius. The theoretical framework proposed in this study is based on Davis's (1989) TAM, as illustrated in Figure 1.

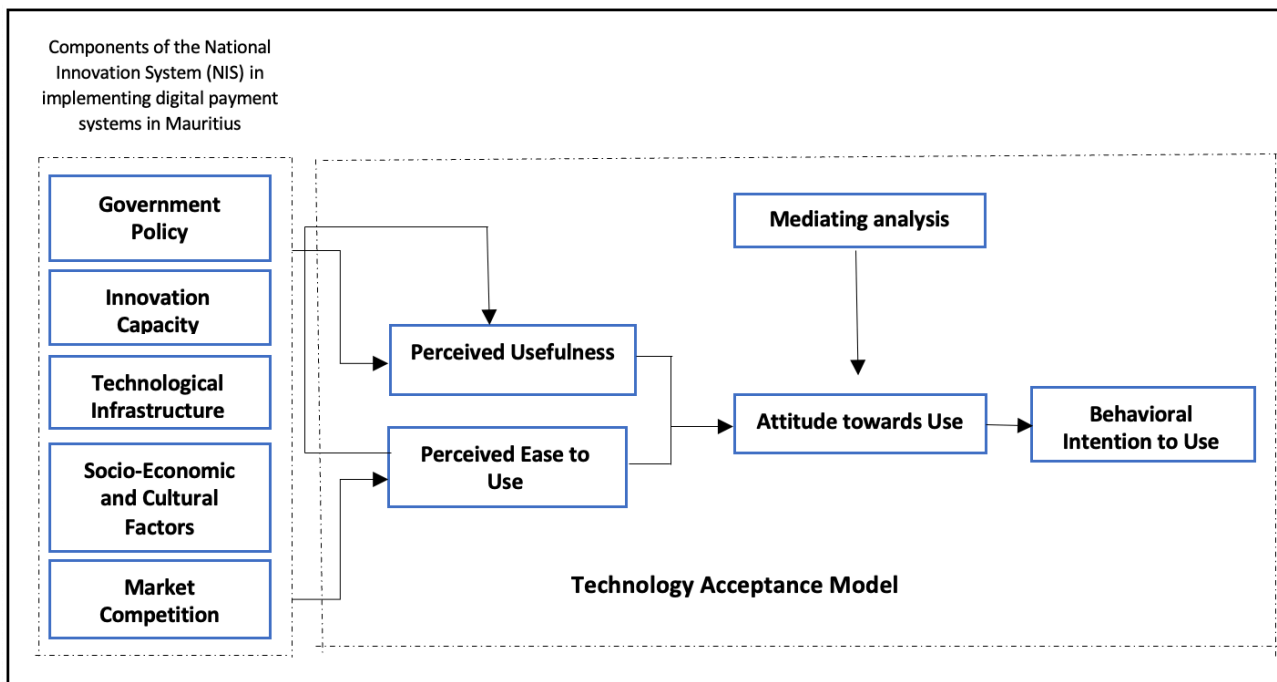


Figure 1. Theoretical framework.

2.2. Effect of Government Policy on the Implementation of Digital Payment Systems

Government policies have played a pivotal role in shaping the landscape of digital payment systems, impacting regulatory frameworks, infrastructure development, and financial inclusion (OECD, 2020; World Bank, 2016; BIS, 2019; CGAP, 2019; IMF, 2020; ADB, 2018). These policies have aimed to ensure consumer protection and foster trust in electronic transactions (OECD, 2020). Initiatives promoting interoperability among payment systems have enhanced user convenience (World Bank, 2016), while efforts to expand digital payment infrastructure, such as electronic payment networks, have been observed (BIS, 2019). Government support for financial inclusion, including G2P payment programs, has facilitated digital payment adoption among underserved populations (CGAP, 2019). Tax incentives and subsidies have incentivized businesses to invest in digital payment technologies, fostering innovation and competition (IMF, 2020). Public awareness campaigns led by governments have contributed to increasing consumer trust and adoption of digital payments (ADB, 2018). Researchers have employed the Innovation Diffusion Theory (IDT) to understand how government policies influence the adoption and diffusion of digital payment systems (Rogers, 2003). Through regulatory mandates and incentives, governments have shaped innovation characteristics such as compatibility and observability, making digital payments more appealing (OECD, 2020). Government policies have also dictated communication strategies, mitigated risks and building trust among consumers (ADB, 2018). Policies promoting digital payment adoption for government services have signaled social approval, encouraging wider acceptance (CGAP, 2019). Additionally, government interventions could expedite or hinder the adoption process over time (IMF, 2020). This study therefore hypothesized:

H1: Supportive government policies positively influence the implementation of digital payment systems within the NIS.

2.3. Effect of Innovation Capacity on Digital Payment Systems

In the contemporary knowledge-based economy, innovation capacity is crucial for driving national economic expansion (Porter, 1990; Nelson, 1993). Szeto (2000) defined innovation capacity as the continuous improvement of capabilities and resources within an enterprise to explore and exploit opportunities for developing new products to meet market needs. Dahlgaard-Park and Dahlgaard (2010) outlined that successful innovation processes in organizations require strengthening leadership, workforce, collaboration, and organizational capacity. Vicente et al. (2015) suggested that companies introducing new products or services utilize a blend of strategic capabilities, innovation behavior, and internal technological processes.

Some countries like China, India, and Kenya have endeavored to embrace digitalization, recognizing the crucial role of innovation capacity in shaping digital payment systems. Innovation capability has been instrumental in driving the evolution of digital payment systems, impacting various aspects of their development. This capability has led to the creation of advanced technologies and solutions, enhancing security protocols, user interfaces, and backend infrastructure to improve the efficiency and user experience of digital transactions (Smith, 2020; Jones & Patel, 2019). Companies with strong innovation capabilities continuously introduce new features to their payment platforms, including peer-to-peer payments, biometric authentication, and integration with emerging technologies like blockchain and artificial intelligence (Dahlgaard-Park & Dahlgaard, 2010; Vicente et al., 2015). Moreover, innovation capability has empowered companies to design user-friendly interfaces, resulting in smoother transactions and increased customer satisfaction (Brown et al., 2018; Government of Mauritius, 2020). It also enabled proactive measures against security threats, such as encryption protocols and fraud detection algorithms (White & Green, 2019; Chowdhury & Rahman, 2021). Additionally, innovation facilitated the integration of digital payment systems with IT devices, voice assistants, and wearable tech, enhancing convenience for users (Black et al., 2020; Singh et al., 2022). Furthermore, innovation capability extends to ensuring compliance with regulatory frameworks, allowing companies to adapt to evolving requirements while maintaining user trust (Brown & Patel, 2019; Smith & Johnson, 2022). Overall, innovation capability has been crucial in driving the development, security, and regulatory compliance of digital payment systems, shaping their evolution to meet the needs of consumers and businesses. This study, therefore, hypothesized:

H2: High innovation capacity within the NIS positively influences the successful implementation of digital payment systems.

2.4. Effect of Technological Infrastructure on Digital Payment Systems

Technological infrastructure, comprising elements like internet connectivity, networks, data centers, and digital platforms, formed the backbone of digital payment systems. Insufficient infrastructure could hinder the secure, reliable, and efficient operation of such systems (Smith, 2020). Inadequate internet access and connectivity issues impeded widespread adoption (ITU, 2019), while weak cybersecurity measures posed risks like data breaches and fraud (BIS, 2020). Interoperability challenges among payment systems complicated transactions (Wang et al., 2018), contributing to a digital divide (UNDP, 2021). Establishing reliable infrastructure was crucial for user-friendly, secure, and cost-effective digital payment methods, enhancing financial accessibility and inclusion (Vicente et al., 2015). Jones and Patel (2019) emphasized the role of innovation capacity in shaping and maintaining technological infrastructure, affecting the adoption of emerging payment methods like mobile wallets and contactless payments. Technological advancements offered solutions to infrastructure challenges. 5G promised faster internet connectivity (GSMA, 2020), while blockchain ensured secure transactions (Deloitte, 2019), and cloud-based solutions provided scalable options for service providers (IBM, 2021). This study, therefore, hypothesized:

H3: Robust technological infrastructure within the NIS positively impacts the implementation of digital payment systems.

2.5. Effect of Socio-economic and Cultural Factors on Digital Payment Systems

Within the framework of the NIS, advantageous socio-economic and cultural factors played a pivotal role in easing the integration of digital payment systems. Enhanced economic development often correlated with heightened adoption rates of digital payment methods. As economies progressed, there emerged a heightened demand for streamlined and convenient payment avenues, thereby propelling the uptake of digital transactions (Mishra & Sharma, 2019). Additionally, conducive socio-economic circumstances, such as widespread access to banking services and financial literacy, contributed to expanded financial inclusivity, which, in turn, fostered the acceptance of digital payment systems (Chowdhury et al., 2020). Hofstede (2011) underscored the significance of trust in the reliability and security of digital payment systems for their adoption. Societies with robust faith in institutions and technology exhibited a greater propensity to embrace digital payment solutions. Furthermore, cultural norms and attitudes towards technology exerted influence

on the assimilation of digital payment systems. Societies that esteemed innovation and technological progress were more predisposed to incorporating digital payment solutions (Tushman & O'Reilly, 1996). Additionally, robust social networks and peer influence propelled the adoption of digital payment systems. Word-of-mouth endorsements and social commendations wielded substantial influence over consumer behavior (Rogers, 2003). This study, therefore, hypothesized:

H4: Favorable socio-economic and cultural factors within the NIS facilitate the adoption of digital payment systems.

2.6. Effect of Market Competition on Digital Payment Systems

Porter (1990) asserted that global competitive advantage stemmed from a successful amalgamation of the firm's corporate strategy and the natural resources available in the country where the firm operated. The study aimed to construct a model based on Porter's Diamond framework to analyze the factors impacting the implementation of digital payment systems in Mauritius (Figure 2). The adapted model consisted of five key components as follow:

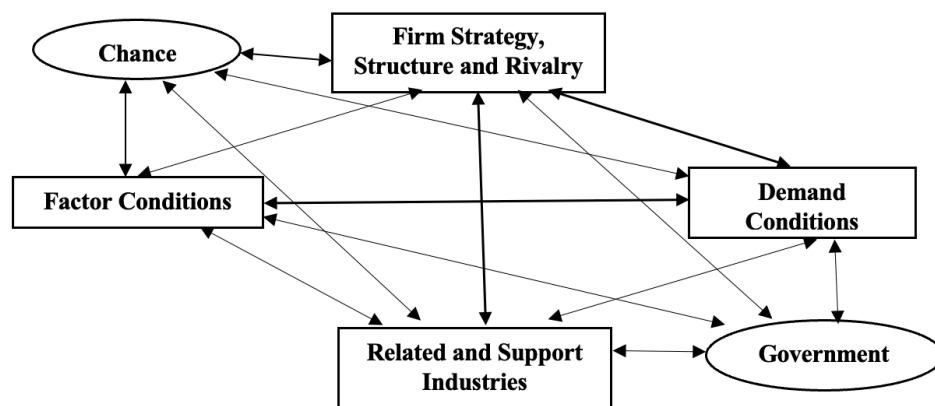


Figure 2. Porter's diamond model.

Factor conditions: This component assessed Mauritius' assets and capabilities relevant to digital payment innovation, including its technological infrastructure, human capital, financial resources, and regulatory frameworks. *Demand conditions:* It focused on the Mauritian market's characteristics and consumer preferences regarding digital payment systems, considering factors such as consumer behavior, financial literacy, and the demand for secure and convenient payment methods. *Related and supporting industries:* This aspect explored the network of industries and organizations within Mauritius that facilitated the development of digital payment systems, including financial institutions, technology firms, regulatory bodies, and educational institutions. *Firm strategy, structure and rivalry:* This element analyzed the strategies, organizational structures, and competitive landscape among companies involved in digital payment systems within Mauritius. It considered aspects like innovation strategies and collaboration among industry players. *Government policy:* This additional component evaluated the influence of government policies on fostering an environment conducive to digital payment innovation. It encompassed regulatory frameworks, financial incentives, public awareness initiatives, and support for research and development efforts (Tufano & Seidman, 2019). This study, therefore, hypothesized:

H5: Healthy market competition within the NIS fosters innovation and enhances the implementation of digital payment systems.

2.7. Research Model

The study examined the role of the NIS in enabling the adoption of digital payment systems in Mauritius, focusing on key factors such as government policy, innovation capacity, technological infrastructure, socio-economic and cultural dynamics, and market competition. Grounded in the Resource-Based Theory (Barney, 1991) and Institutional Theory (Scott, 1995), it identified five core determinants for adopting digital payment

systems. The Resource-Based View (RBV) underscored the importance of both intangible resources, such as practical experience, and tangible assets, like infrastructure, in fostering innovation and enhancing organizational performance (Barney, 1991; Singh et al., 2022). Institutional Theory (INT) shed light on external pressures—mimetic, coercive, and normative—that drive organizations to align with market and regulatory demands (Wade and Hulland, 2004). These pressures, influenced by customers, competitors, and regulatory bodies, shaped decisions related to innovation adoption. By synthesizing insights from these theories, the study provided a comprehensive understanding of the interplay between internal resources and external forces in driving organizational innovation. A visual representation of the proposed research model is presented in Figure 3.

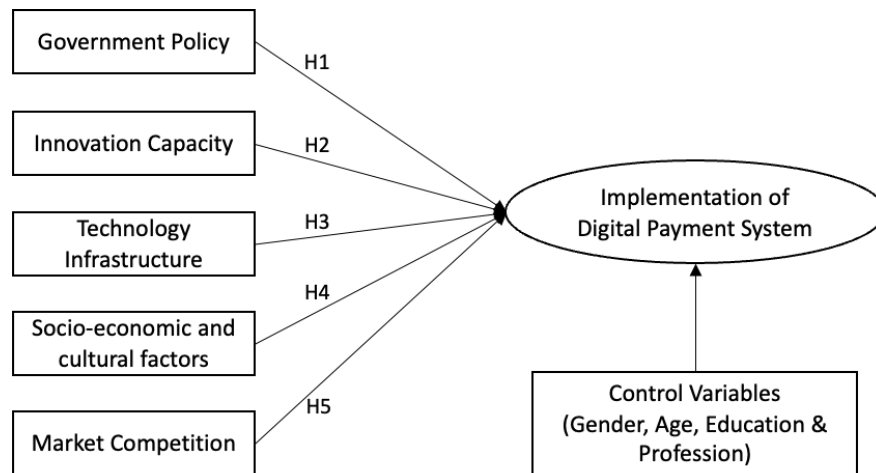


Figure 3. Study research model.

3. Methodology

A quantitative survey methodology was employed to examine the integration of digital payment systems within Mauritius' NIS. A structured questionnaire was distributed to a representative sample, collecting numerical data on key factors such as governmental policies, innovation capacity, technological infrastructure, socio-economic influences, and market competitiveness. The survey utilized standardized questions and response formats to systematically gather insights from stakeholders directly or indirectly involved in digital payment systems. Statistical analysis was conducted using SPSS, facilitating hypothesis testing and enabling the identification of significant relationships between factors influencing the successful adoption of digital payment systems within the NIS. A stratified random sampling method was employed to ensure equitable representation across demographic groups, reflecting the diverse target population. Respondents included employees from government institutions (policy makers), financial institutions (banks and credit unions), technology firms, payment service providers, and end-users (general public) in Mauritius. Of the 250 distributed questionnaires, 240 were returned, with five excluded due to incomplete data, resulting in 235 valid responses and an effective response rate of 94%. This exceeds the adequacy threshold for data analysis, as per Mugenda & Mugenda (2003), which recommend a minimum 10% response rate. Data collection employed a 19-item scale developed after a comprehensive literature review. Multiple items were used to assess various factors, measured on a five-point Likert scale. Construct validity was evaluated following Fornell and Larcker's (1981) criteria, and reliability was assessed using Cronbach's coefficient alpha, ensuring consistency and repeatability of the research instrument as defined by Seale (2004).

The study adhered to ethical standards by maintaining respondent confidentiality, using secured data exclusively for academic purposes, and ensuring anonymity. Sensitive questions were avoided to prevent discomfort or harm to participants. Despite these precautions, limitations included potential response bias due to employee reluctance to participate, even with access to counseling. Furthermore, the relatively small sample size constrains the study's ability to generalize findings across the public sector. Nevertheless, the responses are considered a reliable reflection of the participants' perceptions.

4. Results

According to the Statistics Mauritius Report 2023, the population of the Republic of Mauritius by the end of that year stood at 1,260,379 individuals, comprising 622,647 males and 637,732 females. This study explored empirical data on various aspects of stakeholders involved in or affected by digital payment systems in Mauritius. The primary objective was to evaluate how the NIS influenced the development, adoption, and success of digital payment systems in the country. Data were collected from 235 stakeholders out of a targeted sample of 250 through a self-administered survey. Descriptive statistics, including frequency distributions, cross-tabulations, means, and standard deviations, were employed for data analysis. Hypotheses H1 to H5 were tested using Pearson's Correlation Coefficients to determine the strength and direction of proposed relationships. Additionally, regression analysis assessed the statistical significance of relationships among key variables, with a significance threshold of 0.05. The demographic profile of the valid sample included factors such as gender, age, profession, and education, providing a comprehensive understanding of the participants.

The demographic profile of the study participants ($n = 235$) reveals a diverse and balanced representation across key variables (Table 1). In terms of gender, 57% of the respondents were female (134), while 43% were male (101), indicating a slightly higher participation of females. The age distribution shows that the majority of respondents were between 18–30 years (31.5%), followed by those aged 41–50 years (21.7%) and 31–40 years (19.1%). Participants aged 51–60 years constituted 16.6%, while 11.1% were above 61 years, reflecting a relatively younger demographic. Professionally, the sample included equal representation from government institutions and technology companies (23.8% each), with financial institutions closely behind at 23.4%. Payment service providers made up 13.2% of the sample, while end users accounted for 15.7%, ensuring diverse insights from key stakeholders. Educationally, the largest group held a higher school certificate (27.7%), followed by those with master's degrees (26.4%), bachelor's degrees (25.1%), and PhDs (19.1%), with 1.7% reporting other qualifications.

Table 1. Demographic profile (n-235).

| Category | Subcategory | Frequency | Percentage |
|------------|---------------------------|-----------|------------|
| Gender | Male | 101 | 43% |
| | Female | 134 | 57% |
| Age | 18–30 | 74 | 31.5% |
| | 31–40 | 45 | 19.1% |
| | 41–50 | 51 | 21.7% |
| | 51–60 | 39 | 16.6% |
| | Above 61 | 26 | 11.1% |
| Profession | Government institutions | 56 | 23.8% |
| | Financial institutions | 55 | 23.4% |
| | Technology companies | 56 | 23.8% |
| | Payment service providers | 31 | 13.2% |
| | End users | 37 | 15.7% |
| Education | Higher school certificate | 65 | 27.7% |
| | Bachelor's degree | 59 | 25.1% |
| | Master's degree | 62 | 26.4% |
| | PhD degree | 45 | 19.1% |
| | Others | 4 | 1.7% |

This study employed Cronbach's Alpha to evaluate the internal consistency of items measuring the impact of the NIS on digital payment systems in Mauritius. This statistical measure assesses how closely related the items are as a group, ensuring they collectively evaluate the same underlying construct. The analysis yielded a Cronbach's Alpha of 0.854, reflecting a high level of internal consistency. According to established standards, a value above 0.7 is acceptable, while values above 0.8 are considered good, indicating that the scale used in this study is highly reliable (George & Mallery, 2010). The Cronbach's Alpha Based on Standardized Items was slightly lower at 0.848, still demonstrating strong reliability. This minor difference suggests the scale remains robust, even when accounting for variations in response scales among participants. If the construct includes multiple dimensions, such as regulatory support, technological readiness, and financial inclusion within the NIS, future studies could conduct subscale reliability analyses. This would help verify whether each component is measured with consistent reliability. While subscale analysis was not performed in this study,

the high Cronbach's Alpha of 0.854 strongly supports the reliability of the scale in measuring the NIS's impact on digital payment systems in Mauritius.

Table 2. Reliability statistics.

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|------------------|--|------------|
| .854 | .848 | 19 |

The correlation analysis revealed significant relationships between the key components of the NIS—government support, innovation, technology, socio-cultural factors, and market competition—and their influence on the implementation of digital payment systems in Mauritius. Government support demonstrated strong positive correlations with innovation ($r = 0.737$, $p < 0.01$) and technology ($r = 0.679$, $p < 0.01$), emphasizing the critical role of policies in fostering technological advancements and driving innovation. A similarly strong correlation between innovation and technology ($r = 0.849$, $p < 0.01$) underscored their interdependence as drivers of digital transformation. Innovation also showed significant relationships with socio-cultural factors ($r = 0.629$, $p < 0.01$) and market competition ($r = 0.617$, $p < 0.01$), suggesting that innovative approaches are effective in addressing cultural barriers while thriving in competitive environments. Furthermore, technology demonstrated a strong positive correlation with socio-cultural factors ($r = 0.704$, $p < 0.01$), highlighting its potential in overcoming cultural challenges. Government support was also positively associated with socio-cultural factors ($r = 0.680$, $p < 0.01$), indicating that governmental interventions are crucial for enhancing societal readiness for digital payment adoption. Although market competition exhibited weaker but statistically significant correlations with government support ($r = 0.429$, $p < 0.01$), technology ($r = 0.411$, $p < 0.01$), and socio-cultural factors ($r = 0.342$, $p < 0.01$), these findings illustrate its role, albeit less prominent, in shaping the digital payment ecosystem. Collectively, the statistically significant results ($p < 0.01$), presented in Table 3, highlighted the interconnected nature of these factors and their combined influence on the adoption and sustainability of digital payment systems in Mauritius. The acceptance of hypotheses H1 to H5 reinforced the critical role of supportive structures in enabling digital transformation. Supportive government policies were found to positively influence the implementation of digital payment systems, emphasizing the need for clear regulations and incentives to encourage adoption. High innovation capacity within the NIS significantly impacted the successful implementation of digital payment systems, underscoring the importance of investment in research and development and fostering a culture of innovation. The analysis also revealed that robust technological infrastructure positively influences the implementation of digital payment systems, emphasizing the necessity of reliable internet connectivity and access to modern technologies. Favorable socio-economic and cultural factors were found to facilitate digital payment adoption, indicating the value of understanding local customs and consumer behavior to tailor solutions that resonate with users. Market competition, while showing relatively weaker correlations, plays a vital role in fostering innovation and enhancing digital payment adoption by encouraging service providers to improve their offerings and deliver better value to consumers. These findings not only reinforce the interdependence of government support, innovation, technology, socio-cultural readiness, and market competition but also provide a strategic roadmap for policymakers and stakeholders in Mauritius. By prioritizing these areas, the country can strengthen its NIS, ensuring the successful implementation of digital payment solutions that are critical for economic growth and financial inclusion.

The Chi-Square tests were conducted to examine the associations between key elements of the NIS and the implementation of digital payment systems in Mauritius. The categorical variables analyzed included government policies, innovative initiatives, technological advancements, socio-economic factors, and market competition, all evaluated for their impact on the adoption of digital payment systems. Gender was also incorporated as a demographic variable, with 101 male respondents (43%) and 134 female respondents (57%) contributing to the analysis. The results demonstrated strong statistical significance for all analyzed factors, with p-values well below the 0.05 threshold: government policies ($p < .001$), innovative initiatives ($p < .001$), technology advancement ($p = .009$), socio-economic factors ($p = .0049$), and market competition ($p < .001$). These findings highlight a robust association between these components of the NIS and the successful adoption of digital payment systems in Mauritius. Nevertheless, some limitations were identified regarding the Chi-Square test's assumptions.

Table 3. Correlation coefficient.

| | | Government | Innovation | Technology | Socio-Cultural | Market Competition |
|--------------------|---------------------|------------|------------|------------|----------------|--------------------|
| Government | Pearson Correlation | 1 | .737** | .679** | .680** | .429** |
| | Sig. (2-tailed) | | .000 | .000 | .000 | .000 |
| | N | 235 | 235 | 235 | 235 | 235 |
| Innovation | Pearson Correlation | .737** | 1 | .849** | .629** | .617** |
| | Sig. (2-tailed) | .000 | | .000 | .000 | .000 |
| | N | 235 | 235 | 235 | 235 | 235 |
| Technology | Pearson Correlation | .679** | .849** | 1 | .704** | .411** |
| | Sig. (2-tailed) | .000 | .000 | | .000 | .000 |
| | N | 235 | 235 | 235 | 235 | 235 |
| Socio Cultural | Pearson Correlation | .680** | .629** | .704** | 1 | .342** |
| | Sig. (2-tailed) | .000 | .000 | .000 | | .000 |
| | N | 235 | 235 | 235 | 235 | 235 |
| Market Competition | Pearson Correlation | .429** | .617** | .411** | .342** | 1 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | |
| | N | 235 | 235 | 235 | 235 | 235 |

**Correlation is significant at the 0.01 level (2-tailed).

A notable proportion of cells—6 cells (31.8%)—exhibited expected frequencies below 5, with the minimum expected count being 1.29. Such low expected counts can compromise the validity of the test results, necessitating caution when interpreting the observed significance. Despite these limitations, the analysis indicates that supportive government policies, innovative efforts, advancements in technology, favorable socio-economic conditions, and healthy market competition positively influence digital payment adoption. Policymakers are encouraged to enhance these areas to facilitate the successful implementation of digital payment systems. Additionally, the gender-based cross-tabulation revealed a higher representation of female respondents, which may influence perceptions of the policies and initiatives related to digital payment systems. Detailed findings, along with discussions of these relationships, are presented in Tables 4. This analysis underscores the need to balance statistical significance with practical implications when assessing the factors driving the adoption of digital payment systems in Mauritius.

Table 4. Chi-square test.

| | Value | df | Asymptotic Significance (2-sided) |
|--|---------|----|-----------------------------------|
| Pearson Chi-Square for Government Policies for positive impact on Digital Payment System (DPS) | 44.428a | 12 | <.001 |
| Pearson Chi-Square Innovative Initiatives or Projects | 50.734b | 10 | <.001 |
| Pearson Chi-Square for Technology Advancement or infrastructure improvement | 24.919c | 11 | .009 |
| Pearson Chi-Square for Socio-economic or Cultural factors | 29.175d | 12 | .004 |
| Pearson Chi-Square for Market competition for Innovation | 29.639e | 10 | <.001 |

a. 6 cells (23.1%) have expected count less than 5. The minimum expected count is 1.29.

b. 7 cells (31.8%) have expected count less than 5. The minimum expected count is 1.29.

c. 8 cells (33.3%) have been counted less than 5. The minimum expected count is 1.29.

d. 8 cells (30.8) have expected count less than 5. The minimum expected count is .86

e. 8 cells (36.4%) have expected count less than 5. The minimum expected count is 1.29.

The regression model utilized to analyze the factors influencing the Composite Score was grounded in several key assumptions to ensure the validity and reliability of the analysis. First, linearity was assessed to confirm that the relationship between the independent variables and the dependent variable (Composite Score) was linear. Scatterplots and residual plots were carefully examined, showing no curvilinear patterns. If any non-linearity had been observed, transformations such as logarithmic or polynomial adjustments would have been considered to address the issue. Second, the normality of residuals was evaluated to verify that the differences between observed and predicted values were normally distributed. This was tested using the Shapiro-Wilk test and visualized through Q-Q plots, both of which indicated that the residuals were approximately normally distributed, thereby meeting the assumption. In the event of severe violations, alternative techniques like bootstrapping would have been considered to ensure robust results. Third, homoscedasticity was inspected to ensure that the variance of residuals remained consistent across all levels of the independent variables. Residual plots were reviewed, and the absence of discernible patterns confirmed this assumption. Had heteroscedasticity been detected, corrective measures such as weighted least squares regression would have been applied. Fourth, the independence of errors was confirmed using the Durbin-Watson statistic, which

yielded a value of 2.197. This result suggested minimal autocorrelation among residuals, reinforcing the reliability of the model's predictions. The model's summary, as detailed in Table 5, demonstrated a strong R value of 0.967, indicating a very high positive correlation between the predictors and the Composite Score. The R-squared value of 0.933 revealed that 93.3% of the variance in the Composite Score was explained by the independent variables included in the model. This high R-squared value reflected the model's exceptional explanatory power, effectively capturing the underlying relationships and providing strong predictive accuracy. Overall, these results suggest that the model is well-suited for analyzing the factors influencing the Composite Score.

Table 5. Regression model.

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|---------------|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .967 ^a | .934 | .933 | .25641 | .934 | 652.684 | 5 | 229 | .000 | 2.197 |

a. Predictors: (Constant), Effectiveness of Existing Government Policies, Innovation Capacity, Technology Infrastructure, Market Competition, Socio-Economic Factors

b. Dependent Variable: Composite Score (Government Policies, Influences of innovation capacity, Technology infrastructure positive impact, cultural factors, market competition for enhancing NIS)

The regression model incorporated multiple key independent variables, each contributing significantly to explaining variations in the Composite Score, which reflects the adoption of digital payment systems. The Effectiveness of Existing Government Policies emerged as a critical factor, exhibiting the strongest positive influence on digital payment adoption. Higher scores in this area underscore the pivotal role of robust government support in creating a conducive environment for digital payment systems. Similarly, Technology Infrastructure was identified as a significant predictor, with improvements in this area positively affecting the Composite Score by enabling seamless access and usability of digital payment technologies. Market Competition also showed a meaningful contribution, indicating that increased competitive dynamics within the market drive innovation and encourage broader adoption of digital payment solutions. Socio-Economic Factors captured the broader context of economic and social conditions, demonstrating a strong positive relationship with the Composite Score. Favorable socio-economic conditions thus facilitate the integration and use of digital payment systems. Lastly, Innovation Capacity emphasized the importance of fostering innovation, as a positive association with the Composite Score highlights the necessity of innovative approaches in enhancing the effectiveness and adoption of digital payments. The multifaceted nature of these predictors underscores their collective significance in influencing digital payment adoption. Together, they provide a comprehensive understanding of the factors driving adoption and implementation. The ANOVA results, presented in Table 6, offer a thorough evaluation of the model's overall performance. The Sum of Squares for Regression, recorded at 214.565, illustrates the extent of variance explained by the predictors, while the Residual Sum of Squares, at 15.056, underscores the comparatively minimal unexplained variance. The F-statistic of 652.684, with a highly significant p-value of less than 0.001, confirms the model's statistical significance. This demonstrates that the regression model is a significantly better fit than an intercept-only model and establishes that at least one of the predictors substantially explains the variance in the Composite Score. Collectively, these findings validate the effectiveness of the selected predictors in understanding the factors impacting the adoption of digital payment systems.

Table 6. ANOVA.

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|---------|-------------------|
| 1 | Regression | 214.565 | 5 | 42.913 | 652.684 | .000 ^b |
| | Residual | 15.056 | 229 | .066 | | |
| | Total | 229.621 | 234 | | | |

a. Dependent Variable: Composite Score (Government Policies, Influences of innovation capacity, Technology infrastructure positive impact, cultural factors, market competition for enhancing NIS)

b. Predictors: (Constant), Effectiveness of Existing Government Policies, Innovation Capacity, Technology Infrastructure, Market Competition, Socio-Economic Factors

The regression analysis revealed that the predictors—government policies, technology infrastructure, market competition, socio-economic factors, and innovation capacity—exert a significant influence on the Composite Score. The model demonstrated robust explanatory power, with its assumptions validated, ensuring the

reliability of its predictions. These findings offer meaningful insights for policymakers and stakeholders seeking to improve digital payment systems, underscoring the pivotal role of these factors in creating an enabling environment for adoption.

5. Discussion

This study sought to test hypotheses about the positive effects of government policies, innovation capacity, technological infrastructure, socio-economic and cultural factors, and market competition on the implementation of digital payment systems within Mauritius's NIS. By framing specific questions for each factor, the study explored their influence on the innovation landscape and adoption of digital payments. The analysis focused on regulatory frameworks and policies supporting digital payment systems. Drawing on Rogers' Innovation Diffusion Theory (IDT), the findings highlight that government measures, such as compatibility and observability enhancements through incentives and regulations, play a pivotal role in encouraging digital payment adoption. Policies like fintech regulatory frameworks and data protection laws were identified as key drivers in this process. Questions on innovation capacity assessed existing capabilities and initiatives that promote digital payment adoption (Fruhling & Siau, 2007). Innovation capacity is described as the continuous improvement of an organization's ability to seize opportunities for product development. Firms introducing innovative products must integrate strategic competencies and technological advancements, emphasizing innovation capacity as a critical factor for successful digital payment implementation (Mphale et al., 2024). The study examined the state of technology and advancements required to support digital payment systems. Robust technological infrastructure was deemed vital, aligning with previous findings stressing its importance for adopting new payment methods like mobile wallets and contactless systems (Ravichandran, 2018). Reliable infrastructure enables secure, accessible, and cost-effective digital payment solutions, advancing financial inclusion. Socio-economic and cultural factors were evaluated regarding their role in fostering digital payment adoption. Trust in the security and reliability of digital systems emerged as a fundamental determinant. Furthermore, cultural norms that prioritize innovation significantly influence the acceptance of digital payments in tech-savvy societies. The role of market competition was analyzed through its impact on driving innovation in digital payment systems. Competitive advantage stems from aligning corporate strategies with national resources, emphasizing market dynamics as a catalyst for innovative payment solutions and improved user experiences (Liu et al., 2015). The findings underscore the importance of Mauritius's NIS in driving digital payment adoption. Collaborative efforts between government, industry, and society enhance innovation, infrastructure, and policy frameworks. While socio-cultural factors and market competition further accelerate progress, challenges remain (Lin, 2007). The study's limitations, including a small sample size and narrow scope, call for broader research to address contextual factors and refine strategies for sustainable digital payment implementation.

The study underscores the critical role of government policies, innovation capacity, and technological infrastructure in advancing the adoption and innovation of digital payment systems in Mauritius. These findings align with broader literature, which emphasizes the need to incentivize digital payment adoption, streamline regulatory frameworks, and encourage collaboration between government and industry. Insights from countries like Rwanda, Vietnam, and the Philippines, which have similar economic profiles and stages of digital payment adoption, offer valuable lessons for Mauritius. Rwanda's approach integrates mobile payments with telecom partnerships to promote financial inclusion in underserved areas, while Vietnam has built a robust fintech ecosystem by balancing strict regulations with a supportive innovation environment, particularly through flexible e-wallet regulations. The Philippines has leveraged regulatory sandboxes and agent networks to test innovations and expand digital payment access, particularly in rural areas. Mauritius can learn from these experiences by integrating telecom and banking services, as seen in Rwanda, to promote digital payment adoption across rural and underserved populations. Additionally, Mauritius could focus on tailoring digital solutions for youth adoption, targeting tech-savvy demographics as demonstrated by Vietnam, and expanding agent networks and developing regulatory sandboxes, as practiced in the Philippines, to foster innovation while ensuring consumer protection. Furthermore, investing in technological infrastructure and human capital is essential for driving economic growth and technological advancement, with recommendations from cybersecurity experts advocating for stronger digital infrastructure to enhance connectivity and security (Arias-Pérez et al., 2021). To foster innovation in digital payment systems, Mauritius

should consider establishing a regulatory sandbox with clear criteria for selecting fintech firms offering scalable solutions to local challenges. This sandbox should allow firms to operate with relaxed restrictions while maintaining essential consumer protections to ensure that innovation can thrive without compromising security or user trust (Nylén & Holmström, 2015). An iterative feedback mechanism should also be incorporated to allow successful projects to scale and integrate into the broader financial ecosystem. To enhance trust and security in digital payment systems, Mauritius must update its data protection laws to include robust provisions for the secure storage, processing, and transmission of financial data. Strong consumer protection measures, such as independent bodies for resolving payment disputes and educational programs on fraud prevention, are also essential. Addressing socio-economic and cultural barriers to digital payment adoption is equally important, with Mauritius needing to implement targeted awareness campaigns and develop solutions that ensure digital payments are accessible and appealing to all segments of the population. Finally, fostering innovation and entrepreneurship in the digital payment market will drive growth and increase consumer choice, as highlighted in the literature (Fichman et al., 2014; Ferreira et al., 2019; Le & Lei, 2019). By adopting these measures, Mauritius can strengthen its NIS, leading to improved digital payment systems, greater financial inclusion, and sustained economic growth and technological advancement.

Future research should focus on developing detailed policy recommendations to improve digital payment systems in Mauritius, guide industry practices, and promote financial inclusion and economic growth. Comparative studies could provide valuable insights by examining how digital payment strategies in other countries align with Mauritius's context, including in-depth analyses of regulatory frameworks, financial inclusion strategies, and the role of innovation ecosystems in countries like Vietnam, the Philippines, and Rwanda. Key areas for further exploration include examining successful regulatory models, such as regulatory sandboxes, data protection laws, and consumer protections, to assess their applicability in Mauritius. Moreover, research should investigate the socio-economic impacts of digital payment systems on marginalized groups, specifically focusing on income distribution, access to financial services, and economic mobility. Additionally, qualitative research is needed to better understand user experiences with digital payment systems in Mauritius, identifying barriers to adoption such as technological literacy, trust issues, and security concerns. Insights from users can inform the design of systems and awareness campaigns to overcome these barriers. Technological innovations such as advancements in biometric authentication, encryption, and user interfaces could enhance security and usability, and the development of interoperability standards is essential to ensure seamless integration of different payment platforms. Financial education initiatives also warrant further investigation to explore their role in promoting digital payment adoption and how financial literacy influences consumer behavior in the digital space. Research on the competitive landscape among digital payment providers in Mauritius is crucial, as understanding how competition impacts service quality, pricing strategies, and innovation can help policymakers create an environment that encourages innovation while protecting consumer interests. Additionally, exploring the integration of digital payment systems with emerging technologies like blockchain and artificial intelligence (AI) could further enhance transaction efficiency, security, and trust. Longitudinal studies are also essential to track the adoption of digital payment systems over time, identify trends, evaluate the long-term impacts of policies, and assess the sustainability of these systems in Mauritius. By exploring these areas, future research can provide actionable insights to help policymakers, industry stakeholders, and researchers build an innovative, inclusive, and sustainable digital payments ecosystem in Mauritius.

6. Conclusion

The successful adoption and innovation of digital payment systems in Mauritius depend on a combination of strategic government policies, robust technological infrastructure, and a collaborative ecosystem between government, industry, and consumers. Drawing on international best practices from countries like Rwanda, Vietnam, and the Philippines, Mauritius has the opportunity to tailor solutions that address its unique challenges, such as expanding telecom and banking integration, promoting youth adoption, and establishing regulatory sandboxes for innovation. Strengthening digital infrastructure, updating data protection laws, and addressing socio-economic and cultural barriers will enhance the trust and security necessary for widespread adoption. Further investment in human capital and fostering an environment conducive to entrepreneurship will drive technological advancement and economic growth. Future research should focus on refining policy

recommendations, examining successful regulatory frameworks, and understanding the socio-economic impacts of digital payment systems, particularly for marginalized groups. By conducting qualitative studies and exploring technological innovations, researchers can uncover actionable insights that will guide the development of a sustainable and inclusive digital payments ecosystem. Mauritius's continued progress in this area will contribute to greater financial inclusion, enhanced economic mobility, and the overall modernization of its financial system, positioning the country as a leader in digital payment adoption in the region.

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