**Digital Transformation of South African SMEs: Ecosystemic Network Framework**

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**Abstract**

The global wave of coronavirus pandemic has constrained small, medium-sized enterprises to seek out ways to survive. The pandemic has propelled businesses to review their system of operation and embrace the endless benefits inherent in the digital world. However, there is a dearth of empirical studies on digitalization in the context of SMEs. In order to address this gap, this paper explores the prospects for the digital shift among South African SMEs. A descriptive survey anchored in both qualitative and quantitative research methods was utilized using a Likert scale questionnaire as a tool for data collection, hence, two hundred and forty-six (246) SME owners operating in Durban, KwaZulu-Natal province of South Africa were engaged as respondents. It was found that the major barriers to digital transformation among the small business owners include: the reluctance of SMEs owners to experiment with digital tools, the risk-aversive nature of the entrepreneurs, limited financial resources and inadequate digital skills. The outcome of this study further indicates that 71% of South African SMEs are at risk of retrogressing due to inadequate revenues and weak integration networks. Hence, this paper advocates timeous succor for these SMEs in order to ensure their longevity. Based on the finding, an SMME-centric framework is designed and recommended.

**Keywords:** Digital technology; digitization; digitalization; ecosystemic network; digital transformation.

**1.**     **Introduction**

Businesses have a unique opportunity to turn the challenges of the COVID-19 outbreak into meaningful change. In addition, organizations and consumer behaviours are changing at a rapid pace as a result of the pandemic's new challenges, SMEs are trying hard to seek out ways to weather the storm and this includes creative ideas as well as proactive actions. A report which emanates from OECD (2020) also affirms that businesses of various sizes, across all sectors are progressively embracing the new wave of digital tools adoption in developing nations such as Mauritius, Egypt, Kenya, India and Malaysia among others. Hence, this suggests that the development of digital economy is a crucial strategy for growth.

Digital transformation of an enterprise is a phenomenon that has progressively evolved as a new horizon to pursue in modern economies (Langley & Boostra, 2021). Digital marketing can increase overall business marketing effectiveness by 25% and businesses that use digital tools and technologies grow faster than those that do not (Schimdt, 2020). This implies that digital marketing bridges the gap between an enterprise and clients, thereby widening the market share of the enterprise.

Research shows that leveraging digital transformation provides immediate benefits to small businesses (Stewart & Bolton, 2020). The SMEs differ in terms of industry, size and level of experience. In spite of the differences, digitalisation generally enhances enterprise competitiveness before and after the corona virus crisis. Digitalization enables SME’s to reduce costs of production, automate daily operations and minimise extreme reliance on human labour (Trenkle, 2021). Hence, it is remarkable that going digital enhances SME’s level of competitiveness.

In spite of the tremendous dividends of digitisation, the rate of digital tools adoption among the small firms is still low compared to the rate at which large organisations embrace the use of digital resources (OECD, 2020). The main impediment is a lack of understanding of how to use available digital tools in business activities. Unlike large corporations, SME’s often lack the resources required to digitise all functional areas of business (Uvarova & Vlanseko, 2021). This suggests that SMEs lack the capacity to channel financial and human resources towards digitalisation in most cases.

Smaller businesses have suffered disproportionately as a result of their inability to reach their customers during the pandemic. Small businesses usually cater to niche markets. They frequently rely on community-based sales channels such as foot traffic in the neighbourhood, farmers markets, trade shows, local events, and in-store promotions, all of which were severely hampered by the pandemic (Roy & Das, 2021). In contrast to large corporations, small businesses have the resources to quickly adapt their operations and reach out to customers through mass advertising and digital marketing campaigns. Data allows a company to make more precise and timely business decisions.

Further to this, Roy & Das (2021) notes that digitally transforming a business for long-term growth has a lot to do with how capable a small business is, and it entails far more than simply implementing digital technology. The highly digital enterprises have adjusted to the concept of automating the various functional areas of business, such as, marketing, accounting, human resource and production to an extent that their sales volumes have skyrocketed four times than the sales volumes of enterprises that fail to adopt digital tools. This implies that mere adoption of technologies and solutions is insufficient, a passive adoption of digital tools may not produce the desired result if the users are not digitally literate.

From observation, South African entrepreneurs are desperate to weather the storm brought by the coronavirus pandemic hence, the belief that making use of any of the free digital tools on the internet will put them in a better position to remain relevant in the market. By implication, the use of popular internet resources such as Facebook and Instagram seems to be the norm. It is paramount to note that the adoption of a few digital tools is just the commencement of the digital transformation journey and not its end.

**1.1 Peculiarities of Small and Medium-Sized Enterprises**

In South Africa, a significant proportion of the SMEs operate in the underground economy, however, they possess similar characteristics with the small entreprises in the cities. The challenges of small business enterprises in the cities are quite similar to in the townships. It is notable that SMEs in the townships are often overlooked in spite of their invaluable contribution to nation building (Dremel & Uebenickel, 2018). Hence, it is paramount to note that operators of SMEs are generally characterised with lack entrepreneurial skills, limited resources, poor innovation culture, and propensity to operate in isolation.

The inadequate infrastructure in the townships also raises concern about the vulnerability of small firms therein. Hence, this paper argues that concerted efforts need to be made by government and relevant stakeholders to provide adequate support for SMEs both in the cities and the suburbs.

Based on the foregoing, the study raised the following questions:

1. To what extent are South African SMEs aware of basic digital tools required to enhance enterprise sustainability?

2. What are the barriers to the digital transformation of SMEs operating in South African townships?

3. What is the level of digital tools adoption among South African SMEs?

4. What conceptual framework can be developed to address enterprise digitization barriers in the South African township economy?

**2.**     **Theoretical Explanation**

According to Mitchell (1969), social network theory involves dimensions of human relationships, it explains how people network favourably in order to achieve common goals. Mitchell (1969) had proposed that persons tend to derive certain categories of support from association or groupings to which one belongs. Because of SMEs' limited resources, hence, network integration becomes a critical factor on their journey to digitalisation (Guijaro & Ribeiro, 2009). SMEs can embrace appropriate digital instruments by virtue of their affiliation with suitable entrepreneurial networks.

Certain steps are involved in determining network integration capacity. First and foremost, SMEs require the ability to detect potential networks. Then, it is imperative for SMEs to interact favourably with entrepreneurial networks in its domains and utilise the benefits which the networks offer. (Forsman, 2011). Another source of SMEs' innovation capacity is their propensity to fraternise with government and private organisations (Lasagni, 2018), it is paramount to also note that SMEs will benefit maximally by embracing vertical partners such as higher education institutions and institutes of research.

**3.**     **Research Methodology**

A general approach to solving a problem is often referred to as research methodology. It is an arrangement through which a researcher gains access to research participants and a strategy of collecting information from the participants. It is an approach through which knowledge is gained, it requires gathering, measuring and analysing data and producing the outcomes (Berg, 2011).

Literature review was carried out to explore the work of various scholars on digitization with regard to SMEs during the pandemic and adapted to South African situation, in addition, actual data for the study was collected from two hundred and forty six (246) SME owners operating in Durban, KwaZulu-Natal province of South Africa. A self-designed questionnaire was employed to gather information from SMEs owners across all sectors in the study area. Raosoft sample size calculator x = Z(c/100)$^{2}$r(100-r) was employed to determine the sample size, hence, *n = 246*. Where *E=Sqrt (N-n) x/n/N-1).* A purposive sampling approach was adopted, it enables the researchers to collect data from the SMEs only, across all sectors. Maree & Olivier (2019) affirm that purposive sampling is strictly used when a researcher has a specific target in mind. Thus making it easier to understand the dynamics of digitization of small, medium-sized enterprises in the area under study.

In the era of pandemics, many initiatives assigned to bridge the gap between businesses and consumers do not actually respond to the real needs of SMEs. A summary of the basic concepts of digital transformation are presented below:

**4.1       Understanding Digital Transformation**

The use of modern digital instruments to enhance business effectiveness, improve customer satisfaction and increase the level of productivity of an enterprise is known as digital transformation (Fitzgerald & Fitzgibbon, 2014). Digitization is a phase that leads to digitalization, as a result, digital transformation is a combination of digitization and digitalization processes (Roswell- Jones 2012). This could entail digitizing manual processes or replacing moribund digital systems with more capable tools.

According to Ibid. et al. (2018), digital transformation is the process of introducing digital resources into daily business operations in order to achieve economies of scale and enhance customer satisfaction. The success of digital transformation in an establishment could be measured by the ease at which the enterprise access existing customers, attract new customers and widens its market share (Dremel & Uebenickel, 2018). Hence, digital transformation is not a spontaneous event, but rather a transition from an old order to a new order and it requires interactions between enterprise resources and units.

**4.2       Digitization**

Based on (Uber & Gatner, 2018) ideals, the process of transition from analogue to digital is known as digitization, it is the process of translation from analogue into an electronic format that can be stored and transmitted. Digitization, according to more recent literature, is the process of transforming data into computer-readable format. As a result, digitizing is simply the process of converting analogue source material to a numerical or decimal format.

**4.3       Digitalization**

Digitalisation is broader than digitization. Rachinger et al. (2019) defines digitization as a foundation for digitalization. After the conversion of the analogue system into digital, an organization then needs to take a step further to digitalize the enterprise by replacing human effort with digital resources in order to create new sources of revenue in addition to existing revenue sources according to Gartner (2020). Digitalization, according to Ryynanen and Hyyrylainen (2018), is defined as the steadily increasing use of digital technologies in people's daily lives. Transformation entails a reimagining of how business operations are carried out from the views of modern society in order to create the desired results.

**4.4       South African Context**

This paper recognizes the contextual nature of the discourse surrounding digital transformation globally and the fact that a system that works in the western world might not produce the desired results in Africa. Tremendous progress has been made in terms of enterprise digitization in the western world over the last two decades (Modiba, 2020), however, in developing countries, particularly in South Africa, the effort of the South African government to make the nation more digital has not produced significant results. In order to salvage the situation, the business units are trying on their own to experiment with available opportunities that exist in their domains (Modiba, 2020). Conversely, the issue of size is often considered whenever matters pertaining to small and medium-sized businesses are being discussed, the size standards for defining the small and medium-sized enterprises in African context have been changing continuously.

**Table 1.          Size standards for defining SMEs in South Africa**

|  |  |  |  |
| --- | --- | --- | --- |
| **Category of firm** | **Workers**  | **Turnover**  | **Year-end financial report** |
| Micro Small  | Less than 51 to 49  | Less than R1mPeak R13m  | Peak R0.1mPeak R5m  |
| Medium  | 51 to 200  | Peak R51m  | Peak R19m  |

 Source: South African Government Gazzete (2020)

Above is the illustrative overview of size standards for defining small and medium sized enterprises in South Africa. It indicates the analysis of the number of employees and level of capitalization required for a business to be categorized as SME’s in South Africa. It is critical for all businesses, large and small, to go digital in order to survive (Moyo, 2019). However, many South African SMEs are still lagging behind in terms of digital tools adoption as a result of a variety of constraints. An in-depth review of literature suggests that most of the existing models are strictly compatible with large and global companies. In South Africa, there is no known study that has focused on a sustainable pathway for SMMEs to become effectively transformed.

**Literature Review**

**4.5** **The Organizational change led path**

The organizational change-led path clarifies the modern and sophisticated tools that are required by firms to widen their market share. Digital channels, according to Marchand & Muller (2020), is actually the smart way of gaining access to clients. The company must launch its internet platform, revamp its stores and fully embrace the social media. It also needs to retrain its workforce to use sophisticated digital tools, as well as launch a variety of online campaigns.. The technological tools are straightforward. It is all about popular innovative technologies such as digital marketing, online payments, Facebook, instagram, Google analytics and other social media to enhance customer satisfaction. Majority of its solutions are digitally light (Marchand, 2020). This framework highlights various digital tools that SMEs need in order to access new customers, but there was no detailed information about how individual business owners could identify the most suitable digital tools for their establishments.

**4.6       Novartis technology-led path**

The Novartis device is capable of performing various operations in a systematic and stylish manner. Novartis' selling model was completely transformed by this technological device. Sales representatives’ lifestyles improved as sales calls were recorded on the spot and they could briskly complete all of their travel and expense reporting between doctor visits, reducing after-work administration. There are four stages involved in this technology-led path (Liu & Fang, 2021). The Novartis framework has resulted in increased sales force engagement around the world, with better experience for customers and improvement in the sales volume. Most importantly, the division's operating culture is changing as a result of the digital transformation, as more customers are allowed to be part of the transformation team (Plueckebaum, 2020). Hence, Novartis technology focuses on digitizing sales functions; however, the majority of small business owners may not have the financial resources to purchase the tool.

**4.7       Agile Project Management Framework**

Agile project transformation framework enables organizations to modify their products and the manner in which the products are delivered. It enhances the level of collaboration between customers and the enterprise. Above all, the probability of achieving the set objectives is increased (Griffin, 2021).The nine steps of the modification of the business model include forming a transformation committee, ensuring resources, producing a document that outlines the vision and addressing human resource availability, setting goals and objectives and emphasizing the objectives, and establishing a collaborative and empowered team. Develop an implementation plan that takes priority into account; begin implementing identified goals; regularly monitor and evaluate progress; if possible carry our regular control to ensure compliance; celebrate success and move on to the next objective (Griffin, 2021). Based on the foregoing, it is clear that hiring a consultant is a necessary part of the management framework, which may be prohibitively expensive for small business owners.

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**4.8       Digitization Piano Digital Business Transformation Framework**

The digital business transformation network illustrates how effective digital transformation effort can lead to organizational improvement. The framework looks into how basic interaction between employees, customers and partners can enhance enterprise performance (Bradley & Keane, 2015). Theoretically, introducing modern technologies in an attempt to effect change will result in tremendous enterprise transformation, according to this conceptual framework's theoretical principle. The framework's foundation is that a company's leadership must decide what kind of value it wants to create and assess the strategic options for achieving it. The structure of digital transformation also highlights several aspects that an enterprise should take into consideration in the journey towards transformation (Udovita, 2020). The implication of the forgoing is that the framework is quite versatile in evaluating the efficacy of newly adopted digital tools, however, the effectiveness of the system is still debatable.

**4.9     Digital Innovation Strategy Framework**

The framework is an effective strategy for establishments that intends to evaluate digital products and services as part of their journey to create a better customer experience. The user experience and value proposition are covered by-products. Nylen and Holmstrom (2015) emphasize that the nature of some organization is traditional such that certain aspects of their operations cannot be completely digitized, therefore, a proposed Digital Innovation Strategy Framework for evaluating and refining digitalization process of such traditional organization was designed and recommended by Nylen and Holmstrom (2015). The aspect of the environment needs to be taken into cognizance, which includes scanning for digital evolution, and the organization, which includes skills and improvisation. The framework's main flaw is that it is solely focused on the quantity of goods and services offered.

**4.10     Digital Transformation Framework**

The Digital Transformation Framework, developed by Matt et al. (2017) is another strategy that explains how the digital processes in an organization are planned. The structure of the framework proposes that the digitalization of an organization supersedes all other central concepts such as setting priorities, planning and digital implementation. The financial aspect of this framework is the primary driver and motivator, a novel method for proper internalization of the dynamic digital transformation, in which the focus of a business owner is on long-term sustainable growth and benefit. Through the explanation of the key components of digital transformation, the framework creates a vital academic foundation for understanding digitization (Matt et al., 2017). It is worth noting that while this structure was formulated and developed within universities, it still needs to be evaluated and approved as a solid framework for understanding digitization. As a result, the development process is still in its conceptual stage.

**4.11     Digital Reinvention Framework**

Digital reinvention framework is based on the proposition that businesses should embrace a bottom-up approach transformation strategy, the digital experience of employees really matters in this situation. As a result, they should place a greater emphasis on experience rather than productivity. Rachinger et al., (2019) further explains that the framework outlines a path towards reformation of enterprise operating models using an "experience-first" approach based on digital drivers such as block chains, the internet, cloud technology, internet of things and other innovation instruments. The framework is based on three core organizational priorities: the development of new skills, new working methods, and the creation of a new focus. The theory's primary flaw is that it appears to be more theoretical. Its practical application is not adequately described.

**4.12     Van-Tonder Digital Transformation Framework**

Tonder's Framework had proposed that small firms should focus on creating new products or modify the existing products in order to satisfy customer satisfaction. According to Gartner (2020), a digital customers is someone who buys and sells products and services using technology. This process necessitates the use of resources. This refers to whether or not a company has the resources to incorporate digital technologies into its business model (Bharadwaj et al., 2013). Alternatively, the company must assess whether existing capabilities can be transformed into digital capabilities. It is noteworthy that small firms may not possess the level of capacity and resources emphasized in the Van-Tonder framework.According to the reviewed digital transformation frameworks, the financial situation of South African SMEs is not taken into account in the vast majority of cases. Large corporations clearly have the financial resources to acquire cutting-edge technology, as evidenced by the literature. Below is a summary of selected articles on current digital transformation strategies.

 **5. Findings and Discussion**

The findings were presented based on three identified themes which include the level of awareness on the part of SME owners of the necessity to go digital, barriers to digital transformation of SMEs and the digital tools level of adoption among the SME owners.

**5.1 The level of awareness on the part of SME owners**

Based on respondents’ views, the adoption of digital tools are quite necessary in order to ensure the survival of businesses especially in the era of coronavirus pandemic, 78.79% of the participants responded affirmatively that it is necessary for all SMEs to go digital to survive the pressure brought by the coronavirus pandemic. Since the responses from the majority of the participants are similar, to avoid unnecessary repetition of remarks, the unique remarks from the participants include: Innovative and digital tools are needed to ensure the sustainability of a business in this era of the pandemic, digital tools are necessary, digital tools are expensive, the digital tools are easier for large firms to acquire. Financial constraint is the major reason why SMEs find it difficult to buy digital tools.

Based on this finding, it is evident that the participants were adequately aware of the relevance of digital instruments to enterprise-level of competitiveness especially in the period of pandemic. This finding echoes the view of OECD, (2019) who affirms that digitalisation provides abundance of benefits for small firms to upstage barriers they face in their bid to innovate. This finding is also consistent with the findings of Gantz & Reinsel (2020), who posit that the present state of the pandemic is a death sentence for many large organisations. SMEs are also affected, as they continuously rethink their business models in order to survive the current crisis and similar future events. The finding is further corroborated by Gosling (2021) who affirms that people, especially SMEs are now getting familiar with living in a digital world. This implies that existing businesses need the application of digital technology to survive, further, it is also imperative for new start-ups to be fortified with appropriate digital instruments right from inception.

South African Digital Masterplan of 2020 is an initiative that intends to promote knowledge sharing and champion the need to stimulate SMEs to take advantage of the digital shift. The initiative paves way for the sustainable digital transition and eliminates roadblocks to SME digitisation. However, by implication, the efforts of the South African government and other stakeholders to offer succour and strength to the business sector during the pandemic have not yielded any significant result, therefore, each of these business owners has been trying on their own to find solutions to the predicament.

**5.2 Barriers to Digital Transformation of SMEs**

The respondents were of the view that SMEs are faced with numerous challenges in their bid to go digital. Amongst these challenges are: the reluctance of SMEs to experiment with digital tools, the risk-aversive nature of entrepreneurs, limited financial resources and inadequate digital skills.

Based on the view of 47.2% of the respondents, one of the biggest transformation barriers in the context of SMEs in their domain is their reluctance to experiment with modern technologies. For many small businesses, the safety of holding on to what they are conversant with seems preferable to trying out a new invention. This finding is in line with (Almer, Ashad and Habtoor, 2018) who aver that the entrepreneurial orientation of small firms’ owners is a major determinant of their level of digital business practices.

According to (OECD, 2020) It may take a considerable length of time for small firms to consider digital tools adoption. In his own view, Mckinsey (2020) submits that digital transformation will be successfully implemented when firms are becoming more innovative and are willing to experiment with new things.

Further, it is noteworthy that the use of technological instruments involves some levels of risks, 39.7% of the respondents opined that the fear of the unknown is a major roadblock to digital transformation prospects in their domain. Based on the foregoing, organisations need to be fully aware that the adoption of new digital tools is usually an experimental process, which involves some levels of risks. Hence, the risk-aversive nature of some SME owners which could be explained as the fear of experimenting with new digital tools tends to make the digital transformation process an uphill task. The conservative nature of small firms is the reason why they are unwilling to finance digital transformation ideas. Without any doubt, small firms that hesitate to invest in innovation are indeed at risk of falling behind.

Digital transformation could be costly, 88.1% of the respondents remarked that the problem has to do with a lack of funds, this suggests that the majority of the SME owners lack the required capital to invest in digital initiatives. 32% of the respondents operating small firms subscribed that they struggle to acquire digital tools whereas, the relatively bigger firms were better positioned to embrace modern technological tools. This finding echoes the view of Gosling (2021) who affirms that digitization project in a medium-sized firm tends to be quite effective when at least a few of the employees therein possess adequate digital skills, hence, As a matter of necessity, SME owners should consider bringing in new staffs that are digitally smart in order assist in promoting the culture of innovation in the system. The SMEs digital lag is associated with a range of constraints and barriers, including digital skills gaps and financial incapacity (OECD, 2019). Hence, the digital skills and knowledge of a small business owner are directly related to the possibility of the firm embracing digital technologies.

**5.3 Digital tools level of adoption**

Digitisation of enterprises is in levels. Concerning the question of categorising the participants based on their levels of digitization, 4.06% of the participants claimed that their businesses were sufficiently digitized, 57.58% of the participants were still experimenting with a few digital tools and the remaining 30.30% of the participants were not sure of their digital status. This finding contradicts (Mckinsey) 2020 who submits that the era of experimenting with digital tools is over, a blueprint for success does not exist anywhere. Thus, it is imperative for individual enterprise owners to study the success stories in the same line of business in order to understand what works and what does not.

In the same vein, Hughes (2012) affirms that effective digital transformation cannot be attained by leveraging on the talent within an organisation. Entrepreneurs need to research other organisations in order to attract digital talent. This implication of the foregoing is that there is a tendency for entrepreneurs to get hooked on the status quo. A passive adoption of one or two digital tools by an entrepreneur does necessarily mean the business is sufficiently transformed, the effectiveness of digital instruments is key. It is crucial for individual entrepreneurs to challenge the status quo rather than embrace the classical tradition.

Concerning the question about the digital tools that are being used by small business owners, 14.3% of the participants were yet to adopt any digital tool, while 85.7% of them claimed that they make use of ‘Facebook and WhatsApp only’ to connect with customers, however, 2% of the participants had a unique response, they remarked that they experiment with Facebook and Google Analytics. A closer look at the results also showed that 17% of small firms have adopted at least one digital technology, as compared to medium-size firms which have attained around 78% level of basic digital uptake. A fundamental discovery from this finding is that the majority of the participants equate digitisation with the use of ‘Facebook and WhatsApp only’. This finding contradicts the work of Mckinsey (2020) who emphasized that successfully transformed businesses used advanced digital tools and technologies than those that did not. The implication of the foregoing is that, in the journey of enterprise digitization, the adoption of a few digital resources such as Facebook and WhatsApp only is grossly inadequate.

The survey outcome further revealed that 72.8% of the participants were unaware of the existence of the following free digital tools; Mail marketing, Google Analytics, Free Website Builder WX, Online Service Software and G-suite. This finding indicates a need for a digital awareness program for small business operators.

This finding is in line with the work of Gosling (2021) who affirms that the progress of digital transformation in an ecosystem depends on leadership. Digital leaders need to be familiar with digital technologies in order to enlighten other firms about the existence and the use of new digital resources. This implies that it is imperative for a business owner to network and make adequate consultation in order to make the right choice of digital technologies. All digital technologies may not be suitable for all business enterprises.

**Summary**

The findings presented above showed clearly that majority were adequately aware of the necessity for SMEs to go digital, however, they were ignorant of the specific digital instruments required to kick-start the transformation journey. The major digital transformation barriers as highlighted by the respondents were: the reluctance of SMEs to experiment with digital tools, the risk-aversive nature of entrepreneurs, limited financial resources and inadequate digital skills. In terms of the level of digital uptake, the majority of the small business owners were still experimenting with digital tools, less than ten per cent of firms were sufficiently digitized.

**6.**     **The Proposed Ecosystemic Network Framework**

An effort to chart a sustainable pathway to rescue small firms from the devastating effect of the coronavirus pandemic is the rationale for the proposed framework, this is vital in South Africa where the pandemic has led to the demise of numerous SME’s. The current research findings suggest that South African SMEs are characterised with limited resources and weak networks. The foregoing signifies a need for effective network integration among the SMEs. The framework underlines the need for relevant digital instruments for various calibres of SMEs, especially in South Africa where the digital literacy level is still relatively low. The framework is tailored to the needs of small firms in South Africa and other developing nations in similar circumstances.

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| **Path C****Highly digitized SMEs*** *Advanced digital tools*
* **Automate all areas of accounting, marketing, production and HR**
* **Keep evolving, build future digital tools**
* **Technology support to other SMEs**

**Partners & Enablers****Government Technology Support****Employers Networks****Association Networks****Industry and academia****Entrepreneurial Networks****University transfer offices****Software Engineer/Employees** **Customers** **Path B****New entrants into the digital world*** *Limited digital tools*
* **Leverage on new streams of revenue to acquire more digital instruments**
* **Partner with a good software engineer**
* **Pursue digital literacy**
* **Transform the product**
* **Transform the delivery**
* **Explore the global market**

**Progression from path A to C** **Path A****SMEs without any digital tools*** *All transactions happen face to face*
* **How can customer service improve?**
* **Research your Industry and Competitors**
* **Connect with networks in same sector**
* **Embrace digital literacy & innovation culture**
* **Find a good partner to help**
* **Adopt one/few digital tools whose efficacy is already tested and trusted**
* **Cultivate a culture of Innovation**
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**Figure 9: Proposed Ecosystemic Network Framework Source: Authors**

The framework’s first proposition is that it is imperative for SMEs to chart their own digital paths based on its financial capacity and the nature of business, however, the small firms may not operate in isolation. The second proposition is that effective digitization of business is a continuous approach, there will be new occasions, challenges and chances, brought upon the market by new technologies. The third proposition is that the market share of all SMEs can be widened with the use of relevant digital tools, hence, ‘one cap fits all’ syndrome may produce negative results in a bid to choose digital instruments. This framework therefore recommends ‘digital literacy for all’ irrespective of users’ areas of human endeavour.

In contrast to providing common paths for digitization of SMEs as submitted by Boring et al (2019), Brunetti et al (2020), McKinsey (2021) and Oladejo (2021). The current framework does not suggest any specific digital tool for any category of SMEs, rather the choice of digital tools should be based on a firm’s level of resource endowment and the sector in which the firm operates. This suggests that each enterprise might have to chart its own path. SMEs, unlike large firms, lack the financial capacity to hire experienced digital experts to install and activate the use of sophisticated digital instruments. Therefore, such SMEs may have to first digitize their sales functions and would have to affiliate with relevant entrepreneurial networks in order to step up their ladder of digital progress. Turner, (2016) notes that SMEs have limited capabilities to innovate on their own, therefore, they may have to adopt innovations, then modify them to serve a required purpose.

Due to the low level of digital literacy among SMEs, especially in the townships. It can be challenging for an emerging entrepreneur who intends to adopt digital tools to figure out where to start from, this make it imperative for small firms to collaborate and consult with vibrant entrepreneurial networks in their domains for succour. Such collaboration is an excellent way to enable the nascent SMEs acquire digital skills. As indicated in figure 9, this framework would require the active participation of some of the following stakeholders subject to accessibility:

       Government Technology Support

       Employers Networks

       Association Networks

       Industry and academia

       Entrepreneurial Networks

       Incubators and accelerators

       University transfer offices

There should be interrelationship and interconnections between the key players in order to ensure effectiveness of the proposed framework in figure 9. As a matter of necessity, due to their individual uniqueness, SMEs will have to adopt different paths to digital transformations. Different levels of digitalisation are attainable subject to the ability of an enterprise to get involved in partnering and networking in the ecosystem. Small firms that are struggling to register their presence within the digital space may step up their ladder of progress by finding partners who possess excellent digital capabilities. The framework will require frequent evaluation and observation of progress in order to identify the need for modification.

**7.**     **Conclusion and Recommendation**

South African SMEs have generally been sluggish to embrace digital instruments in spite of the numerous dividends that new technological tools offer. Evidence from the study suggests that there is a significant degree of decline in digital tools adoption in relation to firms’ size. Hence small firm owners seem to be less interested in digitalisation. At the macro level, the digital gap that exists between SMEs has proved to contribute significantly to inequalities among South African people and communities.

Digital transformation is a journey and it does not happen overnight. It may require the application of numerous kinds of technologies for various objectives. Identifying the transformation path is the major problem confronting every small business owner. To ensure the success of the digital transformation initiative in the context of SMEs, a small business owner should be eager to network and acquire knowledge about the dynamics of digitalisation from the experiences of other similar firms that are making progress in this regard.

The implementation of the model can begin in the university business advisory unit in which this study is conducted, encouraging the small business owners in the community and educating them on the need to partner with relevant entrepreneurial networks in their domains, vibrant entrepreneurial networks are platforms through which knowledge transfer can take place. A certain level of flexibility is required in order to modify the framework based on users’ needs in some particular contexts. Thereafter, frequent evaluation and control measures can be established to examine the efficacy of the framework.

If South African SME’s are to experience successful transition into the digital age, they must acquire core digital skills. In order to offer real value to consumers, SMEs are required to introduce digital instruments into all spheres of their operations. Above all, the digitalization of SMEs is not meant to enhance the level of productivity of businesses only, it will ultimately lead to the development of the national economy.

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