THE EFFECT OF COVID-19 ON SME'S AND THE USE OF DIGITISATION STRATEGIES FOR ECONOMIC RECOVERY IN KIGALI

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ABSTRACT

This paper explores the effect of the COVID-19 pandemic on SMEs in Rwanda and how digital technology adoption can help SMEs recover the economy during and pos the pandemic. The COVID-19 pandemic has costed the lives of many people around the world. Measures have been taken to contain the pandemic's spread to minimize the rate of contamination and death including lockdowns, restriction of movements, and social distance. These measures paralyzed the supply chain and consequently created a global economic crisis. Subsequently, many Small and Medium Enterprises had to close in Rwanda. Simultaneously those SME's who are surviving have reported a drop in revenues. It seems that SMEs are struggling to find a path to resist the COVID-19 impacts. Many do not have a contingency plan to recover their businesses during and post the pandemic. However, the adoption and use of digital technology in SMEs could be a sustainable economic recovery solution. Digital technologies provide a new window of opportunities for SMEs by increasing their visibility; attract new consumers, and embracing e-commerce that can be a solution to limit in-store shopping and personal physical contact as stipulated in the COVID-19 measures. A qualitative method using document analysis underpins this study. This study is significant because it seeks to adopt digital technology in Rwanda to assist SMEs to recover during and post the pandemic to save jobs, increase GDP, and tax collections.

Keywords: COVID-19 Pandemic, Economic Crisis, Digital Technology Adoption, SMEs, Sustainable Economic Recovery

INTRODUCTION

According to the World Health Organization (WHO), the COVID-19 is a new global pandemic discovered in the family of coronavirus. It attacks the respiratory apparatus (WHO, 2020). On 6 March 2021, WHO reported a confirmed COVID-19 pandemic of 115 653 459 cases and 2 571 823 deaths in 223 countries, areas, or territories. On the same date, Rwanda counted 19 426 confirmed cases, whereby 17751 patients recovered, and recorded 267 deaths (WHO, 2021). The measures to slow down the spread and deaths of COVID-19 lockdown created a global economic crisis. The economics of developed and developing counties relied on local and international trade, sharing, and managing information. Some of the measures to contain the COVID-19 pandemic include lockdowns, restriction of movements, and social distance that disrupt people's movements, goods, and paralyses of the supply chain management consequently provoked a global economic crisis; Rwanda was no exception (Brandon & Grigory, 2020). Some SMEs facing challenges to survive the economic crisis have since closed. However, SMEs know that most products and services they provide to suppliers and the

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consumers represent over 75% of jobs and more than 90% of the global enterprises. It is estimated to contribute globally 70% to Gross Domestic Products (GDP) (International Labor Organization, 2019).

In Rwanda, SMEs count for 99.7% of all enterprises and employment of 71.6% of private and public businesses (Rwanda, National Institute of Statistics of Rwanda, 2018). Moreover, industries had to shut down due to decreased income, and a shortage of merchandise, even though Rwanda still had to import many products. The income loss in the retail sector which is mostly run by SMEs and the hospitality sector was about 90%. However, farming and the ICT services were less affected, with a loss of 25% in income. This is because people need food in all living conditions (UNDP, 2020). Regarding ICT, there was migration from traditional shopping to e-commerce; some SMEs and consumers adopted digital technology. The economic crisis also affected GDP, an estimated growth rate of 10.1% by 2019, which dropped to 3.5% by 2020. However, with economic recovery strategies, the GDP estimated a growth rate of 6.7% by 2021 (UNDP, 2020). Despite the role SMEs play in social-economic development it seems there is no contingency plan to cope with the economic crisis recovery during and post the pandemic. However, many government institutions, academic, and large companies succeeded in adopting digital technology in their daily activities that enabled them to positively respond to the effect of the COVID-19 pandemic, such as movement restrictions and social distancing (Brandon & Grigory, 2020). This study investigates the effect of the COVID-19 pandemic on SMEs in Rwanda to discover how digital technology adoption can help SMEs recover post the pandemic.

Throughout the pandemic, digital technologies have been used to keep industries running and people connected. On the other hand, most solutions and debates have been geared toward assisting individuals or governmental bodies. Most may not cater to the demands of SMEs, which cannot be overlooked. This study is significant; because it seeks to adopt digital technology in Rwandan SMEs to recover economically. The rest of the paper is structured as follows: the theoretical framing; Actor-Network Theory, selling in the digital age; research methodology, recommendation strategies, the direction for future studies, and conclusion.

Theoretical Underpinnings

The world has had various crises in different periods that affected a particular country, region, or continent. For instance, the global financial crisis in 2007-2008; the Spanish flu 1918-1920, which occurred in a large part of the world; Ebola for some countries in Africa, Europe, America, and the Asian continent. However, the COVID-19 pandemic is a global crisis that affects all human beings. It damages the economy and paralyses the supply chain in many countries. The world is struggling to find a way to recover from the economic crisis during, and post the pandemic. Building on the Actor-network theory, this study proposes the adoption of ICT among different stakeholders such as consumers, SMEs, government suppliers to conduct business transactions using digital technologies. The theoretical framing of this article comprises four themes: (1) the effect of COVID-19 on global economies and the businesses environment; (2) the effect of COVID-19 on Rwanda economies and businesses; (3) the effect of COVID-19 on SMEs in the retail food sector; (4) the effect of COVID-19 pandemic on consumers; (5) Actor-Network Theory, and (6) selling in the digital age.

The Effect of COVID-19 on Global Economies and the Businesses Environment

Due to the COVID-19 pandemic, the global economic crisis was in a crisis. It affected

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worldwide economies by $90 trillion (James et al., 2021). Despite the crisis, its impacts varied country by country. Considering the concepts of developed, emerging, and developing countries, many authors agreed that developed and emerging markets suffered less than developing countries. For instance, over 70% of ICT global infrastructure belongs to Europe, some countries in Asia, and the USA. Like many institutions, businesses migrated to digital technology to conduct their businesses to adhere to the pandemic restrictions. It was confirmed that the economies improved in those countries that used ICT as leverage for their businesses (ILO, 2021; World Bank, 2021). It was expected that developing economies would bear greater losses than developed ones during and post the pandemic. Furthermore, there is less hope of the economy being restored and finding the lost jobs. Paradoxically, the debts will increase as well as poverty. It was estimated that there will be a 9% drop in global trade by 2021 and a loss of 8.8% of world working hours (James et al., 2021). The volume of world merchandise trade in 2020 reported that there was a decline at -5.3% (WTO, 2021). The International Monetary Fund (IMF) reports that the economic recovery will depend on "access to medical interventions, the effectiveness of policy support, exposure to cross-country spillovers, and structural characteristics entering the crisis." To do so, the global economy expects to grow 12.5% by 2021 (IMF, 2021). However, the World Bank estimated 4% and 3.8% economic growth in 2021: 2022 (World Bank, 2021). But the lack of effective medication, continuing lockdown, ban of the movement of people and goods, and COVID-19 restrictions will continue to hinder economic recovery, placing many people in extreme poverty (World Bank, 2021).

Kim (2020) has another view of a sustainable economic recovery, and he suggested that going digital is the best practice to cope with the effects of COVID-19 particularly in developing economies. They should invest more in digital education, training, and Research and Development (R&D) to find suitable programs that enable different actors to come together to conduct a business. Galbraith (2018) concluded that the world is experiencing the pressure of the fourth industrial revolution and is characterized by the adoption and use of ICT. Failure during the pandemic not to adopt ICT will result in no sustainability development. The evidence was that many businesses successfully integrated ICT into their entrepreneurial activities and that improved their business performance and productivity. The authors believe that ecosystem of entrepreneurial effectiveness and efficient management may strongly contribute to current and post COVID-19 pandemic businesses recovery. However, sustainability recovery requires that ICT must be the spotlight of any entrepreneurial ecosystem to ensure short and long-term sustainable economic recovery.

The Effect of COVID-19 on Rwandan Businesses

Before the COVID-19 pandemic crisis, the Rwanda economy was performing well and grew, with an average of 7.4% over the last five years and 8% for the last ten years. Only in 2019, the GDP growth was 9.4%, making Rwanda one of Africa's economies that flourished. Besides that, this growth rate was among the best in the world. Due to the pandemic, the GDP was expected to grow by 2% in 2020. The low GDP growth will force the government to decrease its expenditure, impacting key services, such as education and health (UNDP, 2020).

The first positive cases of COVID-19 were tested in Rwanda by 14 March 2020. A week later, by 21 March 2020, a general lockdown was executed on the national territory. The schools, non-essential economies, and business activities public and private service shutdown. Despite the positive results to control the pandemic the businesses suffered losses from 25% to >90% (Table 1) that created the loss of many jobs which ultimately engendered socio-economic crises.

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Some businesses closed; employees were retrenched, salaries were cut therefore many household heads lost their purchasing capacity (UNDP, 2020). As illustrated in Table 1, wholesale and retail trade, repair industries that employed 848 327 (7.62%) of countrywide workers and contributed 9% in GDP lost 90% of income, and manufacturing employed 265 948 (2.39%) of national-wide employees. It contributed 8% to GDP by 2019. Agriculture, forestry, and fishing represented most workers 7 809 347(70.14%) and contributed 25% in GDP by 2019, losing 25% of the incomes (UNDP, 2020) Source: United Nations Development Programme (2020).

Table 1
CATEGORISATION OF COVID-19 IMPACT ON SECTORS OF PRIMARY EMPLOYMENT OF HOUSEHOLD HEAD

Household head's primary employment	COVID-19 impact Category	Freq.	Percent
D: Electricity, Gas and Air Conditioning (Utilities)	Low *Losing 25% of income	14,873	0.13
E: Water supply, Gas, and Remediation (Utilities)		13,683	0.12
J: Information and Communication		16,210	0.15
M: Professional, Scientific, and Techni		60,502	0.54
O: Public Administration and Defense		178,081	1.60
P: Education		188,349	1.69
Q: Human Health and Social Work Activities		101,940	0.92
U: Activities of Extraterritorial Organ		32,828	0.29
A: Agriculture, Forestry, and Fishing	Low-Medium *Losing 25% of income	7,809,347	70.14
B: Mining and Quarrying	Medium *Losing 50% of income	117,249	1.05
F: Construction		658,183	5.91
K: Financial and Insurance Activities		33,024	0.30
S: Other Service Activities		133,263	1.20
T: Activities of Households as Employer		98,711	0.89
H: Transportation and Storage	Medium-High *Losing 75% of income	408,772	3.67
R: Arts, Entertainment, and Recreation		26,851	0.24
C: Manufacturing	High *Losing 90% of income	265,948	2.39
G: Wholesale and Retail Trade, Repair		848,327	7.62
I: Accommodation and Food Service		51,376	0.46
L: Real Estate Activities		4,731	0.04
N: Administrative and Support Service		72,180	0.65
Total		11,134,433	100.00

The recent study of Rwigema (2020) revealed the extent to which the SMEs in Kigali lost income due to the COVID-19 pandemic (See Figure 1) below. Interestingly, 16% of SMEs were not affected by the pandemic. However, the majority, 44%, experienced a loss of 50-100%. While, 28% faced 25-50% loss. At the same time, the minority 12% of SMEs surveyed knew a loss of 0-25%.

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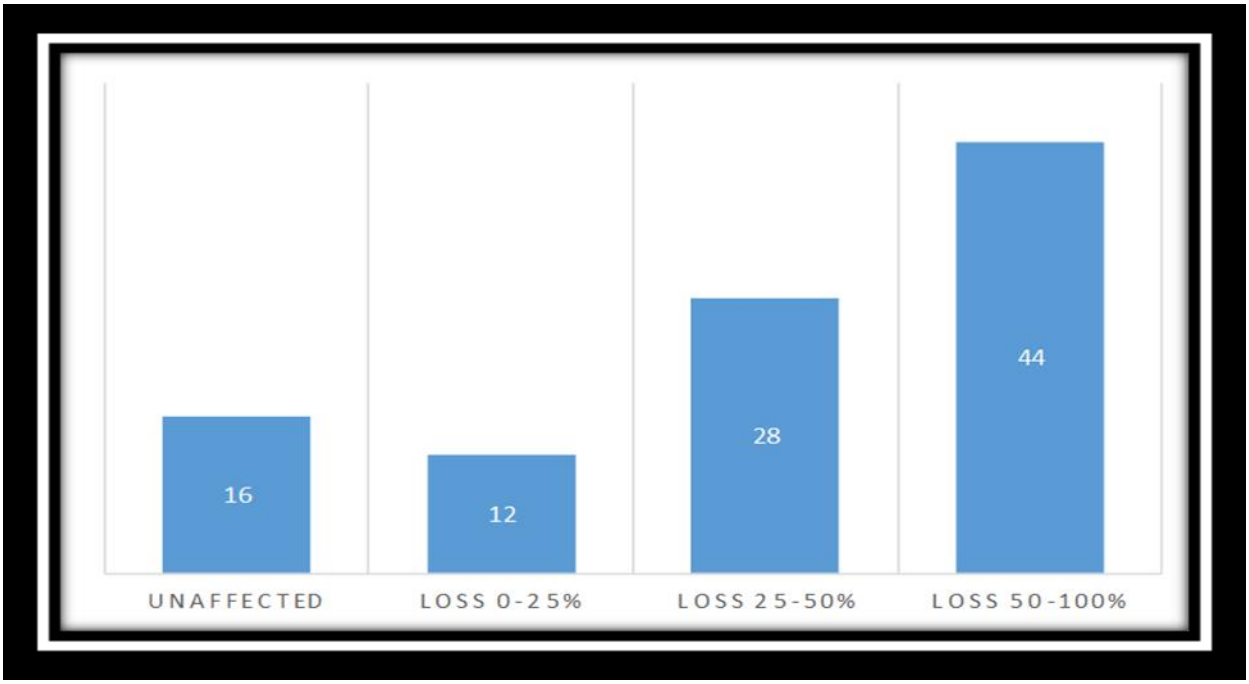

FIGURE 1
IMPACT OF COVID-19 SMES REVENUE IN KIGALI (Rwigema, 2020)

Unfortunately, the decrease of income on SMEs has impacted many employees (See Figure 2), they lost jobs, and perhaps they are part of those who entered poverty.

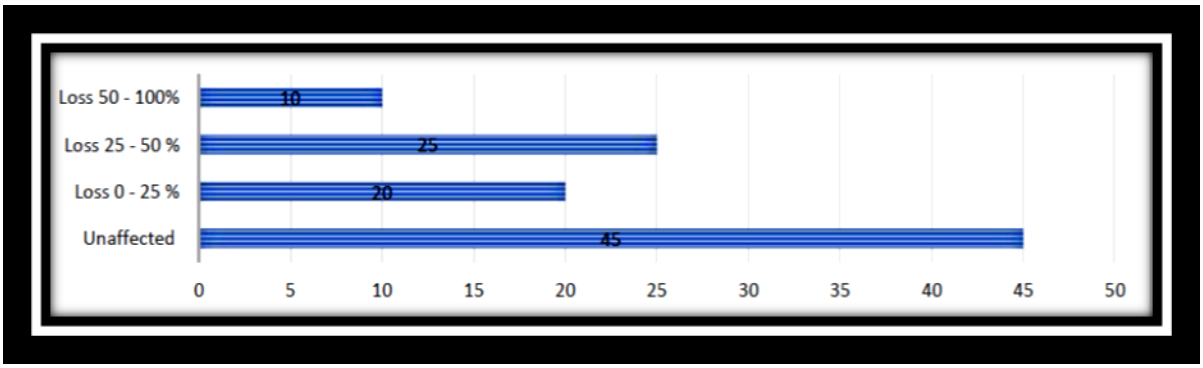

FIGURE 2
JOBS LOSS IN SMES DUE TO PANDEMIC (Rwigema, 2020)

More than the 100 businesses surveyed, 45% retained their employees despite the pandemic impacts. However, 20% of SMEs retrenched 25-50% of employees. At the same time, 20% of SMEs lost jobs 0-25%. Only 10% of SMEs surveyed reduced jobs by 50-100%. The World Bank (2021) showed concern about the loss of jobs which in return pushed many people into poverty. He argued that resilient recovery protects the jobs and poor. Moreover, a change in the business model, flexible policies, and an ecosystem of entrepreneurship, and the adoption of digital technology may assist in maintaining jobs and create new ones. United Nations Development Programme (2020) indicated that the telecommunication industry was the minor

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industry affected with COVID-19; it argued that there was a shift from face to face to conduct a business to e-commerce, and many government and organization services adopted and used ICT in their daily activities, and their stakeholders could receive services via digital technology.

The Effect of COVID-19 on SMEs in the Rwandan Retail Food Sector

Global Alliance for Improved Nutrition (GAIN) reported that COVID-19 Pandemic measures like the restriction of movements and physical distance disrupted the supply chain management in the SME's food systems. The impact was enormous; some SMEs closed, others strongly impacted, and a few of them moderately affected (GAIN, 2020). In the recent survey conducted in Rwanda, 27 entrepreneurs in SMEs contributed and revealed that 67% of them confirmed the disruption of transportation of food; the suppliers decreased by 30%, while 22% of suppliers could not cope with the impact of the COVID-19 pandemic, and their businesses closed down (GAIN, 2020). The entrepreneurs surveyed believed that mitigating and coping with the impacts of the COVID-19 pandemic require a business model change. 64% of respondents suggested that the business model change must increases communication between entrepreneurs and consumers. To do so, 68% of surveyed believed that adoption of communication technology (social-media, Cellphone, and the Internet) into SMEs could improve the value chain, facilitate business transactions through e-commerce, and mitigate or cope with the impact of the COVID-19 pandemic on SMEs. The Rwanda Central Bank interrupted the mobile money charges to encourage entrepreneurs and consumers to embrace business transactions via Cellphone (United Nations conference on trade and development, 2020). As a result, the mobile transaction rose 85% from 2019 to 2020; and new mobile agents increased around 33% (Igihe, 2021). Despite the food supply chain crises, the pandemic created some opportunities in Personal Protective Equipment (PPE), such as sanitizes and masks. The suppliers of PPE are enjoying a significant benefit (UNDP, 2020).

The Effect of COVID-19 Pandemic on Consumers

The impact of the COVID-19 pandemic did not only limit to the businesses but also affected the consumers. The pandemic changed the consumers' lifestyle and expenditure. With the restriction of people and goods movements, many households lost jobs or salaries reduced that provoked the loss of purchase power. Some businesses limited the buying of essential products for the families, and the prices increased. According to the World Food Programmer (WFP), a 10% rise in food costs results in a 30% drop in food spending. Consequently, 28% of the population living in Kigali city would not afford to buy food. Therefore, the government and stakeholders will intervene to supply free food to the population in need (UNDP, 2020). Since the consumers were restricted to shopping, the adoption of communication technology was a solution. However, the technology could be relevant, effective, and efficient to bring together consumers and suppliers to conduct business. Therefore, the Actor-Network Theory (ANT) was an appropriate theory for technology adoption.

Actor-Network Theory

The COVID-19 pandemic is a social phenomenon that affects the human being, creates human psychological distress and fear of death, and has cost the lives of many people worldwide, as discussed above. Governments worldwide had taken different measures to stop the

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expansion of pandemics and to minimize the contamination and death rate of their population. These measures paralyzed the flow of goods, people and information that provoked the businesses distress and create a communication gap between the suppliers, SMEs, consumers, and other stakeholders.

It may be argued that the solution to a social phenomenon's impact should be found in society. Society could find an effective alternative communication that conveys the message and receive feedback. The Actor-Network Activity (ANT) has been identified as a robust theory joining the various actors namely SME's, government, suppliers, consumers and ICT. The ANT can also be updated over time to meet the current situation.

Callon and Latour (1981) are known as ANT theory designers. ANT is a social theory that views human (social) and no-human (technical) actors on the network. They believe that human and no-human support is compulsory to ensure ICT adoption success in SMEs. Marres (2004) adds that ANT is impartial; it studies society's role in technology adoption and how technology and society influence each other. However, the power should be managed equally to achieve SMEs' goals and objective while meeting consumers' expectations. Eze et al. (2014) stated that ICT is dynamic, not a static; it changes over time to meet the external business environment's current pressure. As an actor, society's role is crucial to contribute to the process, accept the change, and implement it. Thus ANT provides a solid knowledge to understand the relationship between society, art fact and the technology-in-practice. Thus, ICT adoption happens in the inscription, translation, and framing (See Figure 3).

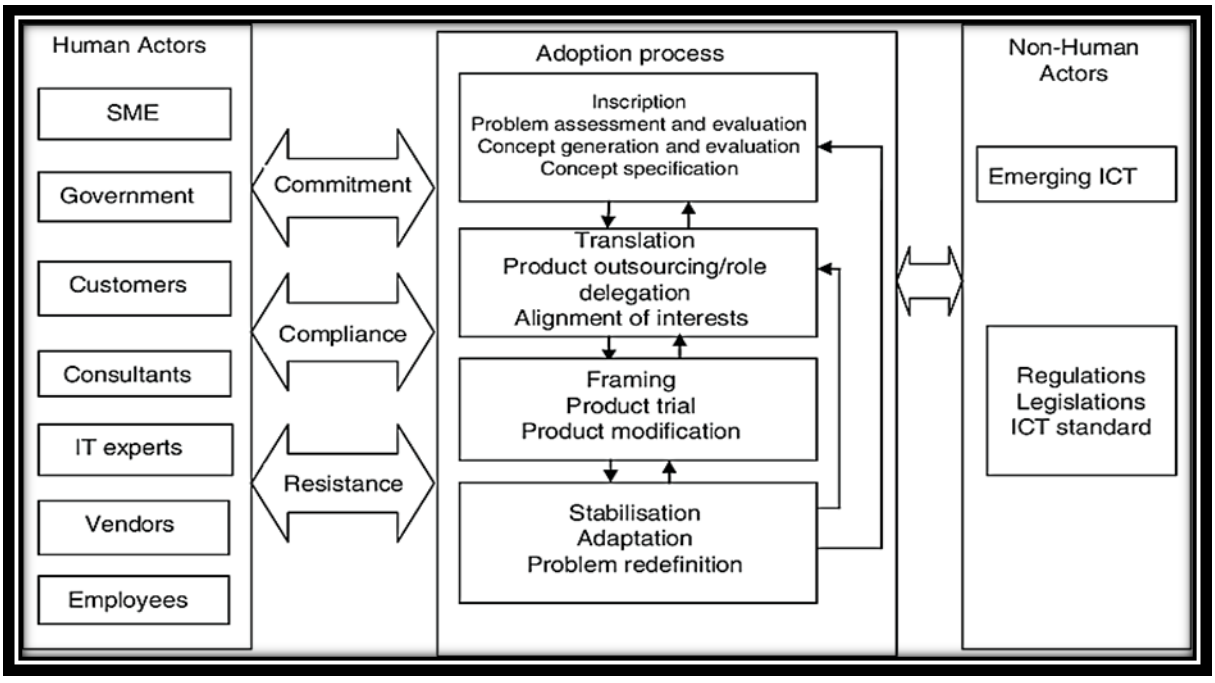

FIGURE 3
THE DYNAMIC PROCESS OF ICT ADOPTION IN SMEs (Eze et al., 2014)

Criticism of Actor-network theory

The ANT is criticized as being more social constructivism. It brings human and ICT on the

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network to understand their interaction in the adoption of ICT. It is known for its contentious insistence on the ability of non-humans to act on networks. ANT is also linked with solid criticism of traditional and logical sociology that is not an appropriate technology adoption among SMEs. Also, criticized to stand on an equal relationship between human and non-human to adopt successful ICT in SMEs. However, it ignores future invents, for instance, innovation (Muniesa, 2015). Whittle and Spicer (2008) strong criticize ANT for ignoring the nature of knowledge and how knowledge is obtained by promoting the unfolding nature of reality that considers the bounds of knowledge. Any technology adoption theory has its pros and cons; ANT is no exception. Despite its critisms, ANT is an appropriate contingency ICT adoption theory that can unify the Rwandan society around the digital technology during a natural disaster such as the COVID-19 pandemic to find an ICT sustainable solution to access the SMEs products and services to conduct business transactions via digital technology.

Using ICT in Business in Rwanda

The COVID-19 pandemic accelerates the migration from in-store shopping to online shopping but this shopping in the digital age still small. For instance, only in Africa, Sub-Sahara, Kenya, Mauritius, Namibia and South Africa online shopping exceed 8% while others countries, including Rwanda, sold less than 5%. Less active online selling may be attributed to the high cost of the Internet, lack of framework policy, inadequate infrastructure and lack of ICT skills (Iribagiza, 2020). E-commerce subscribes increased in Rwanda. A manager of online shopping grocery and door to door delivery reported that since the Rwanda government imposed lockdown with movement restriction, online selling tripled and expected to continue increasing. At the same time, He Mart online shopping increased 50% (Iliza, 2020). Kimironko Market experienced new reliable way friends/ relatives helped those who do not have groceries by ordering for them and the supplier delivers the groceries to the doors. This is not limited to national territory; people who stay in foreign countries regularly ordered groceries, paying online then the groceries delivered to the beneficiaries (Igihe, 2020). The rapid growth of online selling during the COVID-19 pandemic has attracted the government to initiate a framework. Rwanda Utilities Regulatory Authority (RURA) proposed a regulatory framework for online selling and delivery that divided opinions. Entrepreneurs and ICT experts oppose the framework and vehemently reject $ 3000 to register on e-commerce platforms. The SMEs viewed that framework as discouraging them from moving from traditional selling (in-store) to digital platform. They believed that target digital platforms to increase consumers is a business model change to strengthen their marketing strategy that government could encourage instead of charging extra money behind the taxes, which already considered heavy to SMEs (Kagire, 2021).

RESEARCH METHODOLOGY

This is a conceptual paper grounded on the effects of the COVID-19 pandemic on societies (economic, SMEs, and consumers). Thus, this paper is built on a review of literature that synchronizes with the conceptual framework. Despite the effects of a pandemic on the business's short and long-term decision-making, little is known on the best practice to maintain businesses viably. Therefore, exploratory research is an appropriate approach to search for helpful information, perhaps best practice to cope with management dilemmas and business distress. The review of literature is the backbone of exploratory research. In the situation of management dilemma like what caused the COVID-19 pandemic when the management does not have enough

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information on the current situation to maintain the business viably, exploratory has been identified as a practical approach to search and provide valuable information on which management can leverage to make business decisions. Perhaps best practice could be implemented to overcome management dilemmas and business distress (Cooper & Schindler, 2008; Opute et al., 2020). Cooper and Schindler (2008) observed that most exploratory research uses a qualitative method to guide the study in social and business studies. Therefore this study is qualitative that involved the methodical collection, organisation, explanation, and clarification of textual, oral, or visual data (Creswell & Creswell, 2014).

Research techniques, including the traditional literature review and document analysis, were consulted to ensure that suitable materials have been cited. This procedure was planned to have a multifaceted view of the Covid-19-Pandemic and its influence on SMEs and how ICT can be used in response to movement restriction and social distance to facilitate the business transaction. Related material was collected and synthesized about coronavirus, SMEs, ICT adoption theories, leadership, and stakeholders to provide a broad overview in this research. Document analysis was used as part of our review process. As a result, reports were reviewed from institutional websites such as the International Labour Organization (ILO), the World Bank (WB), the United Nations (UN), Rwanda National Institute of Statistics (NISSR), the WHO, and many other government agencies, and published journal articles. The researchers followed Dey (2005), who argues that "… in documentary analysis, the criteria for selecting documents, or for focusing on particular extracts, should reflect the issues on which the researcher is seeking evidence." Concerning Covid-19 and its effect on industries, the literature review is strictly restricted to publications from Rwanda. The ICT strategies to recover economic crises in business are proposed below.

Findings and Recommendations

ICT strategy for achieving SMEs long-term sustainability and economic recovery in Rwanda

Tech firms are well-positioned to help SMEs recover during and after the COVID- 19 pandemic economic crisis in obtaining necessary funding, adapting to new business models, and eventually returning to work securely. As they are primary economic drivers in the "new age," they are the product and service suppliers with the know-how and financial flexibility to assist SMEs in their transition to a digital age. SMEs could take advantage of Google incentives, for instance, online advertising credits that allow SMEs to increase their visibility online and social media like YouTube, among others that they can target new consumers; selling online their products and services (Brandon & Grigory, 2020).

Google, Salesforce, Microsoft, Mobile money, among other tech companies, have shown a strong contingency response to support SMEs in coping with the lockdown and social distance restriction due to COVID-19 by providing the software that facilitates Busines-to-Business (B2B) and Business-to-Consumers (B2C). The researchers referred to B2B as an online transaction conducted between two or more Businesses. In the same time, B2C referred to online transactions conducted directly between businesses to consumers. Many SMEs have benefited from e-commerce. The Cellphone was useful communication technology that brought together B2B a B2C to conduct business transactions and pay (mobile money) to reduce in-store shopping and personal physical contact. Nevertheless, some SMEs could not adopt ICT to take advantage of e-commerce because of a lack of ICT Skills (Brandon & Grigory, 2020).

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A sustainable economic recovery builds on ICT during and after COVID 19 pandemic requires a synergized effort between the different actors, such as entrepreneurs, government, vendor, Private Sector Federation (PSF), academia, and consumers, among others. This required strategies and actions to be achieved. These strategies including those suggested by Union European (EU) and World Bank such as liquidity support, digital skills, investment, cyber security & standards, digital sovereignty, and taxation (European Digital SME Alliance, 2020; World Bank, 2021).

Liquidity Support

COVID-19 pandemic is not only affecting public health, but it also creates an economic crisis in all business activities. SMEs are no exception. The adoption of ICT is one of the SMEs' measures to survive the economic crisis caused by the COVID-19 pandemic. However, digitalization and success require a radically changing business model supported by ecosystem entrepreneurship, ICT skills, and consumer behavior's to embrace digital technology. The government should allocate funds to support SMEs to avoid bankruptcy in the same time save jobs. Also, it should allocate capital for SMEs to integrate ICT and enable them to develop ICT programs to sustain their businesses. The SMEs represent around 99% of businesses in many countries, including Rwanda and the EU (Rwanda, National Institute of Statistics of Rwanda, 2018; European Digital SMEs Alliance, 2020). Therefore, it is crucial to empower Rwanda SMEs to innovate the ICT software instead of being end-user of large corporate companies' products.

ICT Skills

The implementation of ICT into SMEs requires digital skills. The SMEs' government, PSF, academia, and other stakeholders should work together to promote ICT skills focusing on specific skills needed in a particular business. The ICT education and training should not limit entrepreneurs and employees and extend to those unemployed to enhance their chance to find job opportunities in the digitalization business world.

Investment

As SMEs represent a large portion of businesses establishment over the world, they could play a capital role in digitalization research and development (R&D). Perhaps 50% of the funds the Rwanda government allocated to digitalization should be given to SMEs. This will decrease a digital divide gap in digitalization R&D which is captured with the large companies and academics. The telecommunication infrastructure should be developed in rural area to enabling SMEs in rural areas to embrace digitalization technology. As many SMEs in rural areas are connected to farming, adapting, and using ICT into their SMEs could add their production value and improve the income and social-economic development.

Cyber Security & Standards

As SMEs embarks on innovation technology, implementation, and use of ICT into their businesses, they need cyber security to protect their software from digital attacks. The SMEs in Rwanda are a heterogeneous group that calls for ICT standardization. The International Organization for Standardization (ISO) is the largest global standard organization with 165

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country members, including Rwanda, that provide common standards (ISO, 2021). The question raised here is "what do SMEs benefit from ISO"? ISO promotes SMEs products by ensuring the consumers' safety and reliability; help SMEs achieve the regulation requirements at an affordable price; decrease the costs across all levels of SMEs; and help SMEs access the global market, among others (ISO, 2019). The Cyber authorities and the government should collaborate with the Private sector federation to develop cybersecurity. Rising SMEs' access to ICT standards is a positive move for the business transaction between SMEs and consumers, particularly in the COVID-19 pandemic period. It is crucial that SMEs access ICT standards that will facilitate consumers easy access to their products and services contribute to ICT innovation, and find an ICT sustainable solution. In the long-term, the government and stakeholders should reinforce their strategies by empowering SMEs in know-how to ensure an effective ICT transformation among the SMEs, particularly those of women who faced the gender digital divide.

Digital Sovereignty

Raising the problem of ICT dependency and search a sustainable solution by supplying the ICT tools locally. This provides benefits to embracing the digital ecosystem and as well the digital market. The adoption and use of ICT among different actors, for instance, Rwanda government, health departments, private sector, SMEs, consumers, among others, may increase the exchange of information among the actors, facilitate a business transaction, supply chain management, increase social-economic development and, perhaps e-health solutions, track and prevent COVID-19 digital. The creation of SMEs' digital platform could facilitate the consumer to access online SMEs products, services, and supply chain to move the product where needed. Furthermore, ICT facilitates the implementation and success of marketing mix strategies called 7Ps, product, price, place, promotion, people, process, and physical (Opute et al., 2020). The recent study of Rwigema (2020) revealed that in SMEs in Kigali, 16% of SMEs were not affected by the pandemic; 44% experienced a loss of 50-100%. While, 28% faced 25-50% loss. At the same time, the minority 12% of SMEs surveyed knew a loss of 0-25%.

Taxation

The taxation should support the SMEs' adoption, integration, innovation and use of ICT, and supply of ICT material by providing fair taxation as SMEs complain about current complex taxes in Rwanda. The following section suggests a future study.

Recommendation for Future Studies

This study has focused on how ICT in Rwanda can be used to recover from the economic crisis due to the COVID-19 pandemic in SMEs and how ICT can be deployed to enable consumers to access the SMEs' information on their products and services during the COVID-19 pandemic lockdown restrictions. It also extended beyond the COVID-19 pandemic by recommending the best practices that the SMEs could apply to be more competitive, efficient, effective, and innovative. Much research from the point of finance, digital technology, government, and stakeholders' role is needed concerning economic recovery in SMEs, particularly women before the COVID-19 pandemic struggling for growth and sustainability. Future studies should investigate the challenges faced by consumers to adopt and use ICT to buy products or services from SMEs via online and social media platforms and their online shopping

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expectations post-COVID-19 pandemic.

CONCLUSION

The purpose of this paper was to explore the effects of the COVID-19 pandemic on SMEs in Rwanda and how digital technology adoption can help SMEs recover the economy during and the post-pandemic. The measures taken such as restriction of people and goods movements, lockdown, social distance, ban of borders to slow down the contamination spread, and death have caused management dilemma and business distress. Many managers, particularly SMEs, do not have enough information on keeping business running while complying with the pandemic protocol. Exploratory qualitative method using document analysis has used to review the current literature to have a deep understanding, information, lesson learned, and best practice to help management make short and long-term decisions to economic recovery, overcome management dilemma and business distress. The review of the literature revealed that many SMEs closed could not survive. Others, the loss of income range between 25-90%. For instance, wholesale and retail trade, repair industries that employed 848 327 (7.62%) of countrywide workers and contributed 9% in GDP lost 90% of income, and manufacturing employed 265 948 (2.39%) of national-wide employees. It contributed 8% to GDP by 2019. Agriculture, forestry, and fishing represented many workers 7 809 347(70.14%) and contributed 25% in GDP by 2019, losing 25% of the incomes (United Nations Development Programme, 2020).

Despite the negative impact of a pandemic on SMEs, it opened a window of opportunities in PPE, for instance, sanitizes and masks. Entrepreneurs are enjoying great profit in supplying PPE (United Nations Development Programme, 2020). The adoption of ICT and use in SMEs has been identified as the best practice for economic recovery, conducting a business transaction, and avoiding in-store shopping. The Internet can support SMEs; it is known as a robust search engine to identify new markets. It has rescued many businesses in distress. Mobile money can be used to pay bills. It suggested that a sustainable economic recovery builds on ICT during and post- COVID 19 pandemic requires a synergized effort between the different actors, such as entrepreneurs, government, vendor, Private Sector Federation (PSF), academia, and consumers, among others. This required strategies and actions to be achieved. These strategies including liquidity support, digital skills, investment, cyber security & standards, digital sovereignty, fair taxation (European Digital SMEs Alliance, 2020; World Bank, 2021).

This study is significant; it seeks to adopt digital technology in Rwanda SMEs and other developing economies to recover economic during and post-pandemic to save jobs, GDP, and Taxes collections. To do so will drive society to sustainable development and eradication of poverty.

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