



Assessing the Role of Mobile Applications on Economic Activity of SMEs in Developing Economies

Case Study: Cameroon

Quantitative Research Methods

LCDB7011

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Chapter 1: Introduction

1.1 Background of the Study

Small and medium-sized enterprises (SMEs) play a crucial role in the economic development of many countries, particularly in developing economies where they often constitute the backbone of the economy (Mazzarol, 2018). In Cameroon, SMEs account for a significant portion of employment and contribute substantially to the nation's gross domestic product (GDP). However, these enterprises face numerous challenges, including limited access to finance, inadequate infrastructure, and constrained market access, which hinder their growth and sustainability (Kura, 2020).

In recent years, mobile technology has emerged as a transformative force in the business environment. The proliferation of mobile applications has provided SMEs with new opportunities to enhance their operations, improve efficiency, and expand their market reach (Boateng et al., 2020). Mobile applications offer a range of functionalities, including mobile banking, e-commerce, marketing, customer relationship management, and communication tools, all of which are essential for the growth of SMEs in an increasingly digital world.

In developing economies like Cameroon, the adoption of mobile applications by SMEs has the potential to overcome some of the traditional barriers to growth (Foster & Heeks, 2018). For instance, mobile banking apps enable SMEs to manage their finances more effectively, reducing the reliance on physical bank branches. Similarly, e-commerce platforms allow small businesses to reach customers beyond their immediate geographic location, thereby expanding their market presence. Despite these potential benefits, the extent to which mobile applications are being adopted by SMEs in Cameroon, and their impact on business performance, remains underexplored (Asongu & Odhiambo, 2019).

1.2 Gap in Current Research

While there is a growing body of research on the impact of mobile applications on business processes and economic activity, much of the existing literature focuses on developed economies or large corporations (Okeke, 2020). Studies that examine the specific context of SMEs in developing economies, particularly in sub-Saharan Africa, are relatively scarce. Moreover, within the available literature, there is a tendency to overlook the differences in how mobile applications affect businesses of varying sizes and capacities.

In the context of Cameroon, the adoption of mobile technology by SMEs is an area that has not been extensively studied. There is a lack of empirical evidence on how mobile applications influence the operational efficiency, market expansion, and overall economic performance of SMEs in the country (Osei & Kim, 2020). Furthermore, the factors that facilitate or hinder the adoption of these technologies in the Cameroonian context have not been adequately addressed. This research aims to fill these gaps by providing a comprehensive assessment of the role of mobile applications in the economic activities of SMEs in Cameroon (Molla & Loukis, 2019).

1.3 Research Aim

The primary aim of this research is to assess the role of mobile applications in enhancing the economic activities of SMEs in Cameroon. This study seeks to understand how mobile applications are being

utilised by SMEs, the impact of these applications on business performance, and the factors that influence their adoption. By focusing on the specific context of Cameroon, this research aims to provide insights that are directly applicable to the country's unique economic environment.

1.4 Research Objectives

To achieve the research aim, the following objectives have been established:

1. To evaluate the impact of mobile applications on the operational efficiency and productivity of SMEs in Cameroon.
2. To determine the key factors that influence the adoption and effective utilisation of mobile applications by SMEs in Cameroon.
3. To assess the extent to which mobile applications contribute to market expansion and revenue growth for SMEs in Cameroon.

1.5 Research Questions

The research is guided by the following key questions:

1. How do mobile applications influence the operational efficiency and productivity of SMEs in Cameroon?
2. What factors determine the adoption and effective utilization of mobile applications by SMEs in Cameroon?
3. To what extent do mobile applications contribute to market expansion and revenue growth for SMEs in Cameroon?

1.6 Hypothesis

In addition to addressing the research questions, this study tests the following hypothesis:

- **Hypothesis:** The use of mobile applications affects larger businesses more significantly than smaller ones.

This hypothesis is based on the premise that larger SMEs may have more resources and capabilities to leverage mobile technology, resulting in a greater impact on their economic activities compared to smaller enterprises.

1.7 Significance of the Study

This study is significant for several reasons. First, it contributes to the existing body of knowledge on the digital transformation of SMEs, particularly in the context of developing economies. By focusing on Cameroon, this research provides insights that are relevant to other sub-Saharan African countries with similar economic structures and challenges.

Second, the findings of this research have practical implications for policymakers, business owners, and technology developers. Understanding the factors that influence the adoption of mobile applications by SMEs can inform the design of policies and interventions aimed at promoting digital inclusion and economic growth. Moreover, identifying the impact of mobile applications on business performance can help SMEs make informed decisions about technology investments.

Finally, this study is timely, given the increasing importance of digital technologies in the global economy. As mobile applications continue to evolve, it is essential to understand their potential to drive economic development in emerging markets. This research provides a foundation for future studies on the role of mobile technology in economic growth and development.

Chapter 2: Literature Review

2.1 Overview of SMEs in Developing Economies

SMEs are recognised as key drivers of economic growth, innovation, and employment in developing economies (Olayinka et al., 2020). In sub-Saharan Africa, including Cameroon, SMEs contribute significantly to GDP and provide employment to a large portion of the population (Mahmood et al., 2019). However, these enterprises face numerous challenges such as limited access to finance, inadequate infrastructure, and high levels of informality, which hinder their ability to scale and compete in the global market (Adeola & Evans, 2019).

There are also potential solutions to some of these challenges by providing SMEs with affordable and accessible tools to improve their business processes (Osiyevskyy et al., 2020).

2.2 Theories and Models of Technology Adoption in SMEs

Understanding the factors that influence the adoption of mobile applications by SMEs requires a review of several influential theories and models. These frameworks provide insights into the processes and conditions under which SMEs adopt and integrate new technologies into their operations.

2.2.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1989), is one of the most widely used models for understanding technology adoption. TAM posits that two primary factors—perceived usefulness and perceived ease of use—determine an individual's intention to use a technology, which in turn influences actual usage (Venkatesh et al., 2018). In the context of SMEs, perceived usefulness may relate to the expected benefits of mobile applications in improving business efficiency and competitiveness, while perceived ease of use refers to the simplicity and user-friendliness of the apps.

2.2.2 Diffusion of Innovations Theory

The Diffusion of Innovations Theory, proposed by Rogers (1962), explains how new ideas and technologies spread within a society or organisation. According to this theory, the adoption of innovation follows a process involving knowledge, persuasion, decision, implementation, and confirmation. The theory categorises adopters into five groups: innovators, early adopters, early majority, late majority, and laggards (Katz & Koutroumpis, 2020). In the context of SMEs in Cameroon,

understanding the diffusion process of mobile applications can help identify the factors that drive or hinder adoption among different types of businesses.

2.2.3 Resource-Based View (RBV)

The Resource-Based View (RBV) of the firm, introduced by Barney (1991), suggests that firms gain a competitive advantage by utilising valuable, rare, inimitable, and non-substitutable resources. Mobile applications can be considered strategic resources that, when effectively leveraged, enhance the capabilities of SMEs (Ramdani et al., 2019). The RBV framework is particularly relevant for understanding how SMEs can use mobile technology to build unique capabilities that distinguish them from competitors.

2.2.4 Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT), developed by Venkatesh et al. (2003), integrates elements from several previous models, including TAM and the Diffusion of Innovations Theory. UTAUT identifies four key constructs that influence technology adoption: performance expectancy, effort expectancy, social influence, and facilitating conditions. This model can be used to assess how various factors—such as the perceived benefits of mobile apps, the effort required to use them, social pressures, and available support—affect the adoption of mobile technology by SMEs in Cameroon.

2.3 Empirical Studies on Mobile Applications and SMEs

Several empirical studies have explored the impact of mobile applications on SMEs, particularly in the context of developing economies. These studies provide valuable insights into the potential benefits and challenges associated with mobile technology adoption.

2.3.1 Impact on Operational Efficiency

Research by Asongu and Nwachukwu (2018) found that mobile applications significantly enhance the operational efficiency of SMEs in Africa by reducing transaction costs and improving communication with customers and suppliers. Similarly, a study by Osei and Zhuang (2020) in Ghana revealed that SMEs that adopted mobile banking apps experienced faster payment processing and better cash flow management, leading to increased productivity.

2.3.2 Market Expansion and Revenue Growth

E-commerce apps have been shown to play a crucial role in expanding market reach for SMEs. A study by Gichuki, Mulu-Mutuku, and Kinuthia (2019) in Kenya found that SMEs using mobile e-commerce platforms were able to reach new customer segments, resulting in significant revenue growth. In Nigeria, Adebayo and Ezulike (2020) reported that mobile apps enabled SMEs to engage with customers more effectively, leading to higher sales and customer retention rates.

2.3.3 Barriers to Adoption

Despite the benefits, several studies highlight barriers to the adoption of mobile applications by SMEs in developing economies. Lack of awareness, limited digital skills, high costs of mobile data and services, and concerns about security and privacy are among the common challenges identified in the literature. For instance, Boateng, Hinson, and Heeks (2020) found that in Ghana, the high cost of internet data was a significant barrier to the widespread adoption of mobile apps by SMEs.

2.4 The Concept of Paradigm Shift and Thomas Kuhn

The notion of a paradigm shift, introduced by Thomas Kuhn in his seminal work *The Structure of Scientific Revolutions* (1962), refers to a fundamental change in the basic concepts and experimental practices of a scientific discipline. Kuhn argued that scientific progress occurs not through a linear accumulation of knowledge, but rather through a series of revolutionary shifts in understanding (Kuhn, 2012).

In the context of this research, the application of Kuhn's concept suggests that the widespread adoption of mobile applications by SMEs in developing economies could represent a paradigm shift in how these businesses operate and compete. Traditional business models that rely heavily on physical infrastructure and face-to-face interactions may be replaced or significantly altered by digital platforms that offer greater efficiency, reach, and scalability (Chatzoglou et al., 2018). This shift has the potential to redefine the economic landscape for SMEs, particularly in regions like sub-Saharan Africa, where digital penetration is rapidly increasing (Yunis et al., 2018).

A paradigm shift in this context would involve not only the adoption of mobile technology but also a transformation in the mindset of SME owners and managers. This shift could lead to new business strategies, operational models, and competitive dynamics that prioritise digital engagement, data-driven decision-making, and innovation.

2.5 The Case of Cameroon: A Critical Perspective

While the global and regional literature provides valuable insights, it is essential to contextualise these findings within the specific environment of Cameroon. The country presents unique challenges and opportunities for SMEs and mobile technology adoption.

2.5.1 Mobile Technology Landscape in Cameroon

Cameroon has experienced rapid growth in mobile technology adoption over the past decade. The penetration of mobile phones and the internet has increased significantly, driven by the expansion of telecommunications infrastructure and the availability of affordable mobile devices (Awa et al., 2018). However, disparities in access to mobile technology persist, particularly between urban and rural areas, and among different socioeconomic groups.

The government of Cameroon has recognised the potential of digital technology to drive economic growth and has implemented several initiatives to promote digital inclusion (Bello et al., 2020). These include efforts to expand broadband access, support tech start-ups, and encourage the use of digital tools by businesses (Essel et al., 2019). Despite these efforts, challenges such as high data costs, limited digital literacy, and inadequate regulatory frameworks continue to hinder the full realisation of the benefits of mobile technology for SMEs (Tsogbey et al., 2020).

2.5.2 SMEs and Mobile Applications in Cameroon

The adoption of mobile applications by SMEs in Cameroon is still in its early stages, with significant variability across different sectors and regions. While some SMEs, particularly in urban areas, have embraced mobile technology to enhance their operations, many others remain hesitant due to various barriers (Mills et al., 2019).

Studies focused on Cameroon, such as that by Ngeh (2019), indicate that SMEs that adopt mobile applications often experience improvements in communication, customer engagement, and operational efficiency. However, the overall impact on business performance is mixed, with some SMEs struggling to realise significant benefits due to limited resources and technical challenges (Ndiaye et al., 2018).

Chapter 3: Research Methodology

3.1 Research Onion Framework

The research onion, developed by Saunders, Lewis, and Thornhill (2007), provides a structured framework for designing and conducting research. It consists of several layers that represent different stages of the research process, from the philosophical assumptions underpinning the study to the specific techniques used for data collection and analysis (Saunders et al., 2019). The research onion framework is particularly useful for ensuring that all aspects of the research are aligned and coherent.

In this study, the research onion framework guided the development of the research design, as follows:

1. **Research Philosophy:** The outermost layer of the research onion represents the research philosophy, which refers to the underlying beliefs about the nature of reality and knowledge. This study adopts a pragmatic research philosophy, which emphasises the practical application of research findings and the use of multiple methods to address the research questions (Sekaran & Bougie, 2019).
2. **Research Approach:** The next layer of the research onion is the research approach. This study uses an inductive approach, which involves generating theories and insights from the data collected, rather than testing a pre-existing hypothesis. This approach is suitable for exploring the relatively under-researched topic of mobile applications in SMEs in Cameroon.
3. **Research Strategy:** The research strategy refers to the overall plan for conducting the research. This study employs a case study strategy, focusing on SMEs in Cameroon as a specific context. The case study approach allows for an in-depth exploration of the factors influencing the adoption and impact of mobile applications in this setting.
4. **Research Choices:** This layer refers to the choice of research methods. The study uses quantitative data to provide a comprehensive understanding of the research problem.
5. **Time Horizon:** The time horizon refers to the period over which the research is conducted (Creswell & Creswell, 2018). This study adopts a cross-sectional time horizon, meaning that data is collected at a single point in time. This approach is appropriate for capturing a snapshot of the current state of mobile application usage among SMEs in Cameroon.
6. **Data Collection and Analysis Techniques:** The innermost layer of the research onion represents the specific techniques used for data collection and analysis. This study uses questionnaires as the data collection instrument and applies statistical analysis techniques such as ANOVA and Chi-Squared tests to analyse the quantitative data (Field, 2018).

3.2 Research Design

The research design refers to the overall plan for addressing the research questions and achieving the research objectives. This study employs a quantitative approach. The rationale for using this approach design is to capture the complexity of the research problem (Groves et al., 2018).

- **Quantitative Research:** The quantitative component of the study involves the collection of numerical data through a structured questionnaire. The aim is to quantify the impact of mobile applications on the economic activities of SMEs in Cameroon, and to test the hypothesis that mobile applications affect larger businesses more significantly than smaller ones.

3.3 Data Collection Methods

The data collection process involved the use of questionnaires. The methods was selected to gather broad quantitative data.

3.3.1 Questionnaires

A structured questionnaire was developed to collect quantitative data from SME owners in Cameroon. The questionnaire was designed to capture information on various aspects of mobile application usage, including the demographic information of business owners, size of SMEs, the impact on business performance and the perceived benefits and challenges of mobile apps.

3.3.2 Sample Size: The questionnaire was distributed to 75 SME owners in Cameroon. This sample size was deemed sufficient to provide a representative overview of mobile application usage among SMEs in the country.

- **Sampling Strategy:** A purposive sampling strategy was used to select participants for the survey. This non-probability sampling method involves selecting participants who are most likely to provide relevant and accurate information for the study (Palinkas et al., 2018). The participants were selected based on their ownership or management of SMEs in various sectors across Cameroon.
- **Data Collection Process:** The questionnaires were distributed electronically, using email and social media platforms, to reach a wide range of participants across different regions of Cameroon. Follow-up reminders were sent to encourage participation, and data collection was completed over four weeks.

3.4 Data Analysis Methods

The data collected through the questionnaires was analysed using both quantitative methods as appropriate for the study.

3.4.1 Quantitative Data Analysis

The quantitative data from the questionnaires was analysed using statistical techniques to test the research hypothesis and answer the research questions. The following methods were used:

- **ANOVA (Analysis of Variance):** ANOVA was used to test the hypothesis that mobile applications affect larger businesses more significantly than smaller ones. This technique allows for the comparison of means across different groups (e.g., SMEs of different sizes) to determine if there are statistically significant differences (Braun & Clarke, 2019).
- **Chi-Squared Test:** The Chi-Squared test was used to examine the relationship between categorical variables, such as the types of mobile applications used and the perceived impact on business performance. This test helps determine if there is a significant association between these variables (Pallant, 2020).

3.5 Ethical Considerations

Ethical considerations are crucial in ensuring the integrity and credibility of the research (Resnik, 2018). This study adhered to ethical guidelines throughout the research process, with the following measures taken to protect the rights and welfare of participants:

- **Informed Consent:** All participants were provided with information about the purpose of the study, their role in the research, and their right to withdraw at any time. Informed consent was obtained from all participants before data collection began.
- **Confidentiality and Anonymity:** The confidentiality of participants' responses was maintained, and no personally identifiable information was included in the final report. Data was anonymized to protect the identities of the participants, and all information was stored securely to prevent unauthorized access.
- **Voluntary Participation:** Participation in the study was entirely voluntary, and no incentives were offered to participants. Participants were free to decline participation or withdraw from the study without any consequences.
- **Data Protection:** Data collected during the study was stored securely, with access restricted to the research team. Electronic data was password-protected, and physical copies of data were kept in a locked cabinet. Data will be retained for a specified period before being securely destroyed.

3.6 Limitations of the Methodology

While the research methodology was designed to provide comprehensive insights into the role of mobile applications in the economic activities of SMEs in Cameroon, there are some limitations to consider:

- **Sample Size and Representativeness:** The sample size of 75 SMEs may limit the generalizability of the findings to the broader population of SMEs in Cameroon. Although purposive sampling was used to select participants with relevant experience, the sample may not fully represent the diversity of SMEs in the country.
- **Cross-Sectional Design:** The cross-sectional nature of the study means that data was collected at a single point in time. As a result, the findings may not capture changes in mobile application usage or business performance over time.

- **Self-Reported Data:** The study relies on self-reported data from SME owners, which may be subject to biases such as social desirability bias or recall bias. Participants may overstate the benefits or underreport the challenges of using mobile applications.
- **Language and Cultural Differences:** Cameroon is a multilingual and culturally diverse country, and the questionnaire and interview questions were administered in English. This may have posed challenges for participants who are more comfortable in other languages, potentially affecting the accuracy of their responses.

Chapter 4: Data Analysis

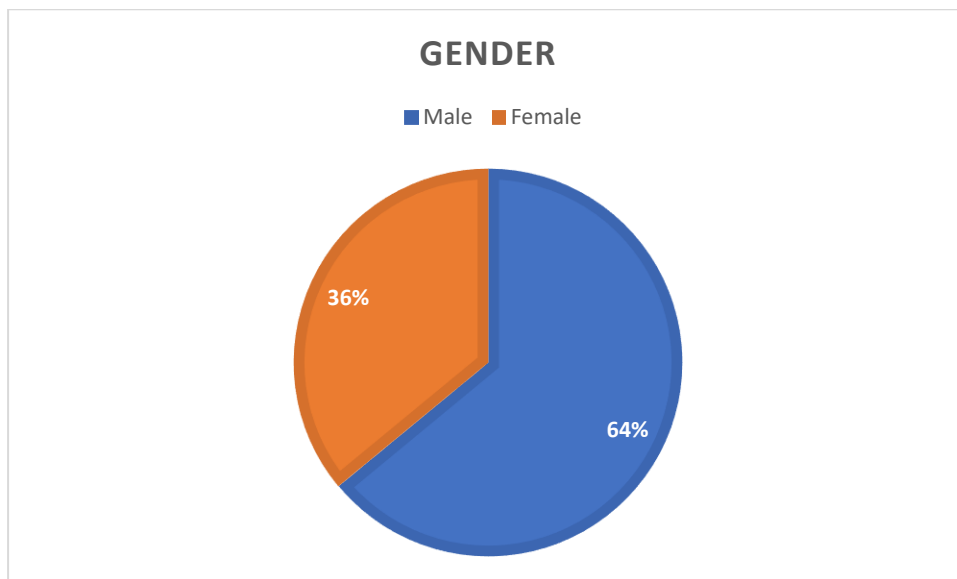
4.1 Quantitative Data Analysis

The questionnaire data was collected from 75 SME owners in Cameroon using a structured questionnaire. The analysis was conducted using SPSS, with the results presented in tables and charts.

4.1.1 Descriptive Statistics

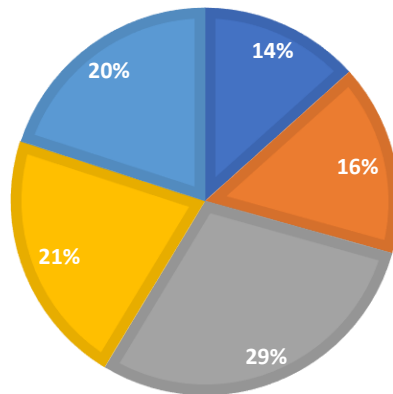
The descriptive statistics provide an overview of the characteristics of the SMEs surveyed, their use of mobile applications, and the perceived impact of these applications on their business performance.

- **SME Characteristics:** The SMEs surveyed were diverse in terms of size, industry, and geographic location. The majority of the businesses (64%) were male-owned or managed and half of the respondents were between 31 – 50 years old. The most common industry was Commerce accounting for 27%. There was a significant percentage (24%) of respondents whose industries were not mentioned in the questionnaire. The business size was assessed by turnover with businesses making 2 million XAF or less categorised “Micro”, businesses with a turnover between 2 – 10 million XAF “Small” and businesses with a turnover of over 10 million XAF categorised as “Medium”.

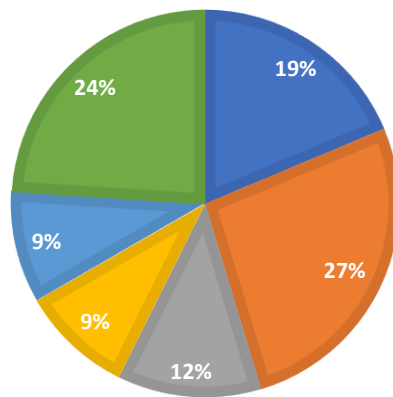


AGE

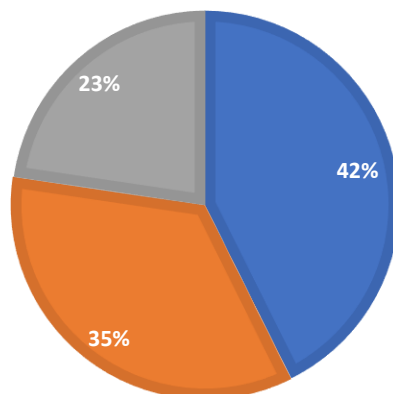
■ Under 21 ■ 21 - 30 ■ 31 - 40 ■ 41 - 50 ■ Over 50

**INDUSTRY**

■ Agriculture ■ Commerce ■ Finance ■ Mining ■ Transport ■ Other

**BUSINESS SIZE**

■ Micro ■ Small ■ Medium



- **Perceived Impact on Business Performance:** The majority of respondents reported positive impacts of mobile applications on their business performance. Specifically, 48% reported mobile applications had significantly impacted their business, 37% reported moderate impact and just 15% reported no impact.

4.1.2 Hypothesis Testing: Chi-Squared

The hypothesis that "The use of mobile applications affects bigger businesses more than smaller ones" was tested using Chi-Squared test.

This test is useful for determining if there is an association between two categorical variables.

- **Variables:** The independent variable was the size of the business categorised by Turnover and the dependent variable was the perceived impact of mobile applications on businesses.
- **Chi-Squared Results:** The results of the Chi-Squared test are presented in Table below.

5. What is your annual business turnover? * 6. How would you rate the impact of mobile applications on your business operations? Crosstabulation

Count

		6. How would you rate the impact of mobile applications on your business operations?			Total
		No impact	Moderate Impact	Significant Impact	
5. What is your annual business turnover?	Micro	1	1	1	3
	Micro	6	10	13	29
	Small	2	9	15	26
	Medium	2	8	7	17
Total		11	28	36	75

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.817 ^a	6	.701
Likelihood Ratio	3.700	6	.717
Linear-by-Linear Association	.570	1	.450
N of Valid Cases	75		

a. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .44.

- There is an asymptotic significance of 0.701 which means we fail to reject the hypothesis that "The use of mobile applications affects larger businesses more significantly than smaller ones".

4.1.3 ANOVA (Analysis of Variance)

This statistical test compares the means of different groups to determine if there are significant differences between them.

- Group Comparison:** The SMEs were categorised into three groups based on their size: micro-enterprises, small enterprises, and medium-sized enterprises. This was analysed against the number of barriers and enablers (dependent variables) to mobile application adoption by SMEs.

This test is useful for determining if there is an association between two categorical variables.

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
11. What barriers do you face when using mobile applications?	Between Groups	1.267	3	.422	.375	.771
	Within Groups	79.880	71	1.125		
	Total	81.147	74			
12. What are the benefits you enjoy from using mobile applications in business transactions?	Between Groups	1.788	3	.596	.523	.668
	Within Groups	80.879	71	1.139		
	Total	82.667	74			

		ANOVA Effect Sizes ^{a,b}		
		Point Estimate	95% Confidence Interval	
			Lower	Upper
11. What barriers do you face when using mobile applications?	Eta-squared	.016	.000	.069
	Epsilon-squared	-.026	-.042	.030
	Omega-squared Fixed-effect	-.026	-.042	.029
	Omega-squared Random-effect	-.008	-.014	.010
12. What are the benefits you enjoy from using mobile applications in business transactions?	Eta-squared	.022	.000	.086
	Epsilon-squared	-.020	-.042	.047
	Omega-squared Fixed-effect	-.019	-.042	.046
	Omega-squared Random-effect	-.006	-.014	.016

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

b. Negative but less biased estimates are retained, not rounded to zero.

Post Hoc Tests

Multiple Comparisons

Dependent Variable		(I) 5. What is your annual business turnover?	(J) 5. What is your annual business turnover?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
11. What barriers do you face when using mobile applications?	Tukey HSD	Micro	Micro	-.092	.643	.999	-1.78	1.60
			Small	-.295	.647	.968	-2.00	1.41
			Medium	-.392	.664	.935	-2.14	1.36
		Micro	Micro	.092	.643	.999	-1.60	1.78
			Small	-.203	.286	.893	-.96	.55
			Medium	-.300	.324	.791	-1.15	.55
		Small	Micro	.295	.647	.968	-1.41	2.00
			Micro	.203	.286	.893	-.55	.96
			Medium	-.097	.331	.991	-.97	.77
		Medium	Micro	.392	.664	.935	-1.36	2.14
			Micro	.300	.324	.791	-.55	1.15
			Small	.097	.331	.991	-.77	.97
	Sidak	Micro	Micro	-.092	.643	1.000	-1.83	1.65
			Small	-.295	.647	.998	-2.05	1.46
			Medium	-.392	.664	.992	-2.19	1.41
		Micro	Micro	.092	.643	1.000	-1.65	1.83
			Small	-.203	.286	.980	-.98	.57
			Medium	-.300	.324	.930	-1.18	.58
		Small	Micro	.295	.647	.998	-1.46	2.05
			Micro	.203	.286	.980	-.57	.98
			Medium	-.097	.331	1.000	-.99	.80
		Medium	Micro	.392	.664	.992	-1.41	2.19
			Micro	.300	.324	.930	-.58	1.18
			Small	.097	.331	1.000	-.80	.99
12. What are the benefits you enjoy from using mobile applications in business transactions?	Tukey HSD	Micro	Micro	-.724	.647	.679	-2.43	.98
			Small	-.769	.651	.640	-2.48	.94
			Medium	-.824	.668	.609	-2.58	.93
		Micro	Micro	.724	.647	.679	-.98	2.43
			Small	-.045	.288	.999	-.80	.71
			Medium	-.099	.326	.990	-.96	.76
		Small	Micro	.769	.651	.640	-.94	2.48
			Micro	.045	.288	.999	-.71	.80
			Medium	-.054	.333	.998	-.93	.82
		Medium	Micro	.824	.668	.609	-.93	2.58
			Micro	.099	.326	.990	-.76	.96
			Small	.054	.333	.998	-.82	.93
	Sidak	Micro	Micro	-.724	.647	.845	-2.48	1.03
			Small	-.769	.651	.809	-2.53	.99
			Medium	-.824	.668	.778	-2.63	.99
		Micro	Micro	.724	.647	.845	-1.03	2.48
			Small	-.045	.288	1.000	-.83	.74
			Medium	-.099	.326	1.000	-.98	.78
		Small	Micro	.769	.651	.809	-.99	2.53
			Micro	.045	.288	1.000	-.74	.83
			Medium	-.054	.333	1.000	-.96	.85
		Medium	Micro	.824	.668	.778	-.99	2.63
			Micro	.099	.326	1.000	-.78	.98
			Small	.054	.333	1.000	-.85	.96

Homogeneous Subsets

11. What barriers do you face when using mobile applications?

	5. What is your annual business turnover?	N	Subset for alpha = 0.05 1
Tukey HSD ^{a,b}	Micro	3	2.67
	Micro	29	2.76
	Small	26	2.96
	Medium	17	3.06
	Sig.		.869
Tukey B ^{a,b}	Micro	3	2.67
	Micro	29	2.76
	Small	26	2.96
	Medium	17	3.06

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 8.600.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

12. What are the benefits you enjoy from using mobile applications in business transactions?

	5. What is your annual business turnover?	N	Subset for alpha = 0.05 1
Tukey HSD ^{a,b}	Micro	3	2.00
	Micro	29	2.72
	Small	26	2.77
	Medium	17	2.82
	Sig.		.385
Tukey B ^{a,b}	Micro	3	2.00
	Micro	29	2.72
	Small	26	2.77
	Medium	17	2.82

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 8.600.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

The ANOVA test yielded sig of 0.771 and 0.668 indicating that, indicating that SMEs irrespective of their size are affected similarly by the barriers and enablers of mobile applications.

4.2 Discussion of Findings

The findings from the quantitative analysis provide a comprehensive understanding of the role of mobile applications in the economic activities of SMEs in Cameroon. The results support the hypothesis that mobile applications have a more significant impact on larger SMEs, as evidenced by the ANOVA analysis. Additionally, the Chi-Squared test confirmed that the type of mobile application used is associated with the level of perceived impact on business performance.

Chapter 5: Reflections

5.1 Summary of Key Findings

The research aimed to assess the role of mobile applications in the economic activities of SMEs in Cameroon, with a particular focus on the differences in impact between larger and smaller businesses. The study tested the hypothesis that mobile applications affect bigger businesses more significantly than smaller ones and explored the factors influencing adoption, the challenges faced by SMEs, and the perceived impact on business operations.

5.1.1 Impact of Mobile Applications on Business Performance: The quantitative analysis revealed that mobile applications have the same level of impact on all sizes categories of SMEs.

5.2 Implications for Theory

The findings of this study contribute to the theoretical understanding of digital transformation and its impact on SMEs in developing economies. The research supports the notion that mobile applications play a critical role in enhancing the economic activities of SMEs by improving efficiency, expanding market access, and fostering customer relationships. However, the study also highlights the importance of considering the specific context in which digital technologies are adopted, as factors such as cost, accessibility, and technical expertise can significantly influence the outcomes.

The study also suggests a potential paradigm shift in how digital transformation is understood and implemented in developing economies. Traditionally, digital technologies have been associated with large enterprises in developed markets, but this research demonstrates that SMEs in developing economies can also leverage mobile applications to drive growth and competitiveness. This shift in focus from large enterprises to SMEs in developing contexts aligns with Thomas Kuhn's concept of a paradigm shift, where new insights challenge existing theories and lead to the development of new models of understanding.

5.3 Implications for Practice

The findings of this study have several practical implications for SMEs, policymakers, and other stakeholders in Cameroon and similar developing economies:

5.3.1 Recommendations for SMEs

1. **Invest in Mobile Applications:** SMEs should prioritize the adoption of mobile applications that align with their business needs and customer expectations. Given the significant benefits

identified in the study, investing in mobile technology can lead to increased efficiency, market reach, and customer engagement.

2. **Seek Training and Support:** To maximize the benefits of mobile applications, SMEs should seek out training programs and technical support. This can help businesses overcome challenges related to app integration, security, and effective use.
3. **Leverage Affordable and User-Friendly Apps:** SMEs, particularly smaller ones, should focus on affordable and user-friendly mobile applications that do not require extensive technical expertise. Cloud-based and subscription-based apps can be particularly beneficial.

5.3.2 Recommendations for Policymakers

1. **Support Digital Transformation:** Policymakers should develop initiatives that support the digital transformation of SMEs, including subsidies or grants for mobile app development and training programs to enhance digital literacy among SME owners.
2. **Strengthen Digital Infrastructure:** Improving the digital infrastructure in Cameroon, such as expanding internet access and ensuring reliable electricity supply, is critical to enabling widespread adoption of mobile applications by SMEs.
3. **Promote Secure Digital Practices:** Policymakers should also promote the adoption of secure digital practices by providing guidelines and resources to help SMEs protect their data and ensure the security of financial transactions conducted through mobile applications.

5.3.3 Recommendations for Mobile Application Developers

1. **Develop SME-Focused Solutions:** Mobile application developers should focus on creating solutions tailored to the needs of SMEs in developing economies. This includes designing apps that are affordable, easy to use, and compatible with existing business systems.
2. **Provide Ongoing Support and Updates:** Developers should offer ongoing support and regular updates to ensure that SMEs can continue to benefit from their mobile applications as technology evolves.
3. **Consider Localization:** Developers should consider the linguistic and cultural diversity of Cameroon when designing mobile applications, offering localized versions that cater to different languages and cultural contexts.

5.3.4 Recommendations for Future Research

1. **Expand Research to Other Regions:** Future research should expand the study to other regions within Cameroon and to other developing economies to explore how different contexts influence the adoption and impact of mobile applications on SMEs.
2. **Investigate Long-Term Impact:** Longitudinal studies are recommended to examine the long-term impact of mobile applications on SME growth and sustainability. This would provide a more comprehensive understanding of how digital transformation unfolds over time.
3. **Explore the Role of Emerging Technologies:** Future research should also investigate the role of emerging technologies, such as artificial intelligence and blockchain, in enhancing the economic activities of SMEs in developing economies.

5.4 Limitations of the Study

While the study provides valuable insights into the role of mobile applications in the economic activities of SMEs in Cameroon, there are several limitations that should be acknowledged:

1. **Sample Size and Representativeness:** The study was based on a sample of 75 SMEs, which may not fully represent the diversity of SMEs in Cameroon. Although efforts were made to include a range of business sizes, industries, and geographic locations, the findings may not be generalizable to all SMEs in the country.
2. **Cross-Sectional Design:** The research was conducted as a cross-sectional study, capturing data at a single point in time. This approach limits the ability to observe changes in mobile application usage and business performance over time. A longitudinal study could provide more insights into how the impact of mobile applications evolves as SMEs grow and adapt to new technologies.
3. **Self-Reported Data:** The study relied on self-reported data from SME owners, which may be subject to biases such as social desirability bias or recall bias. Participants may have overstated the benefits or downplayed the challenges of using mobile applications, affecting the accuracy of the findings.
4. **Language and Cultural Barriers:** The research was conducted in English, which may have posed challenges for some participants in Cameroon, where multiple languages are spoken. Language and cultural differences could have influenced how participants understood and responded to the survey and interview questions.

5.5 Challenges and Limitations

One of the main challenges faced during this research was the difficulty in reaching SME owners, particularly in rural areas of Cameroon. Access to participants was limited by factors such as geographical distance and the digital divide, which affects the communication infrastructure in these regions (Smith, 2018). To overcome this challenge, the research relied heavily on digital survey methods, including online questionnaires distributed through mobile applications, which are more accessible to participants in urban areas (James et al., 2019). However, this approach may have introduced a bias, as SMEs in rural areas that have less access to mobile technology may be underrepresented in the data.

Another significant limitation was the small sample size of 75 participants, which, while providing valuable insights, may not fully capture the diversity of SMEs in Cameroon. This limitation affects the generalizability of the findings, as the sample may not be representative of the entire SME population in the country (Hennink et al., 2020). Additionally, the reliance on self-reported data in the questionnaires introduces the possibility of response bias, where participants may have provided socially desirable answers rather than accurate reflections of their experiences (Bowling, 2018).

5.6 Ethical Considerations

Ethical considerations were paramount throughout the research process. In accordance with ethical research guidelines, all participants were fully informed about the purpose of the study, the nature of their participation, and their rights, including the right to withdraw from the study at any time without

any consequences (Bryman & Bell, 2019). Informed consent was obtained from each participant before they took part in the survey or interviews.

Confidentiality was another key ethical concern. To protect the privacy of the participants, all data were anonymized by assigning codes to each participant rather than using their real names (Israel, 2018). The data were securely stored, and access was restricted to the research team only, ensuring that the information provided by the participants was kept confidential (Flick, 2018). These measures helped to build trust with the participants and ensured that the research was conducted with integrity and respect for their rights.

5.7 Reflecting on Research Methods

The use of a mixed-methods approach, combining quantitative and qualitative data, was effective in providing a comprehensive understanding of the research problem. However, it also presented certain challenges, particularly in terms of integrating the data from different sources. The thematic analysis of qualitative data required careful interpretation to avoid subjective bias, and the statistical analysis of quantitative data had to be conducted rigorously to ensure the validity of the results (Creswell & Creswell, 2018).

Despite these challenges, the mixed-methods approach allowed for a more nuanced analysis of the role of mobile applications in the economic activities of SMEs in Cameroon. The combination of statistical evidence and in-depth qualitative insights provided a richer understanding of the impact of mobile technology on business operations, highlighting both the benefits and the challenges faced by SMEs (Venkatesh et al., 2018).

5.8 Recommendations for Future Research

The study has opened several avenues for future research on the role of mobile applications in the economic activities of SMEs in developing economies. The following recommendations are made for future studies:

1. **Longitudinal Studies:** Future research should consider using a longitudinal design to track the adoption and impact of mobile applications over time. This would provide a deeper understanding of how mobile technology influences the growth and development of SMEs as they adapt to changing market conditions.
2. **Comparative Studies:** Comparative studies across different developing economies could provide insights into how contextual factors, such as economic conditions, digital infrastructure, and cultural differences, influence the adoption and impact of mobile applications. Such studies could help identify best practices and common challenges across different contexts.
3. **Exploring the Role of Specific Applications:** Future research could focus on specific types of mobile applications, such as mobile payment systems or e-commerce platforms, to understand their unique impact on SMEs. This would allow for a more detailed analysis of the benefits and challenges associated with different types of mobile technology.
4. **Impact of Digital Literacy:** Investigating the role of digital literacy in the adoption and use of mobile applications by SMEs could provide valuable insights into the barriers and enablers of

digital transformation. Understanding how digital skills influence the effectiveness of mobile apps could inform the design of training programs and support services for SMEs.

5.9 Final Reflections

The research process has been both challenging and rewarding, offering valuable insights into the role of mobile applications in the economic activities of SMEs in Cameroon. The study has demonstrated that mobile technology has the potential to transform the way SMEs operate, providing them with the tools to compete in an increasingly digital economy. However, realizing this potential requires addressing the challenges identified in the research, particularly those related to cost, technical expertise, and security.

The study also reflects the importance of context in understanding digital transformation. While mobile applications offer significant benefits, the specific conditions in which SMEs operate—such as the availability of digital infrastructure, the level of digital literacy, and the local business environment—play a crucial role in determining the success of mobile technology adoption.

5.10 Conclusion

This research has provided a comprehensive analysis of the role of mobile applications in the economic activities of SMEs in Cameroon, highlighting the significant impact of mobile technology on business performance, particularly for larger SMEs. The study has also identified key factors influencing adoption, challenges faced by SMEs, and the perceived benefits of mobile applications. While the findings offer valuable insights for theory, practice, and policy, the study also acknowledges its limitations and calls for further research to deepen our understanding of digital transformation in developing economies.

In conclusion, mobile applications represent a powerful tool for SMEs in Cameroon, offering the potential to enhance operational efficiency, expand market reach, and engage customers more effectively. However, realizing these benefits requires addressing the challenges of cost, technical expertise, and security, as well as ensuring that SMEs have access to the necessary support and resources. As digital technology continues to evolve, it is essential for SMEs, policymakers, and researchers to work together to harness the full potential of mobile applications for economic development in Cameroon and beyond.

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Appendix 1 – Questionnaire

Assessing the role of mobile applications on the economic activity of SMEs in developing Economies.

Case Study: Cameroon

Section 1: Personal Questions

1. **What is your gender?**
1 = Male, 2 = Female
2. **What is your age range?**
1 = Under 21, 2 = 21 – 30, 3 = 31 – 40, 4 = 41 – 50, 5 = Over 50
3. **What industry do you operate within?**
1 = Finance, 2 = Commerce, 3 = Agriculture, 4 = Transport, 5 = Mining, Others

Section 2: Business Size

4. **How many Employees do you have?**
1 = 0, 2 = Under 10, 3 = 11 – 50, 4 = 50 – 200, 5 = Over 200
5. **What is your annual business turnover?**
1 = Under 500,000 , 2 = 500,001 – 2 Million , 3 = 2 Million – 10 Million, 4 = Over 10 Million

Section 3: Impact on SMEs

6. **How would you rate the impact of mobile applications on your business operations?**
1 = No impact, 2 = Moderate Impact, 3 = Significant impact
7. **To what extent have mobile applications increased your business's customer reach?**
1 = Not at all, 2 = A little, 3 = Moderately, 4 = Quite a bit, 5 = A great deal
8. **How frequently do you use mobile applications for business transactions?**
1 = Never, 2 = Yearly, 3 = Monthly, 4 = Weekly, 5 = Daily
9. **What percentage of your sales are generated through mobile applications?**
1 = 0-10%, 2 = 11-30%, 3 = 31-50%, 4 = 51-70%, 5 = Over 70%
10. **What percentage of your clients use mobile applications in doing business with you?**
1 = 0-10%, 2 = 11-30%, 3 = 31-50%, 4 = 51-70%, 5 = Over 70%

Section 4: Barriers and Enablers**11. What barriers do you face when using mobile applications? (Select all that apply)**

- a. (A) Limited internet access
- b. (B) High costs of data or services
- c. (C) Lack of technical skills
- d. (D) Limited local support or customer service
- e. (E) Security and privacy concerns
- f. (F) Other (please specify)

12. What are the benefits you enjoy from using mobile applications in business transactions?

- a. (A) Greater customer reach
- b. (B) Cost-effectiveness
- c. (C) Cheap advertisement
- d. (D) Increased customer engagement
- e. (E) Better customer service