





Exploring the Business Value that South African Services-Oriented Micro-businesses Derive from Mobile Applications

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Abstract. Small and Micro-Sized Enterprises (SMEs) play a significant role in economic development, job creation, and poverty alleviation. Despite the many advantages SMEs provide for an economy, they still face a range of challenges and have an alarming survival rate. This study examines the business value that organisations derive from the adoption of mobile applications, considering the positive impact that digital technologies can have on an organization's success. This research focuses on SMEs which are classified as personal service establishments in the Western Cape. The study was guided by a conceptual framework that combines the Technology-Organization-Environment framework, the Technology Acceptance Model, and the M-Business Value model. A thematic analysis approach was used to analyze the data collected through semi-structured interviews. The research shows that the value SMEs derive from mobile app users is a result of the apps being used to drive both sales and marketing and streamline internal operations. Based on these findings, SMEs found that they could derive business value from mobile applications when it was aligned with the task required.

Keywords: Micro-business · Mobile applications · Business value · M-Commerce · Mobile adoption · South Africa

1 Introduction

Small-medium enterprises (SMEs) cannot compete competitively without properly adopting technology at the correct market levels [1]. “Performance” can refer to both intermediate process-level measures and organizational measures and revealed two contributors to performance being both efficiency and effectiveness [2]. Business process performance entails the operational efficiency of specific business processes within an entity and their measures, including information sharing, flexibility, and inventory management [2].

However, South African SMEs experience several barriers in adopting technology such as lack of IT literacy, lack of internet access, and software [3]. Mobile technology could alleviate some of the traditional IT barriers. This study, therefore, explores the impact that mobile applications have on SMEs in South Africa by looking at business value derived and how it is derived.

The main goal of this study is to explore what business value SMEs in South Africa derive from the use of mobile applications. Current literature identifies a growing number of SMEs adopting mobile technologies in South Africa to solve their problems; however, there is a lack of research outlining what value is derived from mobile applications by SMEs and what influences its adoption [4]. This study's objective is to understand the experiences, understanding and meanings that respondents may have concerning the mobile applications in South African service-oriented micro-business. The questions this research aims to answer are: "*How do they use mobile applications to drive value?*" and "*What value do these micro-businesses derive from the use of mobile applications?*".

2 Literature Review and Theoretical Framework

2.1 Definitions

For the context of this study, a small business is a "distinct business entity managed by one owner or more" [5]. The act categorizes SMEs into four different categories being micro, very small, small and medium enterprises. Micro-businesses are classified as those with less than 10 employees, a turnover below ZAR200,000 or an asset base of less than ZAR500,000. For ease of reading, the *micro-businesses in this study are referred to by the more universal "SME" acronym.*

Mobile apps are applications that are installed or are accessible on mobile phones or smartphones, and These applications offer up a range of functionalities by utilising the hardware of the device it is installed to collect, retrieve or store data on the device or a virtual cloud [4]. Apps can be either native, web apps or hybrid applications. Statistics relating to the number of application downloads in South Africa could not be obtained. However, internet penetration in South Africa has grown by 4.5% between 2020 and 2021 and now stands at 64%, with 38.19 million internet users [6].

2.2 Application of Mobile Apps in SMEs

Mobile applications impact a business's success in two ways: streamlining communication within an organisation and external communications makes communication more accessible and affordable [7]. It can access the internet through cheaper platforms such as social media and allow businesses to have a global reach cost-effectively through these social media platforms. The second way is by streamlining admin tasks in a business, mobile devices provide convenience as they simplify access to business records and documentation when one needs them.

With the growing adoption of mobile technologies in Africa, SMEs are turning to them to find solutions to their problems [4]. However, SMEs face barriers in adopting mobile apps, such as a lack of ICT skills, financial resources, and high dependence on business partners. There is also a lack of awareness of ICT benefits and the perception that adoption is costly [8]. ICT adoption in developing countries is hindered by many obstacles, including and not limited to lack of facilities, technological capabilities and lack of legal determinants. Most African developing countries struggle with finances which impacts infrastructure development and a poorly skilled population to support development [9].

SME owners were asked whether technological limitations are an obstacle for them to grow their business. Fifty percent of the participants responded that technological limitations pose an obstacle. Unstable internet access was the main obstacle, as depicted in Fig. 1 [3]. The reasons cited by these SMEs as obstacles to their adoption also include software, tech skills and hardware. The cost of data is a significant barrier to accessing stable internet access, mobile data is the most pervasive method of connectivity, with 71 percent of SMEs reporting to use mobile LTE networks (SME South Africa, 2020). The average cost of 1 Gb of data in South Africa is \$7.50 compared to the average cost of \$4.90 in Kenya or \$2.80 in Uganda [10].

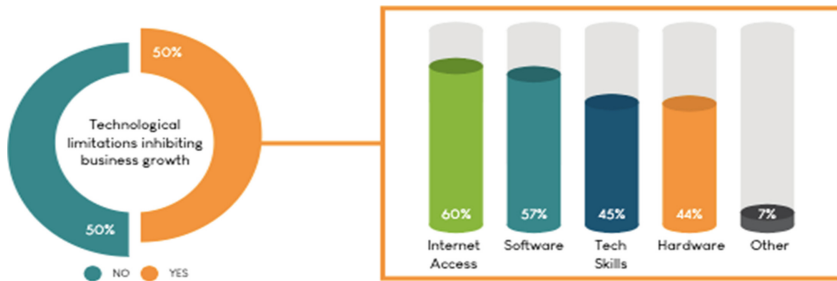


Fig. 1. Tech limitations inhibiting business growth [3].

2.3 Business Benefits of Mobile App Adoption

Mobile technology opens up enormous benefits for SMEs. Technology has enabled SMEs to access new markets, reduce costs, and improve efficiency and competitiveness [3]. Businesses need to adopt processes and technology that will allow them to bring about services that will give them a competitive advantage [11].

Technology has proven to positively influence small businesses within the Gauteng province, affecting in two ways via their productivity and through their competitiveness. Mobile applications impact a business's success in two ways: streamlining communication within an organisation and external communications, making communication more accessible and more affordable [7]. It can access the internet through cheaper platforms such as social media and allow businesses to have a global reach cost-effectively through these social media platforms. The second way is by streamlining admin tasks in a business, mobile devices provide convenience as they simplify access to business records and documentation when one needs them [7]. They enable businesses to improve their productivity and streamline their communications which therefore gives them a competitive edge. A business's growth is a function of mobile tech for its business processes and a founders' intent to grow it and argues that it is also dependant on the nature of the business, its industry and strategy [12]. [12] also contends that mobile phones in business activities had the most significant effect on business growth when coupled with a robust entrepreneurial spirit.

Technology adoption is becoming more affordable and necessary to survive in today's ultra-competitive business environment [13]. Empirical evidence shows that small and

medium-sized enterprises cannot achieve competitiveness and remain profitable without proper technology adoption [1]. Mobile technology adoption has improved business productivity which can be attributed to communications, market solicitation, social interaction and operational cost reduction [11].

2.4 The M-Business Value Model to Understanding Mobile App Adoption by SMEs

The M-Business Value Model (Fig. 2) is used to help understand the impact of mobile applications on an organisation's value chain activities that bring about business value. In this model, the business value is the impact on value chain activities such as sales and marketing and internal operations. With this model, mobile app usage drives business value and task requirements influence the usage of mobile applications [14]. This conceptual framework being utilized to add value to the understanding of what value businesses derive from mobile applications and how a business uses mobile applications drive value in certain business areas.

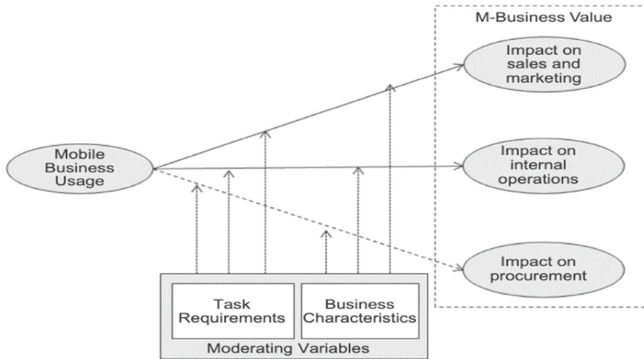


Fig. 2. M-Business Value Conceptual Model [14].

3 Research Methodology

This study takes a qualitative approach to investigate SME respondents' experiences, behaviours, organisational interactions, and contextual phenomena around mobile applications to unpack their impact on their business [15]. Maximizing efficiency and validity is the goal of sampling methods. Qualitative research allows for the research participants' subjective meanings, actions, and social contexts to be illuminated [16]. The use of qualitative research is beneficial when the research focuses on complex issues, such as human behavior and felt needs. Consequently, qualitative research aims to enhance our understanding of social phenomena by drawing on the views and experiences of all participants.

Purposive sampling was adopted as a technique to select potential candidates. Purposive sampling seeks to select individuals by virtue of their knowledge and experience

[17]. Identifying and selecting information-rich cases relating to the phenomenon of interest is a widely used method of qualitative research (Patton, 2002). This approach works well with the qualitative approach when taking into consideration the importance of availability and willingness to participate, as well as the ability of participants to articulate, express, and reflect on experiences and opinions. A list of potential candidates was drawn up by obtaining a list of laundry services, beauty salons and accommodation establishments in the Western Cape through Google search and neighbourhood scoping. Potential candidates were then contacted via phone and email. Participants were given a list of mobile apps based on [4] and 5 common barriers SMEs face when adopting mobile applications extracted from the SME South Africa landscape report [3]. This was followed by a semi-structured interviews which asked demographic information and questions around what motivates them to select particular mobile applications, the business value derived from using the apps, and any barriers they face in adopting mobile apps. Thematic analysis was used to analyse the interview transcripts. The research was subject to the research ethics guidelines of the University of Cape Town and informed consent was obtained from all respondents.

4 Findings

4.1 Demographics of Respondents

This study examined ten micro-businesses in the service industry, with 1 to 7 employees each (Table 1). The majority of respondents were in management positions within the organization, with 60% of respondents stating that they held an ownership position and 20% holding a management position. Five SME owners said they hired part-time staff when there were new projects, so the number of employees fluctuated. The SMEs have been in business from one to twelve years.

Table 1. Micro-businesses sampled.

Number	Business type	Professional position	No. of employees	Business age (Yrs)
DC1	Hair salon	Owner	2	4
DC2	Nail Parlour	Senior Employee	1	1
DC3	Hair salon	Owner	3	5
DC4	Laundromat	Senior Employee	2	2
DC5	Laundromat	Manager	5	6
DC6	Hair salon	Owner	2	12
DC7	Laundromat	Owner	7	5
DC8	Nail Salon	Owner	3	3
DC9	Laundromat	Manager	3	2
DC010	Laundromat	Owner	2	1

4.2 Mobile Application Adoption

Mobile App adoption was driven by four major themes: namely ease of use, accessibility, sales/promotion and speed.

Ease of Use

SMEs stated that what largely influenced their adoption of mobile applications was their ease of use. This was reported by respondent DC6 who said: “Yah like apps that are easy to use, that I can just find my way around without needing my son to explain how to use it.” The ability of an app to be simple to use was perceived as a key criterion influencing the adoption of mobile applications. Respondent DC3 confirmed the need for mobile applications to be easy to use by stating: “These apps I use like WhatsApp make it easy to talk to my customers. A lot of my customers find me through these apps and talk to me there.” The ability to facilitate bookings was identified as a factor influencing the adoption of mobile applications, as it meant that they’d be able to conduct their services.

Accessibility

All SMEs stated that the ability to access and reach more customers played a large role when deciding which application to adopt: “For the current market, I’d say like, if you’re looking at the youth of today, and everyone’s on apps. So with that regard, I’d say that has helped a lot getting more people when they pick up the phone.” [DC5]. The ability to reach more customers is also influenced by the popularity of the applications and what most customers are using. “So the main reason behind, like, using certain apps is just because to keep up with what customers are using, and what the world is doing.” [DC6]. Using applications that allow businesses to access their customers enables them to also engage with new customers that find them via word of mouth. “like after I did a job nice you go you send me a friend, that happens via WhatsApp then I talk to them and plan when they come to me.” [DC3]. In turn, accessibility brings them more clients thus more sales: “The main benefits? I just mentioned that you get a lot of customers, which brings me more money” [3].

Business Operations

SMEs noted that their adoption of mobile applications was significantly influenced by the tasks that they performed. These tasks were common tasks that entailed communications, sales and promotion. This was supported by DC6: “They help with saving time, you know, instead of waiting and do other things, with this kind of apps that is available you get things quicker, you know, the times that you waste waiting for people, you can use the apps, you can reach people in time, and you can do banking in time and again, you know.” The ability to perform business tasks quickly and effectively was perceived as an important feature offered by mobile applications as SMEs could improve on their marketing strategies and reach more customers in one go. This is highlighted by DC5: “Process for deciding was speed because if you’re trying to get a hold of, say 100 people in a short amount of time, then the WhatsApp application or messenger application on Facebook or SMS system will work a lot faster than having to pick up the phone and phone. Yeah, generally just speed.” In addition two respondents, although less common, stated that they adopted mobile applications to facilitate payments, stating that: “Okay,

we mostly dealing with students, so they don't go out with cash most of the time, so they got to swipe and also to avoid being robbed. We don't like to keep to keep cash on us."

Competitive Pressure

Five SMEs implied that they adopted applications due to competitive pressure. They used apps to reach customers in the same way as their competitors: "Yeah there're a lot of laundry stores and we have similar customers, so we had no choice but to also be on socials just to keep up" [7]. This sentiment was also emphasized by DC8: "Everyone is on socials; we have to be there so we don't lose out customers to other stores."

4.3 Mobile Application Usage

Figure 3. shows the application usage by function. Social media use ranks highest although payments/collections and selling products/services rate relatively highly too. Organisation/scheduling, job management and information analysis is hardly used.

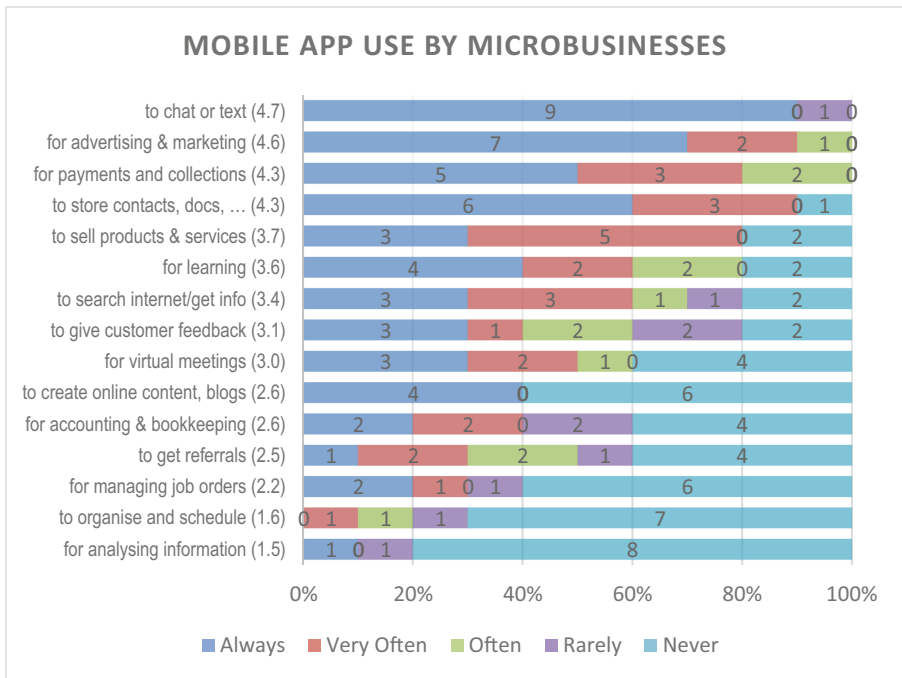


Fig. 3. Mobile app usage (data from fieldwork; mobile apps from [4]).

The underutilisation may be due to a lack of contextually appropriate applications or a knowledge gap. It is possible to use the Excel mobile app for bookkeeping as a temporary fix, but it is not necessarily appropriate. However, that many SMEs reported using manual means to plan their schedules and conduct their bookkeeping: "I just like write it down. So that I know when the other a pick up tomorrow they know who's

coming in and who's paid." [DC4] and "No, no, I write it down or keep it in my head; when I use the phone, I can write it in my notes app." [DC3].

4.4 Business Value from Using Mobile Applications

This section presents and discusses findings related to the Business Value theme and its two sub-themes as presented in the M-Business Value component of the conceptual framework. The sub-themes are namely Impact on sales and internal operations.

Impact on Marketing and Sales.

Firms can benefit significantly from using mobile technologies and applications to enhance their sales- and marketing efforts marketing-related activities. Since more and more clients use their mobile devices, phones or other mobile devices to perform different types of tasks, using mobile applications has been recognized as a key channel in the interviews. All respondents emphasized the importance of mobile applications that they could have a positive impact on this organizational dimension. In fact, applications that are relevant to sales forces could increase sales and allow the products to be positioned more effectively on the shelf. For DC3, for example, Despite the fact that mobile applications are used by a variety of users (e.g. senior employees, managers and owners), they strive for the same goal: the improvement of client services through sales, marketing, and after-sales customer support. As our interviewee stated: "Even more people come in when I post online, [...] more than when I didn't post".

Because the business uses online marketing, a broader audience can search for the services they need using their phones. Mobile apps can also improve customer service. Some respondents noted that mobile apps allow companies to: "respond faster to customers and stand out from other businesses that use the same services". Even if it does not provide a competitive advantage, some companies must offer some type of mobile functionality in certain contexts, such as banking.

Clearly, there are many benefits for clients: improved client experiences, motivated employees who are more client focused and the business is able to respond to client demands, enhancing client service e.g. mobile banking, for example. DC5 supports this capability: "We kind of had to use the Snapscans and Yocos, so we don't turn away customers who don't have cash and find it easier to do things electronically."

The use of mobile applications also allows for faster responses to client requests, which has significantly increased customer satisfaction. One interviewee cites texting as a useful tool in facilitating communication with clients. Another example is when the client makes an inquiry about availability in hopes to make a booking, that client can quickly receive a response. One of the informants reinforced this finding revealing that they send bulk messages to their clients if they have a promotion and reach 100 people in one go.

Impact on Internal Operations.

The internal dimension of business value derived from mobile applications indicates that businesses can reap substantial benefits from using mobile technologies and applications to execute internal business processes and support employee tasks. SMEs recognize that mobile applications are useful for managing internal operations. They found that

they were useful in improving internal operations, such as making client responses and updates timelier. In one instant, the respondent explained there was an improvement in communications and productivity service turnaround time, as the time to contact other branches or clients was cut down and time to troubleshoot cases of special laundry items being brought in, “Like when I need to refer to them sometimes call me or ask me, as far as in time need to come all the way to Observatory when there’s another branch? Oh yeah, yes, I just refer them to the nearest branch, which is the one in town. And whatever they want to know, this saves us and client time and makes them happy”. The increase in productivity increases employee satisfaction as they are able to respond more rapidly to clients.

The comments of respondents also indicate that mobile applications play an important role in facilitating communication among employees. They recognize that it is a good way to pass information among mobile workers, allowing workers to be more flexible at work, which is associated with their increased motivation. One of the interviewees (DC1) explained: “part-time worker comes in when she needs to, I message her when I need her help so she doesn’t come in when she won’t work”.

SMEs interviewed agreed that mobile apps could make information more accessible and easier to analyse, especially when urgent and critical decisions need to be taken. DC1 supports this by saying: “Trends are always changing, and I always get clients wanting something I never heard of so I go to Pinterest or YouTube to learn it so I don’t lose customer.”

5 Discussion

The findings from this study have addressed the value that micro-businesses derive from the use of mobile applications by investigating the adoption of mobile apps and the factors that influenced the adoption as well as the reasons why mobile applications are being utilized. It was found that the main reasons behind utilizing applications is chat/text as well as marketing related activities, this pointed to the greatest value of mobile applications is derived in marketing and sales activities as well as for internal operations. The impact of mobile applications on marketing and sales activities and on internal operations, this aligns with the Business Value theme presented in M-Business Value component of the conceptual framework which speaks on the impact of value chain activities. The sections below will discuss findings further.

5.1 Mobile Application Adoption

The **ease of use** and **accessibility** of an application is essential in the adoption of an application to ensure that value is derived. This study recognises 2 types of business value, being impact on sales & operations and impact on internal operations as observed by [14]. [3] says technical skills are an issue amongst SME founders; hence applications that are easy to use and understand will be used by SMEs. As observed by [4] participants highlighted that the adoption of mobile applications was heavily influenced by its ability to access their customers through namely chatting, customer feedback and referrals. This is due to respondents noting that the accessibility of customers via mobile

devices is crucial for the promotion of their business and communication flow so that information can be shared and feedback provided [1].

Participants also adopted mobile applications in order to remain competitive, they noted their competitors used them; thus, they also had to increase their customer base and sales. This finding is in accordance with [13] who noted in their findings that technology adoption is becoming more affordable as well as a necessity to survive in today's ultra-competitive business environment and [1] who said "small and medium scale enterprises cannot achieve competitiveness and remain profitable without proper adoption of technology at the right market levels".

5.2 Mobile App Usage

Benefits derived from mobile app adoption in SMEs which are communications, market solicitation and social cohesion according to [11]. It was found that mobile applications are frequently used for customer interactions for feedback and bookings as well promotions that's are being run via text/SMS or being run on social media applications due to their speed and efficiency. Applications that were used most frequently amongst SMEs were found to be Whatsapp, phonebook and Google. Whatsapp is used by all SMEs to communicate with customers and employees due to speed and cost-efficiency, it was the most popular application used and used across functions across customer feedback, referrals, chatting and promotions, this was anticipated given that 89% of South African internet users using it per month [6]. Social Media applications scored highly via their adoption and this can be explained by how a majority of respondents use mobile applications for their sales and marketing activities.

5.3 Business Value of Mobile Apps

The business value derived from mobile applications which stem from the m-business conceptual framework discussed above. The findings from the study acknowledge that mobile app usage plays an integral role in driving business value for SMEs as identified by [14]. Participants identified that **sales and marketing** were promoted through mobile app usage which afforded SMEs the ability to respond quicker to their clients demands which increase customer satisfaction and the ability to communicate and interact with clients through various channels which aided in relationship building. It was also noted that respondents felt that the impact on sales and marketing allowed for to remain competitive in their respective environments. Participants also identified the impact on internal operations was promoted through mobile app adoption, with which they identified to be client communications which entail bookings and feedback, service turnaround time and as well as payments through the use of banking applications. Respondents felt the impact of mobile application on internal operations improved their productivity and efficiency by simplifying their internal processes and increasing organisational flexibility which supports the findings of [2].

6 Conclusion

The first research question presented was: *What value do micro-businesses derive from the use of mobile applications?* All respondents stated that they adopted mobile applications to communicate more easily with the customer and to conduct sales and or promotions. Almost all the respondents always use their applications for chatting and texting, and most always use mobile applications for marketing and promotions. So they derive business value from the impact of the mobile application on sales and marketing as well as from internal operations. In addition, through the use of these applications, they were able to reach a broader audience and improve their customer services as they were able to respond faster to customers and in turn increase their sales. They were also able to improve productivity and efficiency by simplifying their internal processes such as bookings and internal communications and increase organisational flexibility by keeping up with trends.

The second research question was: *How do South African service-oriented micro businesses use mobile applications to drive value?* Mobile applications promoted various value drivers and presented the usages that promoted business values. SMEs primarily derived business value from sales and marketing as well as from internal operations. The ability to derive business value was encouraged by two factors, namely the ability of an organisation to adopt a mobile application and to use an application to promote accessibility and business operations. Common apps to drive business value included chatting and texting, marketing and sales as well as payments and collections.

As a limitation, this study may not accurately represent the entire population of SMEs in South Africa due to a limited sample of 10 respondents being used for the study. Language was another limiting factor as some respondents did not have English as their native language, thus may have omitted information when answering questions and may have misinterpreted the question being posed.

This study found that SMEs were able to utilize mobile applications, realise critical value drivers, and derive business value from mobile applications. Future studies could explore what capabilities SME owners are not utilizing from their mobile applications and what the infrastructure gap is in order for them to effectively adopt mobile applications.

References

1. Eze, S.C., Chinedu-Eze, V.C., Bello, A.O., Inegbedion, H., Nwanji, T., Asamu, F.: Mobile marketing technology adoption in service SMEs: a multi-perspective framework. *J. Sci. Technol. Policy Manage.* **10**(3) (2019)
2. Barua, A., Kriebel, C.H., Mukhopadhyay, T.: Information technologies and business value: An analytic and empirical investigation. *Info. Sys. Res.* **6**(1), 3–23 (1995)
3. SME South Africa: SME Landscape Report (2020). Available: <https://smesouthafrica.co.za/south-africas-smes-landscape-report>. Last accessed 20 September 2022
4. Owoseni, A., Twinomurinzi, H.: Evaluating mobile app usage by service sector micro and small enterprises in Nigeria: an abductive approach. *Info. Technol. Develop.* **26**(4), 762–772 (2020)
5. Republic of South Africa: National Small Business Act 102. *Government Gazette* 27 (Nov 1996)

6. Kemp, S.: Digital 2021: South Africa. <https://datareportal.com/reports/digital-2021-south-africa>. Last accessed 20 September 2022
7. Agwa-Ejon, J.O.H.N., Mbohwa, C.H.: The impact of technology on small, micro and medium scale enterprises in Gauteng South Africa (2006)
8. Chaua, N.T., Denga, H.: Critical Determinants for Mobile Commerce Adoption in Vietnamese SMEs: A Conceptual Framework. *Procedia: Computer Science* **138**, 433–440 (2018). <https://doi.org/10.1016/j.procs.2018.10.061>
9. Kossai, M., Piget, P.: Adoption of information and communication technology and firm profitability: Empirical evidence from Tunisian SMEs. *The J. High Technol. Manage. Res.* **25**(1), (2014). <https://doi.org/10.1016/j.hitech.2013.12.003>
10. Research ICT Africa: Cheapest price for 1GB basket in Africa by country. *ResearchICTAfrica.net*. Last accessed 20 September 2022
11. Melchioly, S.R., Sæbø, Ø.: ICTs and development: nature of mobile phones usage for SMEs economic development - an exploratory study in morogoro, tanzania. *Int. Feder. Info. Proc. (IFIP) Techni. Comm.* **9**(4) (2015)
12. Chew, H.E.: The Effects of Mobile Phones in Social and Economic Development: The Case of Female Micro entrepreneurs in Chennai. Michigan State University (2012)
13. Khaskheli, A., Jun, Y., Bhuiyan, M.A.: M-commerce and mobile apps: opportunities for SMEs in Developing Countries. *J. Int. Bus. Res. Mark.* **2**(2) (2017)
14. Picoto, W.N., Bélanger, F., Palma-dos-Reis, A.: M-business organizational benefits and value: a qualitative study. *J. Organi. Comp. Elec. Commer.* **23**(4), 287–324 (2013). <https://doi.org/10.1080/10919392.2013.837789>
15. Rahman, M.S.: The advantages and disadvantages of using qualitative and quantitative approaches and methods in language “Testing and Assessment” research: a literature review. *J. Edu. Learn.* **6**(1), 102 (2016). <https://doi.org/10.5539/jel.v6n1p102>
16. Fossey, E., Harvey, C., Mcdermott, F., Davidson, L.: Understanding and evaluating qualitative research. *Australian and New Zealand Journal of Psychiatry* **36**(6), 717–732 (2002). <https://doi.org/10.1046/j.1440-1614.2002.01100.x>
17. Ritchie, J., Lewis, J., Ormston, R., Nicholls, C.M.: *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. Sage Publications, London (2013)