

An Investigation of the Government-Related Factors that Inhibit Small to Medium Enterprises' Adoption and Effective Use of Information and Communication Technology in Developing Countries: The Case of Zimbabwe

Peter Makiwa and Riana Steyn

Department of Informatics, University of Pretoria, Pretoria, South Africa

pmakiwa@gmail.com, riana.steyn@up.ac.za

Abstract.

The utilisation and adoption of information and communication technologies (ICTs) in small to medium enterprises (SMEs) around the world has had a significant effect on most economies, and has resulted in sustainable growth and prosperity. This has led most global governments to develop an interest in the development of SMEs; however, most SMEs in developing countries, including Zimbabwe, are still ages behind their counterparts in developed countries with regard to the application of ICTs in business processes. The reviewed literature for this study indicates that the Zimbabwean government has failed to stimulate the adoption of ICT and its use in Zimbabwean SMEs in recent decades. This paper seeks to reveal key government-related factors and strategies that can lead to the effective adoption of ICTs in the SME sector. A case study and qualitative methodology was employed for this investigation. This facilitated an all-encompassing view of the phenomenon under study. The approach utilised semi-structured interviews to collect data, and employed a thematic analysis method. The research findings revealed that key factors that impact on ICT adoption in Zimbabwean SMEs include a lack of government support, poor policy formulation, implementation and awareness, a lack of finances, and inadequate infrastructure. Key strategies outlined in this paper include the introduction of ICT import subsidies, tax rebates for SMEs, the formulation of SME-friendly policies, the expansion of electricity and Internet infrastructure to marginalised areas, and the establishment of government ICT centres to stimulate the adoption of ICT and its use in SMEs.

Keywords: Small to medium enterprise; Information and communication technology; Government policies

1 Introduction

According to Abor and Quartey [1], small to medium enterprises (SMEs) account for more than 70% of new jobs in both developing and developed countries, and play a critical role in enhancing gross domestic product (GDP). Globally, the adoption of

information and communication technology (ICT) in most SMEs has transformed the business landscape, resulting in critical social and economic developments that have stimulated every aspect of human life [2]. Meso, Musa and Mbarika [3] also point out that the integration of ICT tools in SME business processes will enhance their competitive edge in any economy.

Most SMEs in Zimbabwe still lack the means and knowledge to apply ICT effectively in their business operations, resulting in a lack of innovation, poor and inferior products and services, and an insignificant contribution to GDP [4]. Tsarwe [5] believes that the key driver of the adoption of ICT in Zimbabwean SMEs is the effective implementation of government policies and support. National policies have the potential to affect the adoption of ICT in organisations either positively or negatively, as policy-makers can coin policies that create an enabling environment that supports and encourages ICT use [6]. The Zimbabwean government's initiatives and subsidies have not had the desired effect on SMEs' adoption of ICT, and have lacked the appropriate support that could have positively influenced SMEs' use of ICT, hence the need for an effective guideline that supports implementation [7].

The adoption and integration of ICT in Zimbabwean SMEs continue to face severe setbacks that undermine all the government's efforts [5]. Martinsons [8] points out that the government is not aware of the reasons why SMEs are failing to effectively adopt ICT. Information on the challenges that SMEs face in adopting ICT is critical, and can facilitate the development of a guideline that can assist government in stimulating SMEs' adoption of ICT. Despite failing to realise policy goals, the government has not initiated an investigation into how it can play a role in curbing the barriers to SMEs' adoption of ICT.

The next section outlines the research question for the study, followed by a presentation of the study objectives and their significance. This is followed by a literature review which elaborates on the research context – which is the Zimbabwean SME environment and government involvement. The review also outlines ICT in Zimbabwe and ICT adoption factors. Section 2.5 outlines the study's theoretical framework, which consists of the Diffusion of Innovation (DOI) model, the Technology, Organisation and Environment (TOE) model, and the Unified Theory of Acceptance and Use of Technology (UTAUT) model. Section 3 discusses the study's methodology, and Sects. 4 and 5 present the study's results, analysis, discussion and contribution.

1.1 Research Question

What government-related factors inhibit SMEs' adoption and effective use of ICT in Zimbabwe?

1.2 Objective and Significance

This paper highlights the need for an investigation that reveals the government-related challenges that SMEs are facing in adopting ICT. It also recommends key strategies that can help the Zimbabwean government to effectively support SMEs in the adoption of ICT. The paper also reveals key guidelines that the Zimbabwean government can employ to equip SME owners to leverage sophisticated ICT tools and features which

facilitate staff training and development, in order to close the technological skills gap in most SMEs.

The significance of the paper lies in presenting evidence and findings that ensure that the government is better positioned to implement ICT policies and initiatives in Zimbabwean SMEs. It is also critical to mention that this paper's findings have a substantial effect on the information systems (IS) discipline that will equip the Ministry of Information and Communication Technology and Cyber Security (MICTCS), as well as the Ministry of Small and Medium Enterprises and Cooperative Development (MSMECD), and give them a deeper understanding of the adoption of ICT.

2 Literature Review

2.1 SMEs in Zimbabwe

The main governing authority of SMEs in Zimbabwe is the MSMECD. This Ministry insists that an organisation should meet certain criteria that relate to the legal structure, the number of employees, and the asset base, for the organisation to be defined as an SME in Zimbabwe [9]. Most SMEs in Zimbabwe are not legally registered under the Companies or Factory and Works Act; hence, these informal entities do not pay corporate tax, and their revenues are not part of the country's economic statistics [9]. The main criterion for SMEs' participation in this study was registration.

With over 300 000 graduates being churned out of the country's colleges and universities every year, SMEs have been earmarked to ease the potentially disastrous unemployment rate; however, only 28% of SMEs in Zimbabwe have more than one employee [10]. The contribution of SMEs to the country's GDP is assessed at 50% [11]. According to Mugozhi and Hlabiso [12], SMEs in Zimbabwe play a focal part in the nation's social and economic advancement. Nyoni and Bonga [13] add that Zimbabwean SMEs are the drivers of economic empowerment and development in the country's formal and informal sectors. Nyoni [9] ascertains that a more grounded SME sector in Zimbabwe can enhance the flexibility of the national economy by expanding and widening economic activity, and subsequently diminishing its weakness during intermittent shocks.

2.2 Zimbabwean Government Support for SMEs

The Government of Zimbabwe developed a small, micro- and medium enterprises (SMMEs) policy document that was affirmed by Cabinet in July 2002. This policy had the mandate to provide a mutual vision for all stakeholders in propelling the SME cause, and empowering them to attain their maximum capacity; however, the policies and initiatives proposed to enhance the growth and sustainability of Zimbabwean SMEs have had poor success, despite the government's effort to promote the SME sector, and the invaluable contributions of SMEs to Zimbabwe's economic development [9]. According to Ndlovu [14], this is mainly due to a plethora of issues that have beset the development of SMEs in Zimbabwe.

The key challenges that have seen the implementation failure of these initiatives are corruption in key government rankings, the lack of decisive leadership, a lack of infrastructure, SMEs' continued constrained access to credit, and, most importantly, the insincerity of purpose caused by senior government officials, and the beneficiaries' abuse of the various initiatives [14]. According to Naicker and Saungweme [15], huge amounts of money obtained from various institutions for the purpose of implementing these policies and programmes, have been diverted and spent elsewhere, which has resulted in these initiatives yielding poor results.

2.3 The Adoption of Information and Communication Technology in Zimbabwe

In recent years, Zimbabwe has seen the liberalisation of various ICT sectors [16]. Over the last decade, ICT in Zimbabwe has been characterised by an assortment of players who have been fighting to remain vibrant in offering efficient Internet, broadcasting and telecommunication services [17]. The government has set up regulatory bodies, such as the Postal and Telecommunications Authority of Zimbabwe (POTRAZ), as a way of acknowledging the critical value of ICT to the economic turnaround of the country [18]; however, the integration of ICT through online business operational platforms is still an unfulfilled dream, with most organisations still relying on traditional means of gaining a competitive edge [5].

2.4 Information and Communication Technology Adoption Factors

Margherita and Petti [19] point out key factors that affect the adoption of ICT, and reveal that effective ICT adoption requires the serious consideration of strategy, people, systems, procedures and culture. Margherita and Petti [19] also add that a systematic view of these elements is imperative in streamlining ICT adoption and process redesign.

Individual Context Factors: Literature recognises owners or managers as critical elements of the ICT adoption process in SMEs [4, 6, 20]. Factors that relate to the owner or manager are mainly concerned with executive decisions, including financial and resource commitments that are made to shape the organisation's direction.

The level of ICT knowledge is another fundamental factor that affects SMEs' adoption of ICT. If SME managers and other organisational members have an acceptable level of ICT knowledge, they can encourage the SME to embrace the appropriate ICT activities in its business [3, 10].

Organisation Context Factors: The support and attitude of SMEs' top management play a vital role in the adoption and use of ICT in the organisation. SME owners and managers are responsible for establishing an appropriate vision, culture and policy for the SME [21].

Among the difficulties that prevent the advancement in SMEs' adoption of ICT is the issue of financial capacity, as it identifies with the measure of resources a firm can utilise to acquire ICT assets for business execution, marketing and the delivery of products and services [22].

According to Zhelyazkov [23], one of the key factors that affect SMEs' adoption of ICT in developing countries, is the lack of proper guidance. Kabanda [24] highlights that most SMEs in developing countries lack the time, energy and ability to migrate to new technologies, mainly because of a lack of expertise, support and guidance.

The adaptability of the training system in an organisation will also affect the adoption of ICT, since this will determine ICT training policies, and how an organisation copes with technological changes, in most cases [24].

Environmental Factors: The government's role in providing different types of mediation has been referred to as a catalyst for the advancement of SMEs' adoption of ICT [2, 25]. Government support can come through policies that facilitate SMEs' operations in the country, institutional support for technological assistance and finance provision, and the sanctioning of well-articulated ICT business laws [26].

Researchers [8, 27] highlight that the capacity of developed nations to receive and utilise ICT at cutting-edge levels has been significantly improved by the proactive role their governments play in providing an enabling infrastructure to enhance the adoption of ICT. Tharayi and Wesley [28] and Alshmrany and Wilkinson [29] have also identified the culture of the business environment in the SME sector as a critical factor that affects the adoption of ICT. Kapurubandara [30] ascertains that an accessible and effective infrastructure is critical to the ICT adoption level of organisations. This relates to the cost and availability of Internet connectivity, electricity supply and the country's telecommunication infrastructure.

2.5 Theoretical Framework

This study utilised three theoretical frameworks: the DOI model, the TOE model and the UTAUT model to facilitate the identification and classification of government-related factors that affect SMEs' adoption of ICT in Zimbabwe.

The DOI model reveals that organisational innovation is directly linked to three elements. These are the external factors of an organisation, internal organisational characteristics, and individual characteristics [31]. The diffusion framework offers an all-encompassing guideline to study SMEs' adoption of ICT, as it contains relational perspectives, and the adoption of decision-making processes that conceptualise the adoption of ICT by SMEs in Zimbabwe.

The TOE framework that was developed by Tornatzky and Fleischer [32] ascertains that three elements (technology, the organisation and the environment) affect how an organisation adopts technology. These elements facilitate the identification of key ICT adoption factors in the framework. The drivers of the adoption of the TOE model are consistent with those in the DOI model, emphasising internal, external and individual characteristics.

The UTAUT model of Venkatesh, Morris, Davis and Davis [33] is the most popular model in the technology acceptance field, as it synthesises perspectives from top technology acceptance models. The model is built on four key constructs: effort expectancy, social influence, performance expectancy, and facilitating conditions. The UTAUT model facilitated the study, as it facilitated the identification of relationships between different variables and government-related ICT adoption factors in Zimbabwean SMEs.

3 Research Method

The research employed a case study strategy with semi-structured interviews, as the main data collection tool. The case study strategy was selected, because it is an ideal approach for an in-depth and holistic analysis and investigation of participants' views, thoughts, and behaviour in organisations [34]. Semi-structured interviews were conducted with three members of 12 SMEs in Zimbabwe. A total of 36 interviews were conducted with employees, managers, supervisors, owners, secretaries, functional officers and administrative personnel. This ensured a broader perspective of the study, as well as data triangulation.

The researcher used non-probability, purposeful sampling to select 12 cases from the population sample, which included the five major Zimbabwean cities of Harare, Masvingo, Bulawayo, Mutare, and Gweru. The University of Pretoria's ethics committee approved and authorised the study, and letters of consent were obtained from each of the participating organisations. The table below outlines the city of origin for the selected SMEs and the industries they represent (Table 1):

Table 1. SME's city of origin and industry

SME	Industry	Area of origin
A	Mining	Gweru
B	Retail	Harare
C	Hospitality	Bulawayo
D	Transport	Harare
E	Legal	Harare
F	Insurance	Mutare
G	Manufacturing	Bulawayo
H	Agricultural	Mutare
I	Manufacturing	Gweru
J	Education	Gweru
K	Retail	Masvingo
L	Technology	Harare

3.1 Data Analysis

The collected data was analysed using thematic analysis. The data was grouped into different themes based mainly on the literature review and repeated response pattern. The identified themes for this research included the following:

- Government's role in the adoption of ICT – This theme identified the role that government plays in facilitating SMEs' adoption of ICT.
- The significance of ICT in the selected SMEs – This theme identified how ICT was significant for the selected SMEs.
- The adoption of sophisticated ICTs – This theme highlighted the SMEs' level of inception of sophisticated ICT tools.

- Involvement of the owner or manager in ICT – This theme facilitated an understanding of SME owners and managers’ level of involvement in ICT initiatives.
- ICT barriers – This theme incorporated all factors limiting ICT adoption.
- ICT success factors – This theme included all factors that encouraged SMEs’ adoption of ICT.

4 Research Findings

Twelve SMEs participated in this research and 36 members of SMEs were interviewed. Four of the SMEs were based in rural areas, one was based in a semi-urban area, and seven were located in urban areas.

4.1 Government ICT Policy Awareness

With regard to the awareness of government ICT policies, some SMEs highlighted that they had some knowledge of the policies, but they could not elaborate on the critical elements of the policies.

SME A – *“I am not aware of any ICT-related policies that government has put in place. If the policy is there, then no one has brought it to our attention”*.

SMEs outlined that government has not made any efforts to make the relevant stakeholders aware of policies that affect SMEs, clearly highlighting that the mandates of the policies have not affected SMEs. Stockdale and Standing [6] point out that national policies could affect the adoption of ICT in organisations negatively or positively, as policy-makers can develop policies to create an enabling environment that supports and encourages ICT use.

4.2 Government Financial Subsidies

SME C – *“Government has neglected to inform the key stakeholders how to access subsidies because if you ask any small business in this area, there are none who know about the subsidies or know how to access them”*.

SMEs D and E highlighted that banks still charge them 30% interest, which is equivalent to the charge for large corporates. SMEs I, J, K and L also indicated that they had no access to government financial subsidies, and relied on unconventional means of obtaining funding for their business, including borrowing from friends and family. The other key point SMEs raised was the inaccessibility of cash from banks, which has made it nearly impossible to continue with business operations.

According to Mutula and Van Brakel [22], one of the key challenges that prevent advancement in SMEs’ adoption of ICT is the issue of financial capacity, as it allows SMEs to acquire ICT assets for business execution, marketing, and the delivery of products and services.

4.3 Government Support for SME ICT Adoption

When asked how they perceive the importance of government support in the adoption of ICT and its use in their organisations, participants made the following comments:

SME C – *“Government support would be very useful to our efforts to use and adopt ICT. The support should, however, be relevant and add value to small businesses”*.

SME G: *“I do not think government cares enough to assist marginalised small businesses like ours and the issue is that we do not even know where to go for help with issues related to ICT”*.

SME I – *“I think government support for small businesses like ours should be through the provision of infrastructure that facilitates ICT use. Government should facilitate the provision of affordable Internet and reliable electricity supply, which are key to the adoption of ICT”*.

The above comments confirm the environmental context that Tornatzky and Fleischer [32] highlight in the TOE model, which emphasises that SMEs’ adoption of ICT relies heavily on a supportive external environment. This includes government support in various forms, including regulations and financial subsidies that facilitate SMEs’ adoption of ICT.

According to Martinsons [8], SMEs in any economy require government support to realise their organisational goals and make a significant contribution to the nation’s economy.

4.4 Government Laws, Policies and Regulations

When asked if the current national laws, policies and economic regulations encouraged their business to adopt ICT, the interviewed participants presented the following responses:

SME A – *“The current government regulations actually bring constraints for small businesses, especially in the mining sector”*.

Participants from SMEs C and D also pointed out that the current national laws do not protect SMEs from exploitation and abuse by various institutions. The SMEs feel that, for their part in creating employment and alleviating poverty, government has failed to formulate regulations and policies that tackle SMEs’ challenges in a systematic manner. According to the participants, this will encourage SMEs to turn their attention from surviving the day-to-day challenges to adopting ICT.

A participant from SME G added that government policies and regulations should be developed in such a way that SMEs can also contend for government tenders. Obtaining tender documents to supply government departments should be decentralised, as the only place one can currently obtain the documents is in Harare.

SME L – *“The problem is that it is not so much government regulations, but the absence of social assistance and the lack of clarity and coordination that exists between government SME agencies and departments that wear small businesses down. The system is now characterised by frustrating bureaucratic procedures and penalties that discourage small business operation”*.

The above comments confirm the point raised by Teo and Ranganathan [10]. They state that the current regulatory environment in Zimbabwe is not designed to enhance

SME operations. According to Scupola [26], government SME support should come through practical and implementable policies that facilitate SME operations in the country, institutional support for technological assistance and finance provision, and the sanctioning of well-articulated ICT business laws.

4.5 Lack of Finances

Members of all 12 SMEs indicated lack of finance as a barrier to effectively implementing ICT in their businesses.

SME A – *“It is an expensive endeavour that is quite limiting for us. The cost of running a generator to support ICT initiatives is very constraining. We cannot afford to even upgrade. It is also difficult for us to access bank loans to fund ICT initiatives mainly because we do not have collateral”.*

SME L – *“Cost is key because, currently, state-of-the art graphic design software is beyond our reach. We would have to sell all our current hardware just to get our hands on that software”.*

The above confirms the point raised by Teo and Ranganathan [10] that most SMEs in developing countries do not have access to bank loans, and will most often fail to obtain capital to enhance their ICT efforts.

4.6 Electricity and Internet Constraints

The issue of electricity and Internet constraints was also pointed out as a negative factor that impacted on the adoption and use of ICT.

SME A – *“We do not have any connection to the electricity grid and we totally rely on the generator. This is discouraging, especially when it comes to using ICT equipment. Despite our location, the electricity grid lines are not far away, but our application has been sitting there for months”.*

SME D – *“Internet service is also very bad in that it frequently goes off. We have an asymmetric digital subscriber line (ADSL) connection that gives us problems almost every day. It does not help that it is also expensive”.*

Kapurubandara [30] also highlights the negative effect of the lack of reliable infrastructure on SMEs’ adoption of ICT.

4.7 Corruption

Eight of the participating SMEs pointed out that one of the major factors that limit their use and adoption of ICT, is rampant corruption in the departments that are linked to SMEs.

SME L – *“Indirectly and directly, corruption plays a critical role in the advancement of ICT, not only in the SME sector, but in the country as a whole. These people are selfish and will not part with money to advance SME initiatives”.*

5 Discussion, Recommendations and Conclusion

5.1 The Zimbabwean Government's Role in SMEs' Adoption and Use of ICT

This section discusses the research findings that relate to the Zimbabwean government's role in the process of Zimbabwean SMEs' adoption of ICT and its use. The insights gained from the research findings indicate that government has a significant role to play in stimulating ICT adoption in Zimbabwean SMEs.

5.2 Government Financial Subsidies

The research findings show that the Zimbabwean government has not offered SMEs any financial subsidies that would facilitate the adoption of ICT. Government has not stepped in to ensure that SMEs have access to cheap loans that would give them an incentive to acquire ICT tools for their businesses. Interest rates are too high for SMEs, and options to import ICT equipment are beyond the reach of these organisations, as they lack the financial muscle to do so. Mutula and Van Brakel [22] confirm the abovementioned point by arguing that SMEs struggle to perform on the same platform as large organisations, without effective government subsidies.

5.3 Government Support for SMEs' Adoption of ICT

The research findings from both the reviewed literature and the interviews indicate that government support for SMEs' adoption of ICT is a critical variable. Insights from the study findings highlight that the Zimbabwean government should provide support for SMEs in their efforts to enhance ICT adoption in their businesses. The government has been called upon to provide support through infrastructure development and accessibility for SMEs, including the provision of electricity and Internet connection. Support through financial facilities that are tailor-made for small businesses, was also indicated as being critical. A study by Martinsons [8] confirmed that various forms of government support can stimulate SMEs' adoption of ICT in any economy, which results in the realisation of organisational goals, and makes a significant contribution to the nation's economy. Nyoni [9] confirms the points mentioned above by pointing out that the assistance the Zimbabwean government has offered in recent years has been piecemeal, clumsy, and irrelevant to the critical needs of SMEs, including ICT adoption.

5.4 Government Laws, Policies and Regulations

Insights from the research findings indicate that the current Zimbabwean government regulations, policies and laws that relate to SMEs are actually a major constraint to the operation of small businesses. It is evidently quite difficult for SMEs to even consider the adoption of basic ICT, let alone that of advanced ICT in an environment where policies and laws are constantly squeezing the life out of them. Various studies also emphasise the constraining nature of the regulatory environment in Zimbabwe,

highlighting the absence of incentivised policies and schemes that have the potential to drive and stimulate ICT adoption by Zimbabwean SMEs [5, 9].

5.5 Corruption

The officials’ diversion of funds meant for ICT policy implementation has become common knowledge in business circles, and is indicated in the research findings. The UTAUT model of Venkatesh et al. [33] also highlights the importance of facilitating conditions that support the effective and efficient adoption of ICT in organisations. These facilitating conditions include a supportive and friendly business environment, in which government plays a key role.

5.6 SME-Friendly Policies and Subsidies

Another key driver of effective and successful ICT adoption highlighted in the research findings is the presence of SME-friendly policies and subsidies. Insights from the research show that well-formulated and relevant policies could change the ICT landscape for a country’s business environment. The empirical findings point out that there is limited knowledge and awareness of government policies that relate to SMEs. There is no in-depth understanding of what the policy entails. The abovementioned statement aligns with the views of Kapurubandara [30], who noted in a study in developing nations, that government policies play a critical part in the advancement of SMEs’ adoption of ICT.

5.7 Recommendations and Success Strategies

See Table 2.

Table 2. Success strategies

Factor	Success strategy
Enhance government support and initiatives	• Include an extensive consultative process with SMEs when formulating and reviewing policies, regulations and laws that affect the welfare of these organisations
	• Invest in a policy implementation framework that is measurable and quantifiable
	• Formulate SME-friendly policies that assist SMEs in the area of equity finance, and simplify loan acquisition processes for SMEs
	• Embark on policy awareness initiatives that ensure that all SME stakeholders are aware of the current portfolio of policies that affect their welfare

Factor	Success strategy
	<ul style="list-style-type: none"> • Set up government ICT centres in marginalised areas to facilitate the coaching and training of SME owners, and the employees on the value of ICT in business, as well as the identification of relevant ICT tools
	<ul style="list-style-type: none"> • Introduce tax rebates for SMEs that reduce the tax burden on SMEs
	<ul style="list-style-type: none"> • Introduce import duty subsidies for ICT equipment for SMEs
	<ul style="list-style-type: none"> • Implement active legislation against corruption, including the tracking and punishment of corrupt government officials
	<ul style="list-style-type: none"> • Enhance the relationship between SMEs and financial institutions, and suggest workable funding programmes
	<ul style="list-style-type: none"> • Include mandatory ICT training in the curricula of education and training institutions
Reduce electricity and Internet constraints	<ul style="list-style-type: none"> • Expand the electricity infrastructure to marginalised areas
	<ul style="list-style-type: none"> • Implement financial subsidies for SMEs for equipment that supplies alternative energy
	<ul style="list-style-type: none"> • Improve the quality of service by Internet service providers
	<ul style="list-style-type: none"> • Subsidise the cost of services for SMEs
Enhance SMEs' finance capacity	<ul style="list-style-type: none"> • Reduce interest for SME loans
	<ul style="list-style-type: none"> • Enable easy access to capital for SMEs
	<ul style="list-style-type: none"> • Enhance relationships between SMEs and financial institutions
	<ul style="list-style-type: none"> • Enable SMEs to diversify their product and service offerings in order to increase revenue streams

5.8 Research Contributions

This study has contributed considerably to the existing body of literature and the IS field, through the identification of the shortfalls of past studies with regard to the adoption and utilisation of ICT in developing countries, with specific emphasis on Zimbabwe. Empirical evidence from the study identified key constructs that have the potential to stimulate the effective adoption of ICT and its use by Zimbabwean SMEs. The study has also made a considerable contribution by identifying the role of government in a developing country in stimulating the adoption of ICT in the SME sector. This study has made a novel contribution through the identification of key stakeholders that hold the responsibility of enhancing ICT adoption in Zimbabwean SMEs.

This study has also contributed towards practice and policy, through the provision of a rich insight into the experiences of Zimbabwean SMEs in light of the adoption of ICT and its use. The experiences are outlined by the individual responses of the research participants. The analysis of the respondents' perceptions revealed critical areas where the Zimbabwean government needs to take responsibility, and be accountable for SMEs' adoption of ICT. The findings will benefit SMEs in Zimbabwe,

as they have exposed key entities and stakeholders that need to play their part to enhance the adoption of ICT.

5.9 Conclusion

Insights from this study revealed key government-related factors that affect the adoption of ICT and its use in Zimbabwean SMEs. Key factors identified included government support, policy formulation and implementation, infrastructure constraints, and access to finance. Significant research contributions from the study were highlighted. These included the identification of key government-related ICT adoption factors in Zimbabwean SMEs, as well as the identification of key practical strategies that government can utilise to stimulate the adoption of ICT by Zimbabwean SMEs.

References

1. Abor, J., Quartey, P.: Issues in SME development in Ghana and South Africa. *Int. Res. J. Finance Econ.* **39**, 218–228 (2010)
2. Sarosa, S., Zowghi, D.: Strategy for adopting information technology for SMEs: experience in adopting email within an Indonesian furniture company. *Electron. J. Inf. Syst. Eval.* **6**(2), 165–176 (2003)
3. Meso, P., Musa, P., Mbarika, V.: Moderating information and communication technologies' influences on socioeconomic development with good governance: a study of the developing countries. *J. Am. Soc. Inform. Sci. Technol.* **57**(2), 186–197 (2006)
4. Caldeira, M.M., Ward, J.M.: Understanding the successful adoption and use of IS/IT in SMEs: an explanation from Portuguese manufacturing industries. *Inf. Syst. J.* **1**(2), 79–85 (2002)
5. The Herald Business. <http://www.herald.co.zw/is-there-value-out-of-the-informal-sector>. Accessed 01 June 2016
6. Stockdale, R., Standing, C.: A classification model to support SME e-commerce adoption initiatives. *J. Small Bus. Enterp. Dev.* **13**(3), 381–394 (2015)
7. Baro, E.E.: A critical examination of information and communication technology policies: effects on library services in Nigeria. *Libr. Philos. Pract.* **3**(1), 464 (2011)
8. Martinsons, M.G.: Relationship-based e-commerce: theory and evidence from China. *Inf. Syst. J.* **18**, 331–356 (2008)
9. Nyoni, S.: Small, micro and medium enterprises (SMMEs). Policy and strategy framework. Republic of Zimbabwe (2012)
10. Teo, T.S.H., Ranganathan, C.: Adopters and non-adopters of business-to-business electronic commerce in Singapore. *J. Inf. Manage.* **42**(1), 89–102 (2004)
11. Republic of Zimbabwe: The Development Framework of Small and Medium Scale Enterprises in Zimbabwe. Government Printers, Harare (2002)
12. Mugozi, F., Hlabiso, G.: Determinants of small to medium enterprises' success or failure: an ex-post appraisal of startup business by young entrepreneurs in Zimbabwe. *Int. J. Humanit. Soc. Stud.* **5**(3), 39–46 (2017)
13. Nyoni, T., Bonga, W.G.: Anatomy of the small and medium enterprises (SMEs) critical success factors in Zimbabwe: introducing the 3E Model. *J. Bus. Manage.* **1**(2), 1–18 (2018)
14. Ndlovu, E.: The performance of microfinance institutions in Zimbabwe. *Dev. South. Afr.* **20**(1), 129–142 (2013)

15. Naicker, V., Saungweme, P.: Strategic alliances governance in Zimbabwe policy and strategy. *Afr. J. Bus. Manage.* **3**(8), 325–332 (2014)
16. Zindiye, S., Roberts-Lombard, M.: The influence of human investment on the performance of small and medium enterprises (SMEs) in the manufacturing sector of Harare, Zimbabwe. *Afr. J. Bus. Manage.* **6**(33), 9431–9436 (2012)
17. Ruhode, E.: E-government for development: a thematic analysis of Zimbabwe’s information and communication technology policy documents. *Electron. J. Inf. Syst. Dev. Countries* **73**(7), 1–15 (2016)
18. Zanamwe, N., Bere, M., Zungura, C., Nyamakura, S.A., Muchangani, B.: E-commerce usage in the pharmaceutical sector in Zimbabwe. *J. Internet Bank. Commer.* **17**(1), 1–15 (2012)
19. Margherita, A., Petti, C.: ICT-enabled and process-based change: an integrative roadmap. *Bus. Process Manage. J.* **16**(3), 473–491 (2010)
20. Cragg, P.B., King, M.: Small-firm computing: motivators and inhibitors. *MIS Q.* **17**(1), 47–60 (2013)
21. Singh, S.: The South African information society: problems with policy, legislation, rhetoric and implementation. *J. South. Afr. Stud.* **36**(1), 209–227 (2010)
22. Mutula, S.M., Van Brakel, P.V.: ICT skills readiness for the emerging global digital economy among the SMEs in developing economies: case study of Botswana. *Libr. Hi Tech News* **25**, 231–245 (2007)
23. Zhelyazkov, G.I.: *The Impact of ICT Systems on Road Transport SMEs in Australia*. Strathclyde University Glasgow, Glasgow (2012)
24. Kabanda, G.: The impact of information and communication technologies (ICTs) on millennium development goals (MDGs): context for diffusion and adoption of ICT innovations in east and Southern Africa. *J. Afr. Stud. Dev.* **3**(8), 154–170 (2014)
25. Southern, A., Tilley, F.: Small firms and information and communication technologies (ICT): toward a typology of ICT usage. *New Technol. Work Employ.* **15**(2), 138–154 (2000)
26. Scupola, A.: SMEs’ e-commerce adoption: perspectives from Denmark and Australia. *J. Enterp. Inf. Manage.* **22**(1/2), 152–166 (2010)
27. Dunt, E.S., Harper, I.R.: E-commerce and the Australian economy. *Econ. Record* **78**(242), 327–342 (2002)
28. Tharayi, S.R., Wesley, R.: Factors affecting students’ adoption of ICT tools in higher education institutions: an Indian context. *Int. J. Inf. Commun. Technol. Educ.: Official Publication Inf. Resour. Manage. Assoc.* **13**(2), 82–94 (2017)
29. Alshmrany, S., Wilkinson, B.: Factors influencing the adoption of ICT by teachers in primary schools in Saudi Arabia. *Int. J. Adv. Comput. Sci. Appl.* **8**(12), 143–156 (2017)
30. Kapurubandara, M.: A framework to e-transformation SMES in developing countries. *Electron. J. Inf. Syst. Dev. Countries* **39**(3), 1–24 (2009)
31. Rogers, E.M.: *Diffusion of Innovations*, 4th edn. The Free Press, New York (1995)
32. Tornatzky, L.G., Fleischer, M.: *The Processes of Technological Innovation*. Lexington Books, Idaho Falls (1990)
33. Venkatesh, V., Morris, M., Davis, G., Davis, F.: User acceptance of information technology: towards a unified view. *MIS Q.* **27**(3), 425–478 (2003)
34. The Qualitative Report. <https://nsuworks.nova.edu/tqr/vol3/iss3/1>. Accessed 27 May 2016