EFFECT OF DIGITAL FINANCIAL SERVICES ON THE GROWTH OF SMES IN KENYA

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ABSTRACT

The digital economy is a new business environment that enables enterprises to operate and provide services via the Internet and digital platforms. The study was on the effect of economic digitisation on growth of SMEs in Nairobi CBD. The specific objectives were to determine the effect of digital financial services, digital content, digital values and skills and the effect of online advertising on the growth of small and medium enterprises. The sample size in this study was 1000 SMEs formally registered in the study area from where a sample of 300 was randomly selected. The questionnaire was employed for the purpose of data collection from which out of the 300 questionnaires distributed, 180 were returned representing a 60% response rate. Guided by the research objectives, the data collected through the questionnaire were sorted, coded and presented in graphical and tabular forms for the purpose of descriptive analysis. To determine the significance of the relationship between the dependent and independent variables, a regression analysis was carried out using the Statistical Package of Social Sciences (SPSS) version 24. The study established that digital financial services were significant factors in ensuring growth of SMEs in Kenya. The study concluded that Mobile payments have become a favorite means of making financial transactions. The study also established that Applications available for mobile devices is expected to increase enormously. Digital payment technology has increased over the last decade. From the findings, it was concluded that Consumers grow more familiar with the different payment systems available and encourage more transactions. The SMEs should explore the possibility of forming a management committee to streamline economic digitisation issues. It is recommended that the organization clearly spell out economic digitisation procedures and criteria. This can stir positive growth among SMEs establishments and can result in effective management. The Government and the various agencies should also make provisions for training programs for SMEs to empower them in terms of economic digitisation. The SMEs should not rely on external professionals to assist in digitisation as this may be expensive. It is also recommended that the SMEs should adopt digital financial services. E-commerce will ensure increased profitability for small and medium enterprises. They should also have Social networking sites, which have proved to be popular online activities in relation to time, spent. They should also adopt Innovation driven entrepreneurship as it contributes to increase in sales revenue, market share, efficiency, customers’ loyalty and firm profitability.

Keywords: Digital Financial Services, Growth of SMEs in Kenya, Digitisation, Digital Payment Technology, E-Commerce

I. INTRODUCTION

There is no universally accepted definition of the term digital economy. However, a most common, albeit somewhat narrow understanding is the internet-based economy or the share of Gross Domestic Product (GDP) accounted for by the Information and Communications Technology (ICT) sector (Government of Kenya, 2019). The digital economy is a new business environment that enables enterprises to operate and provide services via the Internet and digital platforms. This allows corporations, people and government to interact seamlessly through government-to-community (G2C), enterprise-to-customer (B2C) and business-to-business interactions (B2B).

Annual double figure growth around the world has been estimated in this newly emerging phenomenon. Economic and political forces are key to this rise, although they also stem from technological innovation. The upsurge in the Internet was associated with changes in the economy in the past decades and still forms the basis for growth in the digital economy. But new ICTs have been disseminating and underpinning economic changes successively since the 2000s and 2010s. Increased data usage intensity through data distribution and analytics of data and algorithmic decision-making, robotics, and new tech automation includes integration of associated sensors into more objects (the internet of things); new user devices (smartphones, moving devices, tablets, netbooks, portfolios, 3D printers; advanced digital models (digital platforms; cloud calculation, digital services).

A series of digital accesses stem from these technologies: potential measures can be undertaken by an individual or organization driven by purposes in the environment within which they operate by the use of a digital system (Heeks 2017). These include: data-fiction (extension of the event on which data are stored), digitisation (transformation of every
part of the data value chain from analog to digital), virtualisation (physical process break-downs) and generativity (use of data and technology to produce data and technologies not intended for recombination and reprogramming) (Heeks 2016). As a result of its diffusion and depth of impact (Handel 2015), the effect of any technology can be understood. The effects of digital technology on the economy are rapidly increasing with rapid diffusion – even in developed countries – and an increasing impact with ever stronger affordabilities.

Schubert and Leimstoll (2007) carried out a quantitative research study on the relation between use of social media and the objectives of small and medium-sized enterprises. It was carried out on 38,016 enterprises in Sweden, employing 10 to 249 people. His study shows that: 1) SMEs use ICTs in their daily businesses extensively in social media, especially finance and accounting. Management of human resources; 2) high levels of inter-organizational use of social media; 3) strong management-based ICT social media that involves high managers and capabilities; 4) successful support of competitive strategies by ICT social media "(Schubert & Leimstoll, 2007).

Studies have revealed that the numbers of small and medium-sized businesses using computers or other devices in the use of the social media to market their businesses move from task development to business-based purposes in African countries such as South Africa, Nigeria, Congo and Zambia. More and more computers have recently been connected. This has brought gradual changes to the styles of communication and coordination, helping business people to achieve their business more efficiently and efficiently. It has reduced communication and coordination costs between and within corporations. It also had a positive impact on market sales. E-business based on WWW (World Wide Web) has enabled local businesses to improve competitiveness at local and global levels (Barba-Sanchez, Martinez-Ruiz & Jimenez-Zarco, 2007).

This can be achieved in order to disrupt current economic activity, frameworks and sections, to restructure existing consumption behaviour, business interactions and business models (Dahlman et al. 2016). The new economic activities, structures and sections may also be recognized as the beginning. This is visible in several individual sections of the new companies: Facebook, world's largest taxi company, Alibaba, the world's largest and most valuable retailer and Airbnb, the world's largest hotel provider. In this section, the new companies are clearly visible.

1.1 Economic Digitisation

All transactions mediated by digital technology are included in digitized transactions. This means mostly transactions on the internet and the web. Commercial transactions involve an exchange of value (for example, money) in return for products and services across organizational or individual boundaries. However, economic digitisation includes financial transactions electronically mediated between companies and customers and much more. As stated in Chaffey (2015), e-commerce should be seen as all transactions between the organisation's electronically mediated transactions and any third party. This definition is also to be considered as part of e-commerce as non-financial transactions as customer requests for further information.

At the end of 2016, the number of mobile telephones in the United States was higher than the national population (Sabbagh, Friedrich, El-Darwiche & Singh, 2018). By the beginning of 2017, over six billion mobile lines were in existence worldwide, almost seven billion people worldwide. The Internet penetration is not that deep, but in recent years, global Internet access has grown more than five times and increased more than twenty times over the past decade in areas such as the Middle West (Koutroumpis, 2018).

In 2013, most jobs were digitized in limited and emerging digital economies. In Eastern Asia, South Asia and Latin America, the most employment growth in all regions took place, with over 4 million new jobs due to the advancement in the digitisation sector (Katz & Koutroumpis 2015). Digitisation, however, generated very little employment growth in North America and Western Europe. Probably these advanced economies have less advantages as productivity increases as digitisation increases, some jobs are replaced with technology, and lower value add-on jobs go to emerging markets overseas where labor is cheaper.

The 10 % increase in the digital score of a country, Sabbagh et al., (2018) shows that the GDP per capita is 0.75% higher per capita. Therefore, digitisation is 4.7 times greater than the average impact of 0.16 percent of broadband deployment on per capita GDP, according to various earlier studies (El-Darwiche, Sharma, Singh & Abdel, 2018). Moreover the economic impact of digitisation accelerates as countries move to advanced digitisation phases. Digitally restricted economies benefit most from the fact that they still have a digital digitisation-based ICT ecosystem. African economies are having a major way to save not just financial growth but growth across other industries as a result of digital transformation (Ehui, 2018). There are endless opportunities in the digital platform and Fintech is developing and implementing new products 24 hours a day. However, such changes will benefit only the economies, which use digitisation, invest in the necessary infrastructure and apply adequate regulatory technology. In Ethiopia, Malawi,
Mozambique, Tanzania, Uganda, and Zambia, economic digitisation is projected to create more jobs from 2010 to 2025 than the remainder (Ehui 2018).

Digital financial services in Tanzania have created more opportunities for financial inclusion. They have helped to develop effective and future monetary policy frameworks (Kaffenberger, Totolo, & Soursourian, 2018). For monetary policy signals it is important to reduce the currency outside the banking sector and to continue to bring more products and players into the banking sector innovation in the financial system. The financial system transactions and operations have been facilitated and in most African countries, anti-money laundering and counter-terrorism finance are continuing to increase significantly.

In conjunction with the Vision 2030, Kenya has seized the considerable socio-economic opportunities of digital technology; which has been accelerated in implementing the Government’s Big Four Agenda through the adoption and adaptation of new technologies, e-government and financial services (Government of Kenya, 2008).

Studies indicate that in the developing world the ICT accounts for 17% of GDP growth (World Bank 2016). The world's fastest growth in eTrade is in the South (UNCTAD 2015), with a growth of 15-25% per year in the Internet economy (WEF 2015). The digital economic policies and underlying frameworks have become commonplace in the nation states that are trying to transform their overall financial perspective (WEF, 2015). The focus is on identifying the digital ecosystem facilitators required for a country's transformation. Organizations such as the International Bank for Reconstruction and Development have adopted this practice and identified five digital pillars: digital Government, digital Business, digital Infrastructure, Innovation – Driven Entrepreneurship and Digital Skills and Values. The aim of the study was to assess the effect of economic digitisation on small and medium-sized companies’ growth in Nairobi County Kenya.

1.2 Growth of Small and Medium Enterprises

The topic of growth is one of the most important topics in business discussion. Teece (2010) has expounded on a framework for the growth of companies. The first three stages are of particular importance and interest to small businesses, although they identified 7 phases of corporate growth. The first phase is a new company, when a small company just starts. In this phase, markets and products are developed. The second phase is expansion and can focus on sales, income, market share and ultimately the workforce. The third stage is professionalization and focuses on formalizing the objectives, processes and functions of the organization. Stage four is consolidation and focuses on businesses as they move to professional management organizations with working systems to better manage their corporate culture. The fifth phase of diversification is the development of new products for markets for which the organization supplies goods and services already. The sixth stage is integration, which focuses on developing a multi-unit infrastructure. The last stage is decrease and revitalization and focuses on the reconstruction of the organisation, to ensure continuing survival at all levels (Teece, 2010).

In the case of business growth, absolute or relative changes in revenues, assets, jobs, productivity and profit margins are usually defined and measured. Sales growth does not therefore need to reflect or underpin other growth aspects that policymakers could also be interested in; for example, sales can rise when jobs and/or profits are decreasing. This is related in part to contextual or structural questions, such as industry or age, but also to the strategic decisions made by the major policymakers of the company. Sales and/or employment growth is more effective than accounting measures, like profit, investment return or market share, in terms of new and small-scale business performance. Sales dates are generally available, and sales by business owners themselves are an indicator of business performance. In practice, growth in sales is also more easily reported compared with other indexes. Sales are a good size and consequently growth indicator. Sales may also be seen as an accurate indicator of the competition between a company and that market. The sales motivator and performance indicator are often considered by business owners themselves rather than, for example, job creation (Muller et al., 2017).

SMEs make a significant contribution between countries and regions. However, although they play a key role in high-income countries, small and medium-sized enterprises are also significant contributors to low-income countries in terms of both GDP and employment (IFC, 2010). They contribute significantly to economic innovation also, partly through cooperation with the larger enterprise sector. As has been noted, the work intensity of SMEs tends to increase and thus contribute substantially to employment at a macro level. In a World Bank survey of 47,745 companies in 99 countries, 67 percent of total permanent full-time jobs were accounted for by firms between 5 and 250 employees (Ayyagari, Demirguc-Kunt, & Maksimovic, 2011). More jobs have also been created by SMEs than by big companies. On average, 85% of the total increase in employment between 2011 and 2014 was attributable to SMEs (De Kok et al. 2011).
Profitability is an adjustable variable measure (SME growth). Profitability is one of the important growth measures to be considered, since firm growth is unlikely to continue without the proceeds of a company's reinvestment. In terms of net profit margins or the return on assets, growth along those lines can be considered. If we take the definition of company as the creation of innovation rents (Stewart, 2012) where rents are defined as above average income relative to competitors (Norton & Ariely, 2011). This also means that high-performance companies require economic success.

1.3 Statement of the Problem

More than 50 percent of new jobs have been created, the economic survey (2016) indicates, through Small and Medium Enterprises. The Government of Kenya committed to create 500,000 jobs annually, the majority of these jobs may be created by small and medium-sized enterprises. Despite the need for growth in SMEs, previous statistics reveal that in the first few months of operation three out of five businesses fail (Kenya National Bureau of Statistics, 2017). This has made it extremely difficult, if not impossible for small and medium-sized enterprises to grow into large companies.

Small businesses face great challenges in terms of digital transformation as several industries and businesses face a great deal of pressure to transform businesses digitally, but the focus should be to strengthen customer experience, optimize operational processes and increase business models (Akande 2015). Digital transformation is the main challenge today for companies. Highly innovative, small and medium-sized enterprises are said to face challenges in branding, digital exposure, financing and advertising which affect their growth, while traditional companies that face the digital process tend to lose their competitiveness.

Effective use of digital tools, suitable applications and individually tailored solutions can provide intersectoral opportunities, and so ICT can also play a substantial role in addressing a number of objectives on the ICT development agenda, offering companies various ways to improve their competitiveness: they are providing mechanisms to achieve success. Small and Medium Enterprises can trade in real-time information, building a closer relationship with their customers, vendors and business partners, and allow immediate customer feedback allows firms to respond quickly to changing customer request and to recognize new niches on the market. This means that organizations able to harness the potentials offered by ICT could more efficiently handle innovative processes such as supply chain management.

Current trend has demonstrated the importance of ICT as a major business tool for large companies across Kenya and in fact all over the world, and that it has captured the benefits of ICT adoption. However, analyzing the current situation in Small- and Medium-Sized Kenyan companies concerning the introduction and use of information and communication technologies appears as though most SMEs fail to appreciate the implications of major changes, do not understand the process of establishing ICT or do not resist ICT use. This shows the slow pace at which small and medium-sized enterprises adopt information and technology.

Studies indicate that the use of new technologies and e-commerce relies not on the industry in which it operates, but on specific features according to the organization and structure of respective SMEs (Mohd, Yusoff, & Ahmad 2014). Therefore, a problem whose solution could be applied to determining why SMEs are unable to effectively compete, develop nor seek competitive advantage within their respective markets although their potential is widely acknowledged, is that the key studies in Kenya concerning the application of ICT to SMEs, if anything, have been done very rarely. This research is therefore aimed at filling the gap in literature by establishing the perception on the effect of economic digitisation on the growth of Kenya’s small and medium-sized businesses and more specifically SMEs in Nairobi County’s Central Business District.

1.4 Research Objectives

The study sought to determine the effect of digital financial services on the growth of SMEs in Kenya.

1.5 Research Hypothesis

To achieve the research objectives, the following hypotheses were tested:

H_{01}: Digital Financial Services has no significant effect on the growth of SMEs in Kenya.

II. LITERATURE REVIEW

2.1 Theoretical Review

This study was based on the diffusion of innovation theory. Rogers (1983) defines diffusion as the process of communication through which the market accepts a new idea or product. The diffusion frequency compared on the other hand to the speed at which the new idea extends between consumers. Rogers shows that, following an S-curve, the
process of dissemination in a social system begins with slow changes, and ends in slow changes with the maturation of the product or with the development of new technologies. It also said that people at different times and at different rates adopt new technological innovations. The process of adoption followed by the diffusion curve is a decision making process in which a person transfers from the initial knowledge of innovation to a position on innovation, decides to adopt or reject the new idea, then uses it and ends up confirming it.

The number of new converted adopters plotted against a time as a frequency histogram follows a Gaussian curve in the form of a bell, which increases the number of new adopters into the S-curve and then decreases the number of them. On this basis, Rogers identified five innovation adopters groups; innovators, early adopters, early majority, late, and laggard groups. The first 2.5% of adopters are innovators. They are risky and knowledgeable, have multiple sources of information and are more likely to take risks. They value technology for themselves and are motivated by the idea that they are an agent of change in their reference group. They are prepared to tolerate initial problems with new products or services, and are prepared to resolve such problems quickly.

Early adopters represent the next 13.5 percent of adopters. They are popular, educated and the social leaders. The visionaries in their markets want to embrace and use new technology in order to achieve a revolutionary breakthrough that will bring their industries dramatic competitive advantages. They are drawn to high-risk, high-reward projects and are not too priceless because the new technology offers great competitive advantages. Typical solutions and fast response, highly qualified sales and support are required. The early majority comprises the next 34 percent of adopters. They have many informal social contacts and are deliberate. They are motivated by evolutionary changes, not the search for revolutionary changes to improve productivity in their companies. They have three principles for new technologies, according to Rogers (1983). The first principle is let’s move all together when it’s time to move. This principle defines why adoption in the diffusion process is increasing so quickly and causes the demand to slide. The second principle is let's all choose the same paradigm when we pick a supplier to lead us into a new paradigm. It explains which company will become the market leader. The sooner we get it over, the better when the transition starts.’ This principle demonstrates why the transition phase takes place quickly.

The next 34% of the adopters are the late majority. They are skeptical, conventional and less economic. These are highly priced and require fully pre-assembled, bulletproof solutions. They are motivated to purchase technology only to remain competitive and often use a single confident consultant to help them understand technology. The last 16% of the adopters are Laggards. Laggards are skeptics of innovation who only want the status quo to remain. They don't think technology can improve productivity nor block new purchases of technology. In disciplines like marketing and management science the model of Roger has found broad appeal and application.

![Innovation Adopters](image)

**Figure 1: Innovation Adopters**

Rogers also explained that during the introduction of technological innovations, the process of innovation diffusion is determined by uncertainty among potential adopters. The need for adoption of digital contents by the Small and Medium Enterprises makes the diffusion innovation relevant in the study on the impact of digital financial services on the growth of small and medium enterprises.
2.2 Empirical Review

Empirical research uses empirical proof. This is a way to acquire knowledge through direct and indirect observation or experience. Such research is worth more than other types of empiricism. Empirical research is based on phenomena observed and measured and derives knowledge instead of theory or beliefs from actual experience.

2.2.1 Digital Financial Services and the growth of SMEs

No discussion could be made of consumers for m-commerce other related purposes of payment success, acceptance and increasing use of mobile digital devices, particularly smartphones (Morakanyane, Audrey, & O'Reilly, 2017). The preferred means of payment for all kinds of services have become mobile payment, such as tickets (from bus to flight tickets), product purchases, and payments in physical stores with smartphone 'wallets' or other payment methods. In the next few years a large number of products, services and applications for mobile digital devices will increase enormously and mobile payment technology is expected to increase similarly (Naveh, Tubin, & Pliskin, 2012). The different systems available are becoming more familiar to consumers. Companies, especially retailers, should be aware of these staggering numbers and the technology behind them; more so, given that m-Commerce is expected to accomplish what e-commerce has achieved in the last 15 years by 2016 (Morakanyane et al., 2017). SMS and Wireless Protocol (WAP) remain the word's leading access technologies. As regards SMS, developing and emerging countries have a larger user base because they are less expensive to buy more advanced telephones, as well as because of underdeveloped communications networks.

Embedded chips combined with technologies like RFID, NF, Global Positioning Systems (GPS), etc. have made many applications possible (Parkash, Kundu, & Kaur, 2012). A variety of applications can also be implemented. Customers can use smartphones enabled near-field communications as payment devices for all types of shopping within the shops that have NFC terminals. NFC technology for contactless communication with NFC mobile devices (smartphones and tablets, NFC terminals), at retail shops, including checkouts or digital display systems, in short-term, encrypted communication. This technology allows the transfer of wireless data between active or passive devices. A passive device, like an NFC tag on a fashion shop piece of clothing, contains information other devices read but do not read information on their own. Active equipment can read and send information.

As mentioned above, NFC is not the single technology on the market for mobile payment. This technology transfers mobile devices into multipurpose equipment (Lukies, 2011). The RFID technology is comparable to the NFC but has a long transmission range. RFID technology is similar. This is probably its biggest disadvantage compared to NFC, designed for devices near each other. The mobiles are easy to set up and quickly become a popular way of speeding up the selling process, benefiting customers and retailers alike. Retailers will benefit additionally through useful customer information such as the e-mail address of the customer for the sending of an e-receipt (Fraillon, Ainley, Schulz, Friedman, & Gebhardt, 2014). Mobile payments could therefore allow merchants to acquire more information than is possible with traditional payment methods about their current and potential customers. The user only needs to tap or wave on his mobile device before a reader with contactless payment methods based on NFC technology, to purchase it, which will make it easier to check out than with conventional plastic cards (Hayashi, 2012).

NFC-based Google Wallet is a digital wallet that enables users to store payment information in the cloud and to use their smartphone in shops with NFC terminals. NFC-based Google wallet In addition the Digital Wallet works as a regular wallet in that it is not a normal wallet, it is a wallet that carries a plastic and paper wallet but rather stores its credit cards, payment cards, loyalty cards, insurance cards, pharmacy cards and other membership cards. Google's usefulness is extended even further to e-commerce, as users can shop through the Internet conveniently and pay with the digital wallet. This means that users must not create separate accounts on the website of each retailer. Rather, they can only sign up for their Google Wallet account once and then shop on websites of participating retailers.

As previous studies based their assessment on the use of financial data, in particular quantitative information at the expense of qualitative information on the impact of economic digitisation on small and medium-sized businesses' growth in Kenya. Based on the empirical study above, it is obvious that financial metrics are used to assess the impacts of innovations. Most studies split innovation types and individually evaluate their performance and impact on SMEs. The theories show that small and medium-sized businesses should use digital technologies to improve growth, profitability, survival, and competitiveness. This study will take a balanced approach, including financial as well as non-financial measures. Research focusing on an equitable approach to assessment of the performance impact of innovations on small and medium-sized enterprises has taken place abroad. The study focuses on the economic digitisation effects on Kenya's growth of SMEs.
III. RESEARCH METHODOLOGY

The research employed descriptive research design to assess the effects of economical digitisation on small and medium-sized businesses' growth. The descriptive research design is useful in this study because it provides data about the population being studied and seeks to describe the characteristics of the social phenomenon as well and information was collected without alteration of the source data (Mugenda & Mugenda, 2003). In order to make an effective analysis of the presentation and analysis of data, the researcher first used descriptive statistics, such as tables, frequency numerals and charts. Further, inferential statistical analysis was used to test and draw statistical conclusions for research results from the multiple linear regression model.

The targeted population of the study comprised of SMEs operating in Nairobi County. The study targeted 1000 SMEs, who are legally licensed to operate in the County. The list of these SMEs was obtained from Nairobi City County officials. In this case the sampling frame of this study will include all the members of Nairobi County. These sectors include general shops, textiles, hotels, bookshops, electronics, and supermarkets among others. With regards to this study, the sampling frame was a list of SMEs in Nairobi specifically in the County area since this place is characterized by a large number of SMEs. The sampling frame was also obtained from officials at the Nairobi City Council.

In this particular study simple random sampling technique was adopted in the selection of the respondents. This sampling procedure ensures that each element in the population have an equal chance of being included in the sample. Sample selection is based on tables of random numbers or computer generated random numbers. The choice for random sampling was based on the fact that the method has the least bias and offers the most generalizability (Cooper and Schindler, 2008). However, according to Zikmund, Babin, Carr, and Griffin (2010) it is a sample in which each target element has a known, non-zero chance of being included in the sample. The study looked at the sample population of all licensed SMEs located within the Nairobi. Special attention was given to their number of employees and annual revenue returns.

Kothari (2012) defines a sample size as being the set of elements from which data is collected. The sample size enables the researcher to have adequate time and resources in piloting and designing the means of collecting data. This means therefore that the sample size ensures that the information is detailed and comprehensive. For the purpose of this study, the researcher was interested in SMEs who apply the strategic planning tools and concepts in their businesses to achieve their desired goals and objectives and these tools and concepts benefit their enterprises at large. However, due to some limitations especially associated with time and cost, the whole population was not studied. The sample size in this study comprised of 30% of 1000 SMEs formally registered in the County area, which translates to 300, out of the 300 respondents only 180 responded to the questionnaires and other means of data collection.

Following COVID 19 a social distancing pandemic, the study created an Online Monkey Survey, which will link the individual SMEs registered with Nairobi County with their respective contacts. The online survey was filled out and e-mailed to the researcher by the interviewees. Both secondary and primary data was collected. In order to collect primary data, the study used a semi structured survey tool (Questionnaire) which was sent to the respondents. The data collected was quantitative in nature. Questionnaires are suitable, according to Orodho (2004), for obtaining important population information. A questionnaire reaches many topics, which can independently read and write.

Zikmund et al. (2010) states that data analysis is about applying reasoning to understand the data collected to detect consistent patterns and to summarize the details revealed in the investigation. Data analysis was based on the analysis of the responses from the questionnaires sent to the field. Data analysis was guided by the research aims, objectives, and measurement of collected data to determine the patterns of the data gathered for the selected variables. Information for the production of graphs, tables, descriptive statistics and inferential statistics was sorted, coded and included with the Statistical Package of Social Sciences (SPSS) version 24.

For the purpose of testing the relationship of various independent variables with the dependent variable, a multiple linear regression was used. The multiple linear regression model is as laid out below;

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon \]

Where:
\( Y = \) the value of the dependent variable (Growth of SMEs) measured by increase in Net Profits
\( \{\beta_i; \text{ } i=1,2,3,4\} = \) The coefficients for the various independent variables
\( X_1 = \) Digital Financial Services
\( X_2 = \) Digital Content
\( X_3 = \) Innovation Driven Entrepreneurship

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Digital Skills and Values

**B₀** - Constant term

**e** - Error term is the error term which is assumed to be normally distributed with a mean of zero and constant variance.

The regression model was tested on the fit of the data with IBM SPSS statistics version 24. F-test was used to test the importance of the overall model at a confidence level of 95 per cent. For determining the robustness of the model, the p value for the F-statistic was applied. The conclusion was based on the p-value, where the null beta hypothesis is rejected, the overall model is significant and the overall model is insignificant if null hypothesis is accepted. In other words, if the p-value is below 0.05, then the model is important, has good variable predictors and the results are not based on chance. If the p-value is greater than 0.05, the model will not be significant, and the variations in the dependent variable cannot be explained.

There were three diagnostic tests. These were heteroscedasticity, normality and multi-collinearity tests. The methods used to examine multicollinearity are Variance Inflation Factor (VIF), tolerance and the conditional index. To check for the presence of heteroscedastic disturbances, heteroscedasticity tests were carried out. They tested if the chosen model of regression contains specification errors, the possibilities for heteroscedastic errors analyzed, and proof of the heteroscedasticity of each regressor presented in terms of the graphical distribution of residual waste (Bryman and Bell, 2011).

**IV. RESULTS AND ANALYSIS**

**4.1 Presentation of Data**

The respondents in the study were the owners of the small and medium enterprises registered in Nairobi County’s Central Business District. The study created an online survey whose link was sent to their respective emails. Once filled the respondents clicked on submit and the information filled in the survey was sent to the researcher’s email. In the wake of COVID 19, this was seen as the best platform to reach the study participants as it limited the face to face meetings. The table below shows the strata of the targeted respondents.

<table>
<thead>
<tr>
<th>Categorization</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail/wholesale/trade</td>
<td>21</td>
<td>7%</td>
</tr>
<tr>
<td>Manufacturing/mechanics</td>
<td>57</td>
<td>19%</td>
</tr>
<tr>
<td>Agriculture/food supplies</td>
<td>51</td>
<td>17%</td>
</tr>
<tr>
<td>Security/clearing</td>
<td>45</td>
<td>15%</td>
</tr>
<tr>
<td>Professional/consultancy/research</td>
<td>54</td>
<td>18%</td>
</tr>
<tr>
<td>Small works/Engineering</td>
<td>72</td>
<td>24%</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: AGPO, (2019)

**4.2 Response Rate**

![Figure 2 Response rate](image-url)
The study targeted 300 establishments in Nairobi County. Of the questionnaires issued, 180 filled in and returned the questionnaires making a response rate of 60%. This response rate was satisfactory to make conclusions for the study. Weisberg, Krosnick and Bowen (1989) recommended a response rate of 70%. According to Mugenda and Mugenda (2003), a response rate of 50 percent is adequate for analysis and reporting; a rate of 60 percent is good and a response rate of 70 percent and over is excellent. Based on the assertion, the response rate was considered to be excellent.

4.2 Validity and Reliability Tests
Reliability of the questionnaires were evaluated through Cronbach’s Alpha, which measures the internal consistency. Cronbach’s alpha was calculated by application of SPSS version 23 for reliability analysis. The value of the alpha coefficient ranges from 0-1 and may be used to describe the reliability of factors extracted at 0.5 significance level from dichotomous and or multi-point formatted questionnaires or scales. A higher value shows a more reliable generated scale. Cooper and Schindler (2008) have indicated 0.7 to be an acceptable reliability coefficient. Table 4.1 shows that Digital Financial Services had a reliability coefficient (α=0.711). This illustrates that all the four scales were reliable as their reliability values exceeded the prescribed threshold of 0.7 (Mugenda & Mugenda, 2003).

<table>
<thead>
<tr>
<th>Scale</th>
<th>Cronbach's Alpha</th>
<th>Number of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Values and Skills</td>
<td>0.875</td>
<td>7</td>
</tr>
<tr>
<td>E-Innovation Driven Entrepreneurship</td>
<td>0.865</td>
<td>6</td>
</tr>
<tr>
<td>Digital Financial Services</td>
<td>0.711</td>
<td>6</td>
</tr>
<tr>
<td>Digital Content</td>
<td>0.692</td>
<td>7</td>
</tr>
</tbody>
</table>

4.3 Respondents’ gender
The study sought to establish the gender of the respondents. The results from the analysis are illustrated in the figure below as shown.

![Gender of the respondent](image)

**Figure 3 Gender of the respondent**

From the analysis of findings, majority of the respondents (104, 58%) were female while (76, 42%) were male respondents. The study thus established that there were more female respondents than male respondents but the disparity was not sufficient to create any biasness on the study, to determine the effect of economic digitisation on the growth of small and medium enterprises in Kenya.

4.4 Age brackets of the respondents
The study sought to establish the age brackets from the responses of the respondents. The results from the analysis of findings are illustrated in the figure below as shown.
Figure 4 Age bracket of the respondents

The study showed that majority (64, 35.5%) of the respondents indicated they were aged between 25 and 30 years old. Closely after were (55, 30.5%) respondents who indicated that they were aged between 31 to 40 years. From the analysis also, it was established that (36, 20%) of the total respondents indicated that they were aged between 41 and 50 years while (25, 14%) of the respondents indicated they were aged over years of age. The study thus inferred that majority of the respondents were old enough to answer the questionnaire.

4.5 Highest level of education
The study sought to establish the respondents’ highest level of education. The results from the analysis of findings are illustrated in the figure below as shown.

Figure 5 Highest level of education

From the analysis of findings it was established that majority of the respondents (76, 42%) indicated that they had a diploma. This was closely followed by respondents (64, 36%) who indicated that they had a degree. The study also established that (32, 18%) of the respondents indicated that they had masters. Moreover, (8, 4%) of the total respondents conceded to having a PHD. These findings show that most of the respondents had sufficient education qualifications to make significant contributions to the subject under evaluation.
4.6 Years worked in the Organization

The study sought to establish the respondents’ years worked in the organization. The results from the analysis of findings are illustrated in the figure below as shown.

![Years worked in the Organization](image)

**Figure 6 Years worked in the Organization**

The study showed that (56, 31%) of the respondents indicated they had worked for 5 years and below. Those who had worked for 6 to 10 years were (44, 24%). Additionally, those of between 11 to 17 years were (32, 18%). Closely after were (30, 17%) respondents who indicated that they had worked for between 16 to 20 years. Those who had worked for over 20 years were (18, 10%). The study thus inferred that majority of the respondents possessed enough working experience to answer the questionnaire.

4.7 Descriptive Analysis

The study sought to determine whether digital financial services had any effect on the growth of SMEs in Kenya. The Table 3 below shows the findings of from the respondents. The respondents were asked to rate how they felt about different variables related to economic digitisation of medium enterprises in Kenya in a five point Likert scale. The range was from strongly agree (5) to ‘strongly disagree’ (1. The score of 1 represented “strongly disagree” 2 represented “disagree”, 3 represented “neutral”, 4 represented “agree” and five represented “strongly agree”

| Table 3 Effect of digital financial services on the growth of SMEs in Kenya |
|---------------------------------------------------------------|--------|---------------|
| Mobile payments have become a favorite means of making financial transactions | N      | Mean          | Std. Deviation |
| Applications available for mobile digital devices is expected to increase enormously | 180    | 3.9444        | .71475         |
| Digital payment technology has increased over the last decade | 180    | 4.0833        | .54798         |
| Consumers grow more familiar with the different payment systems available and encourage more transactions | 180    | 4.351         | .755           |
| E-commerce has increased profitability for small and medium enterprises | 180    | 3.8111        | .66676         |
| Digital financial services has a positive effect on the growth of small and medium enterprises | 180    | 3.8556        | .66115         |

Based on the responses from the respondents, it was clear that most respondents saw that there was a relationship between digital financial services and growth of SMEs. It was established from the analysis that most respondents agreed (M=3.944, S.D= 0.714) with the statement; Mobile payments have become a favorite means of making financial transactions. It was also established that a significant number of the respondents conceded (M=4.083, S.D= 0.548) that applications available for mobile digital devices is expected to increase enormously. Also noted from the analysis of the findings was that a significant number of the respondents agreed (M=4.351, S.D=0.755) that digital payment
technology has increased over the last decade. A significant number of the respondents agreed (M=3.811, S.D=0.667) that Consumers grow more familiar with the different payment systems available and encourage more transactions. Additionally, most of the respondents agreed (M=3.817, S.D=0.681) that E-commerce has increased profitability for small and medium enterprises. Finally, most of the respondents (M=3.856, S.D=0.662) agreed that digital financial services have a positive effect on the growth of small and medium enterprises. From the findings, it was clear that digital financial services have a significant effect on the growth of SMEs.

4.8 Bivariate Linear Correlation Analysis
The correlation between the variables was as shown using linear correlation analysis. The results are presented in Table 4.

<table>
<thead>
<tr>
<th>Table 4 Bivariate Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth of SMEs</td>
</tr>
<tr>
<td>Pearson Correlation</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>**. Correlation is significant at the 0.01 level (2-tailed).</td>
</tr>
</tbody>
</table>

From the bivariate correlation analysis, the study registered weak correlation between Digital Financial Services and growth of SMEs (correlation coefficient 0.072**). This implies that Digital Financial Services have low effect on the growth of SMEs in Kenya.

4.5 Diagnostic tests
The study performed diagnostic tests on statistical assumptions i.e. test of regression assumption and statistic used. This included test of normality, multi-collinearity tests and heteroscedasticity tests. The results from these diagnostics are illustrated in the following subsections as shown.

4.5.1 Normality Test
Normality was tested using the Levine’s test, which has power to detect departure from normality due to either skewness or kurtosis or both. Its statistic ranges from zero to one and figures higher than 0.05 indicate the data is normal (Razali & Wah, 2011). Levine’s test assesses whether data is normally distributed against hypothesis that:
H₀: Sample follows a Normal distribution.
H₁: Sample does not follow a Normal distribution.

When the p-value is greater than the alpha value, then one fails to reject the null hypothesis and do not accept the alternative hypothesis. From the table 4 below, one rejects the null hypothesis H₀ that Digital Financial Services (p = < 0.05) that digital Financial Services has no significant effect on the growth of SMEs in Kenya. The study thus concludes that the predictor variable (Digital financial services) has a significant effect on the growth of SMEs.

<table>
<thead>
<tr>
<th>Table 5 Levine's Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistic</td>
</tr>
<tr>
<td>Digital Financial Services</td>
</tr>
</tbody>
</table>

4.5.2 Multi-collinearity Test
Multi-collinearity was tested by computing the Variance Inflation Factors (VIF) and its reciprocal, the tolerance. It is a situation in which the predictor variables in a multiple regression analysis are themselves highly correlated making it difficult to determine the actual contribution of respective predictors to the variance in the dependent variable. Thus, collinearity diagnostics measure how much regressors are related to other regressors and how this affects the stability and variance of the regression estimates. The existence of multi-collinearity is a vital problem in applying multiple time series regression model. Multi-collinearity is a situation when independent variables in the regression model are highly inter-correlated. Multi-collinearity inflates the variances of the parameter estimates and hence this may lead to lack of statistical significance of individual predictor variables even though the overall model may be significant.
To detect for multi-collinearity, the study examined the correlation matrix or by using Variance Inflation Factor (VIF) as shown in Table below. The Variance Inflation Factor (VIF) quantifies the severity of multi-collinearity in an ordinary least-squares regression analysis. VIF’s greater than 10 are a sign of multi-collinearity; the higher the value of VIF’s, the more severe the problem. Results show that digital financial services had a variance inflation factors (VIF) of less than 10 (1.361). This implies that there was no collinearity problem thus Digital Financial Services was maintained in the regression model.

### Table 6 Multi - Collinearity Statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Financial Services</td>
<td>.735</td>
<td>1.361</td>
</tr>
</tbody>
</table>

#### 4.5.3 Heteroscedasticity Tests

The regression model was preceded by heteroscedasticity tests presented in Table 7 below. The tests included were the Breusch-Pagan test for heteroscedasticity, which showed a chi square value of 13.170 with a significance of 0.02 which was less than 0.05 thus the null hypothesis (presence of homoscedasticity) is rejected and thus a conclusion made of the presence of heteroscedasticity.

### Table 7 Test for Heteroscedasticity

<table>
<thead>
<tr>
<th>Type of Test</th>
<th>Co-efficient</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breusch-Pagan Test for Heteroscedasticity (CHI SQUARE df=p)</td>
<td>13.170</td>
<td>0.0218</td>
</tr>
</tbody>
</table>

Source: Research Findings

#### 4.6 Regression Analysis

The study sought to determine the effect of economic digitisation on the growth of small and medium enterprises in Kenya. The determinants under investigation were: Digital Financial Services, Digital Content, Digital Values and Skills and Innovation Driven Entrepreneurship.

#### 4.6.1 Model Summary

The study sought to determine the model’s goodness of fit statistics. The findings are presented in Table 8.

### Table 8 Model's Goodness of Fit Statistics

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.244a</td>
<td>.059</td>
<td>.038</td>
<td>.50474</td>
</tr>
</tbody>
</table>

a. Predictor: (Constant), Digital Content

The coefficient of determination as measured by the R-square ($R^2$) (5.9%) shows that Digital Financial Services explain 5.9% of the total variation in growth of small and medium enterprise in Kenya. This implies that the stochastic disturbance error term (ε) covers 94.1%.

#### 4.6.2 ANOVA

The study sought to determine the ANOVA used to present regression model significance. The findings are presented in Table 9.

### Table 9 Model Validity

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>2.810</td>
<td>4</td>
<td>.703</td>
<td>2.758</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>44.584</td>
<td>175</td>
<td>.255</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>47.394</td>
<td>179</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Growth of SMEs
b. Predictor: (Constant), Digital Financial Services
The table shows that the digital financial services statistically and significantly predict the dependent variable (growth of SMEs), F=2.758, p<0.05. It can thus be concluded that the regression model was a good fit for the data.

4.6.3 Regression Coefficients
The study sought to determine the multiple regression variable coefficients. The findings are presented in Table 10.

### Table 10 Multiple Regression Variable Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td>B</td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>2.597</td>
<td>.786</td>
<td></td>
<td>3.303</td>
</tr>
<tr>
<td>Digital Financial Services</td>
<td>.036</td>
<td>.074</td>
<td>.037</td>
<td>.486</td>
</tr>
</tbody>
</table>

Growth of SMEs = 2.597 + 0.036 * Digital Financial Services + 0.786.

The study established that when digital financial services is zero, the growth of SMEs would be 2.597. The study also established that holding other factors constant, a unit increase in Digital Financial Services would lead to a 0.036 unit increase in growth of SMEs in affecting the growth of SMEs in Nairobi County’s CBD.

4.7 Test of hypotheses
In testing the hypothesis and establishing whether there was significant relationship between the predictor variable and the dependent, the t statistics and significance values in the regression model were established. These findings are presented in the following section.

4.7.1: Digital Financial Services and Growth of SMEs

**H₀**: Digital Financial Services has no significant effect on the growth of SMEs in Kenya.

The study indicates that digital financial services has a positive and insignificant effect on the growth of SMEs at (β = 0.037, t = 0.486, p>0.05). As such, the hypothesis that digital financial services have no significant effect on the growth of SMEs there the null hypothesis was accepted.

### Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td>B</td>
</tr>
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<td>3.303</td>
</tr>
<tr>
<td>Digital Financial Services</td>
<td>.036</td>
<td>.074</td>
<td>.037</td>
<td>.486</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Growth of SMEs

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions
The study concluded that digital financial services were significant factors in ensuring growth of SMEs in Kenya. The study concluded that Mobile payments have become a favorite means of making financial transactions. The study also established that Applications available for mobile digital devices is expected to increase enormously. Digital payment technology has increased over the last decade. From the findings, it was concluded that Consumers grow more familiar with the different payment systems available and encourage more transactions.

5.2 Recommendations
The SMEs should explore the possibility of forming a management committee to streamline economic digitisation issues. It is recommended that the organization clearly spell out economic digitisation procedures and criteria. This can stir positive growth among SMEs establishments and can result in effective management. The Government and the various agencies should also make provisions for training programs for SMEs to empower them in terms of economic digitisation. The SMEs should not rely on external professionals to assist in digitisation as this
may be expensive. It is also recommended that the SMEs should adopt digital financial services. E-commerce will ensure increased profitability for small and medium enterprises. They should also have Social networking sites, which have proved to be popular online activities in relation to time, spent. They should also adopt Innovation driven entrepreneurship as it contributes to increase in sales revenue, market share, efficiency, customers’ loyalty and firm profitability.

REFERENCES


Katz, Raul & Koutroupis, Pantelis. (2012). The Economic Impact of Telecommunications in Senegal. 10.1007/978-3-319-03617-5_11.


