

2019

Strategies for Using Information and Communication Technologies to Improve Profitability

Rodney McIver
Walden University

Follow this and additional works at: <https://scholarworks.waldenu.edu/dissertations>

 Part of the [Business Commons](#), and the [Databases and Information Systems Commons](#)

This Dissertation is brought to you for free and open access by the Walden Dissertations and Doctoral Studies Collection at ScholarWorks. It has been accepted for inclusion in Walden Dissertations and Doctoral Studies by an authorized administrator of ScholarWorks. For more information, please contact ScholarWorks@waldenu.edu.

Walden University

College of Management and Technology

This is to certify that the doctoral study by

Rodney W. McIver

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee

Dr. Irene Williams, Committee Chairperson, Doctor of Business Administration Faculty

Dr. Dorothy Hanson, Committee Member, Doctor of Business Administration Faculty

Dr. Matthew Knight, University Reviewer, Doctor of Business Administration Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2018

Abstract

Strategies for Using Information and Communication Technologies to Improve

Profitability

by

Rodney W. McIver

MS, East Carolina University, 2009

BS, NC Wesleyan College, 2002

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

December 2018

Abstract

Small business owners in a range of industries continually adapt to take advantage of technological developments in accounting, marketing, and communication. The purpose of this multiple case study was to explore strategies that small business owners operating in the central region of North Carolina used to implement information and communication technology (ICT). Roger's diffusion of innovation theory grounded the study. Data collection included face-to-face semistructured interviews with 6 owners of small businesses who successfully implemented ICT, field notes from site observations, and reviews of participant websites. Interviews were transcribed and participants were engaged in member checking. Data were analyzed using Yin's 5-step process, methodological triangulation, and manual coding methods. Three themes emerged: applications, security awareness, and overcoming barriers. The study findings might be of use to owners of small businesses for improving business processes, customer satisfaction, and cost savings. This study might contribute to social change by increasing the sustainability of small businesses in the community, which could drive economic development and improve community relations. Potential implications for effecting positive social change include increasing the rate of small business owners' success in e-commerce and Internet technologies, and increasing the financial security for owners, employees, their families, and communities.

Strategies for Using Information and Communication Technologies to Improve

Profitability

by

Rodney W. McIver

MS, East Carolina University, 2009

BS, NC Wesleyan College, 2002

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

December 2018

Table of Contents

List of Tables	iv
Section 1: Foundation of the Study.....	1
Background of the Problem	1
Problem Statement	2
Purpose Statement.....	3
Nature of the Study	3
Research Question	4
Interview Questions	4
Conceptual Framework.....	5
Operational Definitions.....	5
Assumptions, Limitations, and Delimitations.....	6
Assumptions.....	6
Limitations	6
Delimitations.....	7
Significance of the Study	7
A Review of the Professional and Academic Literature.....	8
Transition	44
Section 2: The Project.....	45
Purpose Statement.....	45
Role of the Researcher	45
Participants.....	48

Research Method and Design	50
Research Method	50
Research Design.....	51
Population and Sampling	53
Ethical Research.....	57
Data Collection Instruments	58
Data Collection Technique	61
Data Organization Technique	62
Data Analysis	63
Reliability and Validity.....	66
Reliability.....	66
Validity	68
Dependability	69
Credibility	69
Transferability.....	71
Confirmability.....	72
Transition and Summary.....	73
Section 3: Application to Professional Practice and Implications for Change	74
Overview of the Study	74
Presentation of the Findings.....	75
Emergent Theme 1: Small Business Owners Optimize Applications	77
Emergent Theme 2: Security Awareness	80

Emergent Theme 3: Overcoming Barriers	82
Connecting Findings to Conceptual Framework	83
Applications to Professional Practice	84
Implications for Social Change.....	85
Recommendations for Action	86
Recommendations for Further Research.....	87
Reflections	88
Conclusion	89
Appendix: Interview Protocol.....	122

List of Tables

Table 1. Sources Used in Study 9

Section 1: Foundation of the Study

Information and communication technology (ICT) now drives businesses and markets. Technology-related capabilities continue to be a routine part of businesses, making the inability to access or make use of the tools a negative effect on commerce. Firms want to understand and measure the influence of information technology (IT) so that they can make intelligent decisions regarding significant IT investments. Most small business owners see the adoption of ICT as a basic requirement for administration activities and make little use for e-commerce (Mazzarol, 2015). My focus in this qualitative multiple case study was to explore the successful ICT strategies that attribute to sustainability and profitability of small business owners who have been in business for a minimum of 5 years. Identifying factors that increase small business owners' success rates in innovation might result in improved sustainability, better processes, and increased profitability.

Background of the Problem

U.S. small businesses employ 56.8 million people or 48.0% of the workforce (Small Business Administration [SBA], 2016). The revolution of innovation continues to affect the way small business owners transact business. Nevertheless, a real-world problem exists for small companies, with fewer resources and less capital to dedicate to transformation when trying to manage finances, stay competitive, and perform business transactions (Wu, 2015). The digital divide restricts small businesses ability to connect and perform business technology communications. The perception of a digital divide between small businesses and technology implementation shows a manifestation of a lack

of perceived need and usefulness, which calls for the necessity to develop different kinds of information and communication technologies to fit in with society (Robinson et al., 2015). Likewise, as essential resources move to a technology model, the failure to address this issue may cause small businesses to fall behind economically, socially, and politically (Wu, 2015). Despite the growth in IT, the rate of ICT adoption by small businesses has remained flat and larger firms have profited more in both IT-enabled improved sales and cost savings (Anderson, Wallace, & Townsend, 2015). Instead of embracing the innovation, small business owners have been slow to acclimate, wasting both time and money in the process (Hashim, 2015). The lack of knowledge and the inability to measure the return on investment leave small businesses with a failure in taking advantage of these opportunities.

Problem Statement

Some small businesses face inequalities with digital access and lack the technological skills required to engage successfully in digital media access and Internet usage (Dahlberg, 2015). An estimated 28 million small businesses make up the U.S. economy and more than half are missing the business opportunities available through improving their technological business environment (Khanal, Mishra, & Koirala, 2015). The general business problem that I addressed in this study was that some small business owners are losing competitive advantage without the use of e-commerce and Internet technologies. The specific business problem that I addressed in this study was that some small business owners lack the strategies for using ICT to improve business profitability.

Purpose Statement

My purpose in this qualitative multiple case study was to explore information and communication technologies that small business owners use to improve business profitability strategies. The specific target population was six small business owners in central North Carolina who have successfully implemented ICT to improve their business profitability. The implication for positive social change includes the potential to increase business opportunities for small businesses, resulting in better service for local communities and improved customer satisfaction through the better use of ICT.

Nature of the Study

I chose a qualitative research method for this study. The justification for using the qualitative method pertains to the need to investigate ICT strategies business owners use to improve business profitability. A researcher uses qualitative methodology to identify and explore subjective experiences and the lives of individuals (Starman, 2013). A researcher's goal when using quantitative research is to answer questions about the relationships among variables using correlations or comparison (Fetters, Curry, & Creswell, 2013). Researchers should use the mixed method to explain fragmented and inconclusive issues using both qualitative and quantitative research methods (Venkatesh, Brown, & Sullivan, 2016). Because both the quantitative and mixed method approaches test a hypothesis, the quantitative and mixed methods are not appropriate for this study.

Researchers use a case study research design to gain a greater understanding of the phenomenon within a bounded system, not to test a theory (Starman, 2013). When

using a phenomenological research design, the issue explored must have a defined beginning and an end (Willis, Sullivan-Bolyai, Knafel, & Zichi-Cohen, 2016). A researcher will use an ethnographic design to focus on interpretations of the world and groups' culture (Willis et al., 2016). I, therefore, concluded that a case study research design was appropriate to investigate ICT strategies small business leaders use to improve business profitability.

Research Question

What ICT strategies do small business owners use to improve business profitability?

Interview Questions

1. What successful ICT strategies did you use to improve profitability?
2. How did you use partnerships or alliances in implementing ICT?
3. What are the key processes you used to implement the successful ICT strategies?
4. What barriers, if any, did you encounter when implementing ICT strategies in your business?
5. How did you address the key barriers, if any, to implementing ICT strategies in your business?
6. What else would you like to share about your successful ICT strategies to improve business profitability that I have not addressed?

Conceptual Framework

The theoretical basis for this study was the diffusion of innovation theory (DOI). Rogers (2003) first developed the DOI theory in 1962 (Rogers). Because the DOI theory addresses the way individuals adopt new innovative ideas, and how they decide to use them, use of Rogers's theoretical work seeks to explain how people use innovations to adapt technologies to attain development and sustainability. I applied the DOI theory to compare data and achieve the goal of better understanding the strategies and challenges in adopting technology business owner's use when successfully implementing ICT strategies to improve business profitability. The lack of adoption of new technology restricts the ability for small business owners to communicate and perform business technology transactions (Anderson et al., 2015). Small businesses struggle to raise capital and learn new technology skills while becoming e-commerce literate (Khanal et al., 2015). Furthermore, subsequent research and application of Rogers's DOI theory offers insight on ways to identify proven solutions, thus potentially providing further insights into small business owners' adoption or rejection of innovation.

Operational Definitions

Digital divide: The digital divide is the inequalities in technology skills and access to modern information and communications technology (Rogers, 2016).

E-commerce: E-commerce are activities relating to the buying and selling of goods and services using Internet technologies (Madden, Banerjee, Rapoport, & Senage, 2017).

Information technology: IT is the development of computer systems that organize and communicate information electronically (Mithas & Rust, 2016).

Assumptions, Limitations, and Delimitations

Assumptions

According to Kirkwood and Price (2013), an assumption is a claim made on the approach of the study but not verified. In this study, I assumed that active engagement as business owners for 5 years or more signifies sustainable business success. I also assumed that business owners understand what ICT strategies attribute to their business profitability. Concerning this theory, small business owners who participate are perceived by the researcher to know what they are trying to do and can explain their thoughts, intentions, and actions (Houghton, Casey, Shaw, & Murphy, 2013). Moreover, my assumption was that participants would agree to accurately disclose information and provide additional data as a criterion for selection.

Limitations

Limitations of a study include influences that could affect results but cannot be controlled by the researcher (Marshall & Rossman, 2016). Limitations included time constraints to meet and gather data from the participants and the accessibility of the participant pool. Another limitation was that collected data did not adequately represent the opinions of all small business owners who had implemented ICT strategies. I used semistructured interview questions to allow participants to describe their ICT strategies that leads to increased business profits.

Delimitations

Delimitations refer to the boundaries or scope of the research controlled by the researcher (Yin, 2014). In this study, I focused on small business owners who had been in business for 5 years or more. I did not include small business owners who had been in business for fewer than 5 years or small business owners who had not successfully implemented ICT strategies for business profitability. Geographic delimitations included participants in central North Carolina. Semistructured interviews focused on the participant's ICT strategies used to maintain their businesses competitive advantage.

Significance of the Study

This study might be of value to the practice of business in that it could provide strategies for small business owners to use ICT to improve business profitability. The contributions to professional or practitioner application could be promoting the use of e-commerce and Internet technologies. Taylor (2015) proposed that small businesses are slow to adopt e-commerce, suggesting that a digital divide exists within the population of small businesses. The infrequent participation and nonuse of e-commerce by small business owners have created a significant gap between small and large firms (Kurnia, Choudrie, Mahbubur, & Alzougool, 2015). Therefore, it is essential to identify the key elements and business opportunities in ICT needed for business success. Small business owners could use the study findings to focus on the strategies for using ICTs to improve business profitability. The advances in ICT could lead to increased profits, improvements in competitive advantage, and increased business opportunities (Bloom, Garicano, Sadun,

& Van Reenen, 2014). Strategies for decreasing disparities in the successful use of ICTs can benefit small businesses, which can help sustain business and expand innovation, leading to better service for local communities, jobs, and improvement in customer satisfaction by enhancing customer service.

A Review of the Professional and Academic Literature

My purpose in this qualitative multiple case study was to explore ICTs small business owners use to improve business profitability strategies. The literature review included a variety of educational resources from Walden University Library databases, including ProQuest and Science Direct. Use of key terminology in literature searches was important in research on small businesses. I used several online search engines including Google and Google Scholar. Searching for the following keywords aided in the retrieval of articles synthesized in this literature review: *small business, technology, innovation, digital divide, e-commerce, sustainability, and profitability*. Publication of the reviewed websites, books, and journals primarily occurred between 2014 and 2018.

All journal articles in the literature review were peer reviewed. The 202 references that composed this study included 192 scholarly peer-reviewed articles representing 95.0% of the total, nine non-peer-reviewed articles representing 4.6%, one government website representing 0.5%, and six books representing 3.1%. The total references published within the past 5 years was 177, which was 87.6% of the total number. The literature review contains 158 references, with 147 references published within the past 5 years, representing 93.0%, and 158 from scholarly peer-reviewed

sources, representing 100%. I have summarized, compared, and contrasted researchers' views of these topics, providing the background necessary for explaining the experiences of small business owners of successful ICT strategies who have succeeded in maintaining their businesses for 5 years or more. In Table 1, I provide a detailed description of sources by publication date.

Table 1

Sources Used in Study

Source	Prior to 2014	2014	2015	2016	2017	2018
Peer-reviewed articles	17	61	63	40	20	1
Books	1	3	1	1	0	0
Other	0	1	1	2	0	0

DOI Theory

The rapid frequency of technology modifications, particularly in ICT, have made it necessary for small business owners to examine the ways that they adopt technology for success. In his theory of technology on technology diffusion, Rogers (2003) implied that some individuals are more open to change and adaptation towards new technologies than others are. The path of diffusion in Rogers's model represents the adoption and incorporation process of innovations into a person's daily routines (Davidoff, 2015). Rogers implied that once adopted, the innovation becomes a self-sustaining and continuous process. Many researchers have studied the influence of the characteristics of innovations on different social settings based on Rogers's theory (Al-Zoubi, 2013; Bhatia

& Gupta, 2016). The use of Rogers's theory provided appropriate framing for this qualitative multiple case study on successful implementation of ICT by small business owners. Rogers's monograph on the DOI represents the process by which new ideas and practices are adopted (Davidoff, 2015). Some small business owners are slow to adapt to new technology.

Wisdom, Chor, Hoagwood, and Horwitz (2014) identified characteristics that are likely to increase adoption of innovations. Leadership, operational size, structure, innovation fit, and attitudes toward innovations appear in at least half of the studies that Wisdom et al. reviewed. A lack of precise definitions and measurements suggest the need for an increased understanding of the adoption of innovation. Exploring the activities of small business owners who have sustained their business for at least 5 years and who have implemented ICT successfully might reveal insights for other aspiring small business owners.

This new knowledge could help small business owners accept the usage and adoption of ICT as an integral part of business practice. Marnewick (2014), for instance, used the DOI theory rationale to embrace relative advantages, being more compatible, less complex, observable, and triable may add to sustainable, profitable small businesses. Innovation is an essential element for small firms to achieve long-term viability (Lakatos, Bacali, Bercea, Muresan, & Moldovan, 2015). Rogers's model was useful to identify managerial and organizational characteristics that might explain why small businesses adopt sustainability management tools (Nazari & Babalhavaeji, 2014).

Nazari and Babalhavaeji (2014) found evidence to support Rogers's DOI theory. Results showed a relationship between the perceived attributes of innovation and their adoption. In their discussion of DOI theory, Molinillo and Japutra (2017) suggested that perceived compatibility, risks, costs, and innovativeness are determinants of small business leaders' decision making regarding the adoption of e-commerce. Ward (2013) analyzed other technology acceptance and innovation diffusion models highlighting their weaknesses in relation to the lack of difference between technological and human factors. Ward found that a focus on perceived usefulness is more of an influence than ease of use issues, and individual and organizational attitude and culture are significant in initial adoption and subsequent diffusion of the innovation.

The use of Rogers's theory of DOI enabled the researcher a scientific understanding on why some technologies are quickly adopted and used and whereas others are not. My focus in this multiple case study was to explore potential factors that contribute to the sustainability and profitability of small business owners who elect to implement ICT. I used Rogers's theory of DOI to understand the strategies that contribute to small business ICT success. Although the knowledge gap by business leaders is substantial in innovation adoption, the profits and sustainability justify the investment (Hashim, 2015). Understanding DOI theory allows small business owners an earlier introduction to innovative options for improving business success. Systematic IT planning and evaluation support organizational goals and objectives (Khan, Ahsan, & Hussain, 2016). Early diffusion by business owners allows business leaders to

accomplish innovation awareness through their decisions regarding the adoption, implementation, and continuous use of the innovation (Chinedu et al., 2014). An innovation is a new idea. A small business owner is dependent on sustainability activities that include maintaining a competitive advantage; therefore, the DOI theory was helpful in grounding this study.

Background of Small Business ICT adoption

Although the authors of articles that I used in this research agree that small business owners have implemented many changes in communication and technology, it is important to realize that not all small business owners have welcomed the changes. The adoption of technology by small business owners in specific regions is low (Nguyen, Newby, & Macaulay, 2015). In addition, it is not clear whether small business owners view the implementation of IT as an opportunity or whether they fear change. The use of technology changes at a high rate, often leaving behind those who are unaware of new and different kinds of information and communications technology (Wu, 2015). Lack of success could cause disconnection between vision and execution, because organizational leaders often fail to research and plan before implementing new technology (Roztocki & Weistroffer, 2015). Thus, small business owners face a dilemma of embracing, adopting and investing in technology (Harris & Patten, 2014). Some small business owners have not applied the use of innovations.

The use of innovations provides new and fast access to information. Measuring small business innovativeness has increasingly become of vital importance for

researchers and practitioners in the field of business management for a number of reasons (Mazzarol, 2015; Nur et al., 2014). Few empirical analyses have been conducted on small businesses' ability to draw on a range of external sources to meet their needs for innovation (Verbano, Crema, & Venturini, 2015). For example, technology adoption for marketing, which is essential for small business survival, yet limited knowledge, exists regarding owner-manager practices in this area (Alford & Page, 2015). In addition, further insight into IT adoption in small businesses could highlight the importance of customer relations in the adoption process (Nguyen et al., 2015). These findings give further insight into IT adoption in small businesses and highlight the importance of customer relations in the adoption process. Therefore, learning from the success of small business owners who have been successful in implementing ICT and maintaining a small business for at least 5 years could provide new insights.

Characteristics of Innovative ICT Small Business Owners

Small business owners' survival depends on anticipating change and responding to innovations. In reviewing literature, I found limited research on the characteristics of successful e-commerce adoption business owners in the small business sector. Evidence linking specific leadership characteristics with innovation is lacking (Dunne, Aaron, McDowell, Urban, & Geho, 2016). From Dunne et al.'s (2016) study, evidence supported the idea that small business leaders who were inspirational, negotiated competitively and lead efficacious organizations established innovative environments. In addition, evidence supports the idea that inspirational business leaders with effective organizations establish

new innovative environments (Nur et al., 2014). In similar results, Dunne et al. suggested that inspirational small business leaders who are competitive are more likely to establish new product innovation. In addition, Lakatos et al. (2015) analyzed new product innovation by individual entrepreneurs within firms. Their findings indicated that leadership style, negotiation style, and organizational efficacy affect new product innovation.

Another influencing attribute to the ICT adoption is creativity and environmental knowledge (Bocken, Farracho, Boswork & Kemp, 2014). Valaei, Rezaei, and Emami (2017) revealed that companies with 51 to 100 employees are more creative and innovative in comparison with small businesses with a number of employees between 21 and 59, and between 101 and 150. Valaei et al. found that small business owners who develop an understanding of employees and their interaction processes use this knowledge in preparing the organization for spontaneous and abrupt circumstances. Moreover, the researchers' statistical results implied that this understanding allowed the managers to innovate the business setting with ICT capabilities. Education and training ensures that small business owners can use ICT to the fullest (Marnewick, 2014). Torrent-Sellens and Díaz-Chao (2015) emphasized the need of coordinating ICT use, organizational change, and training of employees. In addition, Paradkar, Knight and Hansen (2015) identified having the ability to form alliances as a key capability. By attracting alliance partners, small business owners have access to complementary resources.

With the deployment of information technologies, a lack of training and awareness inhibits the further use and development (Afolayan, White, Jones & Beynon-Davies, 2015). Furthermore, a lack of infrastructure and a need for both managers and employees to undergo continual training require attention to the changing nature of ICTs and the search for the most suitable solution for their organizations. Mazzarol (2015) noted the importance for business owners to gain information, education, and access to support programs to understand the importance of ICT. Rahayu and Day (2015) found that perceived benefits and technology-readiness, along with innovativeness, IT ability, and IT experience among owners influenced small business owners' adoption of e-commerce. In addition, a better understanding of e-commerce and e-marketing are essential characteristics of small business owners for ICT success (Mazzarol, 2015). Chatzoglou and Chatzoudes (2016) found that Internet skills are an important facilitator of e-commerce adoption, which indicates that organizational and technological characteristics are more significant for e-commerce implementation than environmental factors such as supply chain collaboration, competitive pressure, and government support. Chatzoglou and Chatzoudes showed that small business owners should focus on their company's technological readiness to create a compatible business structure ready to accept innovative IT systems.

Rahayu and Day (2015) indicated that high cost, limited funds, lack of technical knowledge, and the organizations current ICT usage as characteristics influencing small business owners' decision of not adopting ICT. The authors' views are consistent with

the results of other research, which found that ICT adoption affects management characteristics such as relative advantage, compatibility, owner's knowledge, and expertise (Ahmad, Abu Bakar, Faziharudean, & Mohamad Zaki, 2015). In addition, Chatzoglou and Chatzoudes (2016) suggested that firm size, scope, IT infrastructure, and Internet skills are the most important to e-commerce adoption, with firm size as the most significant.

Moreover, Ntwoku, Negash, and Meso (2017) found that small business with greater sizes, multiple plants, and whose owners have higher education have a greater tendency to adopt ICT early. In addition, Awa, Baridam, and Nwibere (2015) theorized that small businesses located far from the cities tend to adopt ICT solutions more slowly; thus, the range and limited resources cause small businesses to not fully exploit the capabilities of e-commerce. Moreover, Buxton and Walton (2014) investigated e-commerce applications available to small businesses to help those businesses address the issue of limited resources. Buxton and Walton found that security and content ownership are concerns, and that the owners' age range affected their e-commerce adoption, with the older generation viewed technology as a threat rather than a resource opportunity.

ICT Adoption Barriers for Small Business Owners

Implementing innovation activities into the small business environment, both internally and externally can be a challenging task for small business owners (Wu & Chiu, 2015). Sharma, Ashrafi, Kumar Sharma, Al-Badi, and Al-Gharbi (2014) revealed that the majority of small business owners in their study area had yet to adopt e-

commerce. To elaborate, Agwu and Murray (2015) used interviews to gather relevant data aiming to understand the challenges and barriers to e-commerce adoption by small enterprises. Agwu and Murray found that the most common e-commerce applications adopted are the use of e-mails for communication purposes and a simple website for basic product information. However, Agwu and Murray also revealed that a lack of a regulatory framework on e-commerce security, as well as technical skills, and basic infrastructures are some of the barriers to e-commerce adoption.

Oni and Papazafeiropoulou (2014) examined challenges of innovation adoption with small businesses in the United Kingdom. Using the innovation diffusion and social construction of technology theory, they found that even though small businesses have adopted broadband, they do not fully use the technology to change the way they operate. Oni and Papazafeiropoulou pointed to business owners' lack of understanding of the effective application of the technology as the main impediment to effective adoption. However, they also found that IT expertise and commitment-based human resources positively affect ICT knowledge exchange. In a similar vein, Palacios-Marqués, Soto-Acosta, and Merigó (2015) stressed that the business owner's education plays more of a role in a firm's innovativeness than in its capabilities for technology adoption. A possible explanation for this is that most small business owners are not knowledgeable of how to implement new technology for business use and risk failure.

Small business owners often lack the IT resources and capabilities needed to invest in technologies (Harris & Patten, 2014). Technology innovation adoption relates to

the resources, size, and managerial structure of firms (Bhatia & Gupta, 2016). Small business owners were unable to invest in ICTs because of limited resources and simply did not have appropriate ICT expertise for ICT investment decisions and new system implementation (Gono, Harindranath, & Berna Özcan, 2013). Failure in adopting an innovation strategy opens the possibility of digital inequalities and potential barriers to full participation in the economy (Dahlberg, 2015; Robinson et al., 2015). In exploring the concept of innovation and adaptation, small business owners should realize the need to incorporate ICT that allows for efficient business processes, customer growth, and organized business functions (Ghobadi & Ghobadi, 2015).

Based on the ideas of Sandberg and Aarikka-Stenroos (2014), innovation barriers vary according to the characteristics of firms, markets, and the innovation process. Whereas Girotra and Netessine (2013) pointed out that even when developing new technologies, viability and scalability restrict their benefit. Sandberg and Aarikka-Stenroos revealed that innovation barriers vary according to the characteristics of firms, markets, and along the innovation process. Addressing such variability, Agboh (2015) explored the key drivers and challenges of ICTs adoption by small enterprises in Ghana. Agboh showed that although many drivers of ICTs adoption by small businesses exist, many challenges to ICT adoption including lack of internal capabilities, high cost of ICTs, poor infrastructure, financial constraints, limited information about suitable ICT solutions, and the length of implementation time equally exist. Agboh also identified the key drivers of ICT adoption as the desire to increase customer service and

responsiveness, increase the ability to compete, improve overall communication, increase sales and profit, and have better access to information.

Small business owners face dilemmas when embracing, adopting, and investing in technology (Harris & Patten, 2014). When investigating the factors affecting ICT adoption, Ladokun, Osunwole and Olaoye (2013) indicated that infrastructure along with government policies, management support, level of security, maintenance cost skills, training, and investment cost are factors that inhibit ICT adoption by small businesses. They concluded that small business owners are slow to adopt ICT because of constraints such as poor telecommunication, limited ICT literacy, inability to integrate ICT into business processes, high costs of ICT equipment, and weaknesses in ICT implementation. Moreover, Ghabakhloo and Tang (2013) developed an integrated model of e-commerce adoption in small businesses. The research model specified variables at the managerial level as the primary determinants of e-commerce adoption in small businesses.

In previous ICT implementation adoption research, researchers have identified several factors that lead to low adoption of e-commerce including compatibility, complexity, trialability, observability, and lack of knowledge and trust in the system (Ekdale, Singer, Tully, & Harmsen, 2015; Hong Tang, 2013). Molinillo and Japutra (2017) used the DOI theory, technology-organization environment framework (TOE), and institutional theory to analyze the technology adoption process for small businesses. Molinillo and Japutra used the three theories in conjunction to better explain the adoption

process and found that innovation, firm, and environment are the characteristics related to risks and barriers of the adoption process.

Many small business owners face challenges with their ability to function and contribute to technological innovations (Agwu & Murray, 2015; Olayinka, George Wynn, & Bechkoum, 2016; Taylor, 2015). For example, Alshamaila, Papagiannidis and Li (2013) studied the main challenges in small business adoption of ICT and found that relative advantage, uncertainty, geo-restriction, compatibility, triability, size, top management support, prior experience, innovativeness, industry, market scope, supplier efforts, and external computing support were factors that led small businesses not to adopt cloud services. However, Alshamaila et al. (2013) did not find evidence that competitive pressure was a significant determinant of ICT adoption. In addition, Ehrenberger, Koudelková and Strielkowski (2015) found that innovation, investment in technology, and improvement product or service quality enhanced growth, and success; however, bureaucratic barriers to innovation and external factors with negative effect did not come through as obstacles.

Factors Influencing Small Business ICT Implementation

In a 2014 study, Chinedu et al. (2013) revealed small business managers could be influenced by and influence technology, contending that small business owners need to remain abreast of new ICT developments in order to benefit from emerging opportunities. Their study, however, was limited in its application, as they chose to use qualitative research and a limited sample size. It might have been more illustrative to broaden the

scope of the study to include a wider population, as well as to use both qualitative and quantitative approaches (i.e., mixed methods). Awa, Emecheta and Ukoha (2015) did precisely that in their study with a sample of 344 small businesses across five industries located in three geo-political areas of Nigeria. They found that location factors such as availability of a diversified workforce and the business owners' improved ICT knowledge influenced ICT adoption. Such combinations provided small businesses with more latitude to be proactive and pre-emptive in their ICT adoption decisions. Similarly, Martínez-Román and Romero (2017) identified that motivation, business planning, and cooperation with research and development activities are factors influencing technology adoption. Martínez-Román and Romero used factor analysis to measure the innovativeness of small businesses and found that the business owner's education level played a more influencing role than the firm's capability to adopt ICT.

Reaction to change hinges greatly on issues of relative advantage, compatibility, and complexity (Ekdale, et al., 2015). Moreover, Wisdom et al. (2014) described models for improving innovation adoption, identifying 20 theoretical frameworks. They suggested that when leaders improve the culture and attitudes in their organization prior to innovation adoption, successful ICT adoption is more likely to occur. Moreover, Awa, Ukoha, and Emecheta (2015) concluded that small business leaders' ICT adoption approach depends on the perceived ease of use, competitive pressure, and scope of business operation. Awa, Ukoha, and Emecheta contributed to enhancing the understanding of the determinants of adopting ICT. The authors' research supports the

assumption that implementing ICT compatibilities for small business is an appropriate strategy for marketing, selling, and integrating services to attract and retain customers (Choshin & Ghaffari, 2017). In addition, Choshin and Ghaffari indicated that customer satisfaction, costs, knowledge, and information are effective influencing factors that have a significant influence on small business owner's ICT adoption decision. In another study by Dahnil, Marzuki, Langgat, and Fabeil (2014), nearly all of the survey respondents considered Internet and e-commerce as both present and future drivers of competitiveness by offering quality information and improved interactions for customer satisfaction. Thus, attributes, such as relative advantage, compatibility, and observability are positive factors correlating with innovation adoption (Nazari & Babalhavaeji, 2014).

In addition, environmental pressure has a significant influence on the adoption of technologies. Kurnia et al. (2015) examined the influence of organizational, industry, and national readiness and environmental pressure on the adoption of technologies and found a significant influence of environmental pressure. Moreover, Ladokun, et al. (2013) investigated the factors influencing ICT adoption and indicated that infrastructure along with government policies, management support, level of security, maintenance cost, skills and training, and investment cost as significant influencing factors on ICT adoption by small business owners. They concluded that small business owners are slow to adopt ICT because of constraints such as poor telecommunication, limited ICT literacy, inability to integrate ICT into business processes, high costs of ICT equipment, and weaknesses in ICT implementation. Furthermore, Jones, Simmons, Packham, Beynon-Davies, and

Pickernell (2014) also explored the attitudes and strategic responses of small business owners in adopting ICTs. In so doing, they contributed to the limited literature on small business ICT adoption and elaborated the unique challenges, opportunities, and implications of ICT adoption for small business owners.

Palacios-Marqués et al. (2015) found that organizational and environmental aspects are equally important. In the same way, Halme and Korpela (2014) investigated environmental and social responsible innovations of small businesses and found that small businesses create innovations with the combination of equity, research and development cooperation, and network industry knowledge and reputation. Halme and Korpela presented empirical data that indicated a combination of equity, research and development cooperation, industry knowledge, and reputation could create responsible environmental innovations. Incorporating environmental concerns at the front-end of innovation is important (Bocken et al., 2014). Furthermore, Sarwoko and Frisdiantara (2016) showed that environmental factors have the greatest influence on the growth of small businesses, suggesting that the ability of business owners to produce competitive products, use technology, and diversify their products will determine the growth of their enterprises.

Another factor that affects adoption of IT within small businesses was external support. In a theoretical analysis of e-commerce adoption, Kabanda and Brown (2017) found evidence that small businesses face technological challenges from the environment, such as lack of industry support. To overcome these challenges, they

contended, small businesses should establish partnerships. The key implication drawn from this is that open innovation represents a company's ability to draw on a range of external sources to meet its innovation needs (Verbano et al., 2015). However, Neirotti and Raguseo (2017) assessed the value of the capabilities developed by small businesses when using ICT. Neirotti and Raguseo showed that the returns of externally oriented IT-based capabilities are more likely to provide lethargic performance advantages, thus highlighting that under these environmental conditions, IT hinders small businesses' abilities to respond to market changes and new opportunities. In small businesses, innovation requires engagement in external knowledge.

Sourcing is a functional move for small businesses because of the success of launching an innovation and the assumption of financial value from new products and services (Brunswick & Vanhaverbeke, 2015). However, Martins, Oliveira, and Thomas (2015) replicated results of prior ICT studies when using the TOE framework and identified relative advantage, firm size, top management support, and competitive pressure as the main detriments to information system outsourcing. In addition, Hung, Chang, Lin, and Hsiao (2014) suggested that technology, management, organization, and environment have significant positive effects on small businesses' intentions to accept technology. However, the use of external consultancy services seems to have no significant effect on small business innovativeness, whereas it is a relevant factor for technology adoption (Martínez-Román & Romero, 2017). Small business owners strategically focus on sourcing.

Additional factors that affect adoption and use of ICT systems and applications within small businesses are usefulness, perceived ease of use, perceived cost of deployment, top management support, and employees' ICT knowledge and skills (Jones et al., 2014). From a similar perspective, Gupta, Seetharaman, and Raj (2013) presented factors that influence small businesses' influence on cloud computing. They found that ease of use, convenience, security, privacy, and cost reduction represented favorable factors in cloud computing; however, they noted that small businesses continued to neglect the sharing and collaborative features of cloud technology, instead preferring old, conventional methods for sharing and collaborating with stakeholders. Moreover, Yeboah-Boateng and Essandoh (2014) identified the main drivers of cloud adoption as cost reduction on IT infrastructure and maintenance, improved communication, scalability, and business continuity, whereas lack of knowledge, poor Internet connectivity and security, and lack of trust and interoperability with existing systems are barriers of cloud adoption. Indeed, managers and employees with technology skills and knowledge will benefit the diffusion of technology.

ICT Adoption Success

There are many examples of successful ICT implementations in small businesses that provides benefits such as improved profitability and improved organizational performance (Dwivedi et al., 2015; Shareef et al., 2014). If small business owners learn to understand and implement ICT based on proven methods, their business processes might become more efficient, thus, increasing their levels of success (Valaei et al., 2017).

Nguyen et al. (2015) investigated the drivers affecting the success of ICT adoption in small businesses and suggested customers are the main force in ICT adoption. They suggested that when it comes to ICT implementation success, owners must involve the organization, internal and external ICT resources, external ICT consultants, and supplier customer relations. Moreover, Dahnil et al. (2014) found internal factors such as users and individuals as contributors to ICT adoption. Verbano et al. (2015) suggested that it is better for a company to develop strong internal capacity to achieve modest innovation. They argued that in firms with appropriate internal innovative capacities, different motivations could prompt the adoption of open innovation after overcoming the principal economic, financial, and managerial barriers.

Small and large business owners are adopting ICTs to support their competitiveness, productivity, and profitability (Kossai & Piget, 2014; Taylor, 2015). Prior literature suggests that e-commerce has provided a range of opportunities for small businesses to operate and compete effectively (Palacios-Marqués et al., 2015). Specifically, the use of e-commerce plays a significant role in identifying, obtaining, and maintaining customers (Choshin & Ghaffari, 2017). The use of e-commerce enables small businesses to compete on the same level as their larger counterparts (Agwu & Murray, 2015). In order to use e-commerce effectively, however, small businesses must process data that provides information essential to support business decision making. Accordingly, small business owners must keep up with ICT developments for business processes because a major factor in success is the small business owners' ability to

manage ICTs effectively (Abebe, 2014; Parida, Oghazi, & Cedergren, 2016). ICTs have the potential to contribute significantly to economic growth.

Small business owners have also improved sales performance and customer service because of e-commerce application implementation (Chew & Dehbokry 2014). The growth of online e-commerce attributes to its ease of use (Tadelis, 2016). The use of e-commerce promotes economic growth and requires effective coordination, integration, and collaboration when the various stakeholders involved work together to achieve a high-quality product that fully satisfies the end customer's needs (Varela, Araújo, Vieira, Manupati, & Manoj, 2017). Studies by Abebe (2014) and Parida et al. (2016) indicated that effective adopters of ICTs have a higher average growth rate than non-adopters. In both studies, participants answered a survey questionnaire. Through quantitative analysis, both authors revealed that small businesses were significantly more competitive when they adopted ICTs, implying that small businesses could become more successful at implementing their technological capabilities over time.

Ashari, Heidari and Parvaresh (2014) found that ICTs helped to improve inventory management and to develop small businesses internal processes. They projected future developments in ICT business related opportunities. Moreover, Yang, Xun and He (2015) demonstrated that business resources, human resources, and external resources (i.e., e-commerce readiness) strongly contributed to enhanced business performance. These authors found that the sophistication of a small businesses e-commerce website contributes to firm performance, but those firms' capital investments

in IT and e-commerce training per se are not significant performance drivers. Yang et al. (2015) also suggested that small businesses could differentiate themselves based on their e-commerce capability.

Organizational Factors of ICT Implementation

Several factors affect ICT adoption by small businesses, including organization and management practices, the benefits of transactional and organizational change, and support from leaders for ICT investment (Ehrenberger et al., 2015; Sharma et al., 2014). A company's business ICT alignment consists of a corporate strategy, an IT strategy, such as the introduction of applications dedicated to specific processes, and infrastructure (Amarilli, 2014). Having a clear strategy and roadmap will address technological changes and allow small businesses to survive and thrive due to business and technological integration and alignment of a collaboration network (Chew & Dehbokry, 2014). IT planning and evaluation is a systematic process that helps businesses achieve their organizational goals and objectives (Khan et al., 2016). Thus, the use of ICTs is widely regarded as being capable of providing considerable strategic and operational value to organizations (Afolayan et al., 2015).

The use of ICT contributes to firm performance through organizational innovation consensus (Soto-Acosta, Perez-Gonzalez, & Popa, 2014). The adoption of e-commerce systems by small business affects both internal and external organizational factors, such as readiness, strategy, managers' perceptions and external pressure by trading partners (Anas, Al-Bakri, Marios, & Katsioloudes, 2015). Furthermore, Senarathna, Warren, Yeoh

and Salzman (2014) surveyed the influence of organizational culture on the adoption of e-commerce by small enterprises and found a positive correlation between e-commerce adoption and their culture. Their research revealed that the culture of an organization significantly influences the adoption of e-commerce. These findings are useful for small business owners who are planning, or are in the process of implementing, or reviewing their ICT initiatives. However, the relationship between ICT and organizational innovation readiness needs further attention (Mustafa, 2015).

In addition, although an increasing number of manufacturing enterprises have engaged in e-commerce activities in recent years, there are few successful examples (Cui & Pan 2015). Examples include Colombo et al. (2013), who analyzed the effect of the adoption of broadband Internet technology on small businesses. They observed firms from 1998 to 2004 and found that small businesses benefit from adopting broadband applications depending on operation of the industry, the specific software applications, and the strategic organizational changes. In another study, Idris (2015) conducted a systematic review of the influencing factors of e-commerce adoption readiness. Idris revealed that some e-readiness factors such as management and process factors is suitable for e-commerce adoption but improvements on people and technological factors will make the organization an e-ready business.

Sustainability for Small Businesses

Innovation is a necessity for small firms to achieve long-term sustainability. Focus on sustainability usually translates into a search for new products and technologies

(Girotra & Netessine, 2013). Moreover, Elbeltagi et al. (2015) investigated e-commerce adoption and found that small businesses can achieve growth in market share and sales that help improve their sustainability. Commitment to sustainability is an overarching view that sustainability is an important component of firms' processes and procedures (e.g. overall management philosophy, strategic product decisions, competitiveness, and strategic planning (Jansson, Nilsson, Modig, & Hed Vall, 2017).

The use of ICT can create a more stable business environment (Nur et al., 2014). Thus, Marnewick (2014) implied that a positive correlation exists between the adoption of ICT and the financial and growth of small businesses. Therefore, the adoption of ICT is likely to produce sustainability for the business owner. In addition, some studies indicated that developing sustainable technology practices assist small business owners in closing the digital divide for businesses (Hashim, 2015; Hilty & Aebischer, 2015; Rogers, 2016). Chinedu et al. (2014) conducted a survey investigating ICT adoption for improving business performance and revealed that sustained success of any small enterprise not only require the use of ICT but also depend on the company's ability to constantly adopt and make the best use of emerging ICT for innovation and business competitiveness.

The use of ICTs retains the potential to contribute significantly to economic growth. Given their many benefits, small businesses are adopting ICTs to support their competitiveness, productivity, and profitability suggested that there are specific characteristics of individual small businesses that could be considered important

explanatory variables for commitment to sustainability. In addition, Ramayah, Swee Ling, Taghizadeh, and Rahman (2016) found that website continuance intention depends on CEO's innovativeness, CEO's IT attitude, relative advantage, and costs. They noted that CEO IT knowledge, company size, and employee IT knowledge, compatibility, security, external pressure, and support do not play any role on the continuance of ICT adoption.

Furthermore, Marnewick (2014) concluded that small businesses could become more sustainable through education and training in making full use of ICTs. Moreover, Townsend, Wallace and Fairhurst (2015) revealed the contributions of adopting broadband for small business owner's sustainability. They found that to survive, businesses should develop a strong online identity for opportunities, important developments, and potential collaboration. Thus, an online presence removes location disadvantages by connecting people, places, businesses, and services.

The use of ICTs prevails in all functions of strategic and operational management. Ardjouman (2014) recommended that small business leaders formulate and implement policies to enhance development and deployment of technology in small business. Similarly, Classen, Carree, Gils, and Peters (2014) indicated that family small business leaders are more likely to invest in innovation than non-family small business leaders. They suggested that family small business leaders enjoy a competitive advantage with their ability to implement policies that manage innovation. In addition, Vargas (2015) provided empirical evidence that transformational and transactional leadership and the

influence on organizational learning achieve innovation, high performance, and competitiveness. Vargas' results supported the view of maximizing the likelihood of long-term survival by small businesses when opting for a positive but less intensive innovation investment.

Organizational readiness and competitor pressure are significant factors of e-commerce adoption (Chee, Baharudin, & Low, 2016). Based on the author's calculated result, for small businesses to gain competitive advantages, increase business reputation, and gain a better market position, they should invest IT infrastructure into the organization. In addition, Ashari et al., (2014) noted that creative and innovative merchants would survive the competition in the new millennium. Even with the anticipated adoption of sustainability management tools, the rate of knowledge and implementation of these management tools is missing (Johnson & Schaltegger, 2016). Moreover, Johnson and Schaltegger (2016) discussed reasons small businesses should implement sustainability management tools and revealed that most small businesses do not implement such tools. In addition, Johnson and Schaltegger noted that most small businesses fail to see the economic benefits of sustainability practices. Furthermore, the connections between awareness and enforcement remain under-researched

Competitive Advantage

Increased competition is a key concern for small business owners. Ahmedova (2015) noted that competition is determinative for the business development and competitiveness of business prosperity. Ahmedova suggested comprehensive support for

enterprises with competitive potential by investing in an environment that accelerates small business innovation capacity. This analysis extends to small business ICT adoption. The analysis suggested that small business owners should design and implement strategies in a comprehensive manner to derive a competitive advantage (Baporikar, 2015; Soto-Acosta et al., 2014). Competitive advantages give a company an advantage over its competitors and the capability to create a difficulty for competitors to offset the advantage (Baporikar, 2015). The firm's innovation activities are higher if the firm has competitive pressure (Gërguri-Rashiti, Ramadani, Abazi-Alili, Dana, & Ratten, 2015). Hence, ICTs need to succeed in all functions of strategic and operational management, because only creative and innovative suppliers will be able to survive the competition in the new millennium (Ashari et al., 2014). Small business owners want to maintain a competitive advantage.

Successful innovation and maintaining a competitive advantage in small businesses depend on the availability of complementary assets with dynamic capabilities (Paradkar et al., 2015). Wu and Chiu (2015) noted external-based IT innovations that integrate activities between partners are innovative uses for the external purpose of achieving competitive performance. However, Seethamraju (2014) found that competitive pressures faced by the enterprise, external factors, concerns about data security, and system performance have no influence on the adoption decision. In addition, Zafar, Ishaque and Javaid (2014) described the competitive advantage of using ICT and e-commerce. They explained that e-commerce resource, technology-leadership,

competitive advantage, and influence of the Internet on competitive forces as barriers for not achieving competitive advantage, while both ICTs and e-commerce achieve a competitive advantage.

Another factor that affects the adoption of ICT in small businesses is social responsibility. The owners of small enterprises need to develop responsible innovations that enhance sustainable development (Halme & Korpela, 2014). This view is reinforced by (Jansson, Nilsson, Modig, & Hed Vall, 2017). Jansson et al. (2017) who interviewed 450 small business owners and found that small firms who are committed to sustainability see both market and entrepreneurial advantages of sustainability. Consistent with these views, Battaglia, Testa, Bianchi, Iraldo and Frey (2014) found a positive relationship between corporate social responsibility environment practices and innovation. The authors findings show that the more an organization invests in environmental innovation, the more it improves its competitive factors of innovation. In addition, Tarutė and Gatautis (2014) discussed the effect of ICT adoption in the economic, social, and personal development and confirmed that external and internal communication is important when aligning ICT investments but the technology itself is not as important as induced social and economic achievements.

ICT Security

Another factor to use when adopting new technology is improved security and privacy along with business cost reductions (Gupta et al., 2013). New technologies and new security concerns create new research opportunities on small business awareness,

costs, and implications for investing in new security technology solutions (Harris & Patten, 2014). With the increase in Internet data theft, customers want assurance that the business is protecting their information (Raghavan, Desai, & Rajkumar, 2017). Moreover, small business owners are becoming aware that their size does not provide safety from breaches (Raghavan et al., 2017). As stated previously, microenterprises need additional support, communication, and customer strategy to adopt e-commerce, depending on their requirement and needs of e-commerce (Sandberg & Håkansson, 2014). Thus, IT matters to business success because it directly affects the mechanisms through which businesses create and capture value to earn a profit. Moreover, it is imperative to invest in technology to protect customers as an essential choice for small businesses to be successful and earn customer trust (Raghavan et al., 2017).

Customer privacy concerns may not affect ICT adoption among small businesses. Njenga and Jordaan (2016) found that small business owners prefer to handle matters of security on their own terms by applying neutralization techniques to overcome the effects posed by security threats. Njenga and Jordaan found that neutralization manifests as values held by owners and this can often create the unintended consequences of exacerbating security risk to these small businesses. Despite the consequences, Hamad, Elbeltagi, Jones and El-Gohary (2015) suggested that most customers are aware that their information is stored on e-commerce sites, and are concerned about the security of their data on these sites, but only a few of them make an effort to always check the security and privacy policies of the sites before making purchases. Moreover, Osho, Onuoha,

Ugwu and Falaye (2016) investigated the security awareness of customers of e-commerce sites in Nigeria, and showed that most customers are aware of the use of their information without their knowledge or permission by third-party sites. Despite the experience, users fail to check security and privacy policies before making purchases.

ICT Current Usage

Firms that want to stay relevant in industries must have an active presence online. Angelou and Economides (2014) found that policies promoting content creation increase small businesses online presence. I believe that small businesses must adjust their approach to creating content with this principle in mind. Marnewick (2014) indicated that small businesses are using ICTs as basic tools, rather than integral business elements. Subsequently, websites and other marketing tools improve visibility, generate buzz and referrals, and help to increase small businesses' network (Roztocki & Weistroffer, 2015). Garg and Agarwal (2014), in a review of recent literature on ICT adoption, applied the technology acceptance model and technology organization environment framework, and identified e-commerce, enterprise resource planning (ERP), radio frequency identification (RFID), electronic data interchange (EDI), and knowledge management systems as recently adopted technologies in organizations. However, Oliveira, Thomas, and Espadanal (2014) found that despite the touted advantages of these new technologies, evidence suggests that small businesses have limited technical capabilities and often rely on smaller groups of IT professionals or contract IT staff for their IT needs, resulting in a reluctance to adopt ICT solutions.

According to Apăvăloaie (2014), e-commerce is a trend that represents a new approach to using information, contacting customers, collaborating with suppliers and employees, and marketing. Apăvăloaie focused on the changes that the Internet has brought to the experience of running a business and discovered that the Internet has brought enormous potential in the development of a business with new concepts, such as e-commerce. Hirt and Willmott (2014) suggested that a small business's progressive digital capabilities would determine whether it would gain or lose business value. In addition, most small companies should look at effectively managing their business using data assets (Shim, French, Guo, & Jablonski, 2015).

With regard to the aforementioned perspectives, e-commerce adoption can help small businesses overcome their size disadvantage, expand, and increase their effectiveness (Savrul, Incekara, & Sener (2014). With regard to ICT usage, Thomas, Miller, and Simmons (2015) found that nearly all small firms in South-East Wales had adopted ICTs. Thomas et al. described opportunities that these firms had to develop and diversify their regional economy through e-commerce. Olayinka et al. (2016) acknowledged that e-commerce provides a range of opportunities that assist small businesses in operating and competing effectively, noting that customer-facing processes had gained most from the adoption of e-commerce.

The rapid development of ICTs has changed existing small business structures ways of communication and business growth. Caniels, Lenaerts, and Gelderman (2015) explained why small businesses use the Internet in business processes and the

relationship between market orientation and Internet usage. They found businesses enjoy using Internet-related tools when they see the perceived usefulness and perceived ease of use with existing business processes. Internet usage patterns show that a majority of small businesses use the Internet for customizing services, attracting, communicating with customers, and gaining access to other markets (Zaidan, 2017). Chatzoglou and Chatzoudes (2016) emphasized the areas of importance and benefits of successfully investing in e-commerce and found that businesses adopted e-commerce without consideration of initial investment costs. The adoption of ICTs can help small businesses cut costs by improving their internal processes and improving their product through faster communication with their customers (Nduati, Ombui, & Kagiri, 2015).

Previous research indicates that most small businesses are yet to adopt a social media space (Burgess, Sellitto, Cox, & Buultjens, 2015). Pick, Sarkar, and Johnson (2014) analyzed factors of availability and utilization of ICTs for United States small businesses. They found that social capital, education, societal openness, urbanization, and ethnicity are all associated with ICT utilization. In contrast, Kurnia et al. (2015) found that managerial productivity, operational support, and strategic decision did not have any influence on e-commerce adoption for small enterprises. Instead, they found that e-commerce adoption require technical knowledge and skill, which decrease technical barriers and challenges for the organization. Moreover, Ainin, Parveen, Moghavvemi, Jaafar, and Mohd Shuib (2015) investigated the factors influencing Facebook usage and its financial effect on small businesses and revealed that Facebook usage has a strong

positive influence on financial performance. They also revealed a positive effect on the non-financial performance of small businesses regarding cost reduction on marketing and customer service, improved customer relations, and improved information accessibility. In addition, factors such as compatibility, cost-effectiveness, and interactivity influenced Facebook usage among small businesses.

Gupta et al. (2013) concluded that United States and Europe lagged behind the rest of the world in cloud computing adoption. On the other hand, they found that Latin American and Asia-Pacific companies are the most aggressive adopters of cloud computing. As per this study, the ease of use and convenience is the biggest factor cited by small businesses when adopting the cloud. The results indicated that small businesses find the cloud easy to use, convenient, secured, and their business privacy is well-protected. With advancements in technology, e-commerce is improving standards among the small business community as part of the IT revolution and is widely used in the world trade in general (Shilpa & Kolhe, 2016). Yeboah-Boateng and Essandoh (2013) found that a slight majority of their respondents was familiar with cloud computing on the individual level, but the level of awareness amongst the larger small business industry was low to medium. They recommended education and sensitization on cloud computing in order to increase perception and knowledge about this emerging technology and its prospects.

Another current use of ICTs by small businesses is managing their supply chain. The use of ICTs in supply chain management has proven necessary for the

competitiveness of organizations, by ensuring proper coordination with suppliers, intermediaries and market needs (Colin, Galindo, & Hernández, 2015). However, Mensah, Merkurjev, and Longo (2015) analyzed the vulnerable risk in ICT supply chains such as natural disasters, terrorism, and cyber-attacks. The disruptions could upset productivity, competitive advantage, and profitability if not managed properly. Therefore, Mensah et al. (2015) found that the implementation of ICT in collaboration with other strategies results in business reliance.

ICT and Marketing

The owners of small firms are encouraged to include employees in marketing planning beyond the owner group (Donnelly, Simmons, Armstrong, & Fearne, 2015). Mcelheran (2015) explored the relationship between market position and business process innovation and developed a framework that predicted market leaders undertake business process innovation based on the complexity of the process, the firm's organizational structure, and the innovation's effect on customers. In a similar study, Iqbal and El-Gohary identified possible factors that have an influence on the adoption of e- marketing by small businesses by reviewing different theories such as the technology acceptance model, the DOI theory, and the decomposed theory of planned behavior model. They found that organizational readiness (i.e., size, cost, accessibility, financial, technical, and other resources), security, government pressure and support, industry pressure (competition), top management support, international orientation of the

enterprise, and entrepreneurial skills were the most investigated factors by small business researchers.

Developing products specifically for target market segments is a characteristic of business model innovation (Jain, 2014). Mutandwa, Taremwa, and Tubanambazi (2015) found that small businesses performance relies on marketing and entrepreneurship skills, the working environment, materials, and infrastructure availability. In addition, small businesses focus on unique products, services, strategies, and customer relationships so that they can stock products that meet the specific needs of individual customers and react quickly to local events and new information. Mcelheran (2015) suggested that market leaders were more likely to adopt new e-commerce practices only in settings that required little customer investment or where customer capabilities well align with new technology.

Moreover, Alford and Page (2015) found that the adoption of technology for marketing is essential for small businesses to survive. While studying 24 owner-managed small businesses, they found an interest in and recognition of the opportunities associated with adopting technology for marketing; however, they found that business owners' lack of knowledge and inability to measure the return on investment caused a constraint on small businesses' ability to take advantage of e-marketing opportunities. In addition, Lindström and Polska (2016) investigated sales and marketing in small businesses in the business-to-business sector. Lindström and Polska found that some companies are more competitive in local services, marketing campaigns, and pricing while others are more

cooperative in branding, marketing, joint customers, and deliver services. They showed that activeness, geographical distance, and personal resources are factors for small business ICT success. Thus, Lekhanya (2016) critically discussed the factors that influence the use of e-commerce and small businesses marketing strategy. Lekhanya used a mixed method approach in collecting data from rural areas and found that most respondents believe that cost-saving and other financial factors in the form of benefits for the customer motivate the use of e-commerce. However, a large number of respondents disagreed that the use of e-commerce has changed their consumer buying behavior.

Government Influence

Government support has a direct influence on small businesses intention to use e-commerce (Awiagah, Kang, & Lim, 2016). However, as Faloye (2014) noted, small businesses must optimally use government financial assistance and Internet security for their e-commerce operations. In a study on the barriers and determinants of small business use of e-commerce in developing countries, Faloye used descriptive statistics to show that a majority of small businesses had not yet adopted e-commerce and, therefore received no online sales. Faloye concluded that to fully embrace e-commerce, small businesses must have regular electricity supply, government financial assistance, Internet security, and a regulatory system. Moreover, Ahmedova (2015) observed that small businesses should optimize business internal processes and access the Internet more. Ahmedova argued that guidelines should become part of government policies in

supporting small businesses competitiveness and the direction of sustainable development.

In addition, Kossäi and Piget (2014) found that government support programs designed to facilitate the adoption of ICT should be a future priority to produce a highly skilled, flexible workforce that is able to make optimal use of new technologies while adapting quickly to new situations. In addition, Nguyen et al. (2015) examined the development of ICT in small businesses and the role the government plays in expediting the growth of ICT by establishing science and technology parks for business growth. Using interview data drawn from small business managers, the researchers found that although the process of business development is evident in all development, there is a lack of consistency and implementation. Moreover, Chee, Suhaimi, and Quan (2016) showed that small businesses encountered a scarcity of resources in financial resources and knowledge, but that with government support, training, cyber laws, and financial aid, small business leaders grew more aware of the government's role in promoting e-commerce. Thus, policy makers should promote policies aimed at financing the acquisition of technical infrastructure and then encourage its adoption amongst less innovative firms (Lorenzini, 2014).

This literature review process allows the researcher to show the need for research on factors that might contribute to the success of ICT adoption by small business owners. In this, I have presented researchers' findings on factors and strategies that might contribute to ICT success. Earlier in Section 1, I discussed the business problem and

purpose of the study and introduced Rogers's theory of innovation as a relevant theory for understanding how small business owners' make decisions to invest in innovation to sustain a competitive advantage. With the constant changes in ICT, I designed this study to contribute new insights and identify new factors that could be useful to existing or aspiring small business owners. Section 2 includes information regarding the (a) role of the researcher, (b) selected participants, (c) research method, (d) data validity criteria, and (e) data collection and analysis process. Section 3 includes an analysis of the results, implications, and recommendations derived from the research findings.

Transition

In Section 1, the chosen research method and design is the qualitative case study. I defined the research population as small business owners in central North Carolina who have been in business for 5 years or more and successfully implemented ICTs to improve their business profitability. The theoretical base is the DOI theory. The purpose is to understand success factors and strategies in ICT the business owners use to achieve profitability and maintain sustainability for 5 years or more. Section 2 includes: (a) a more detailed description of the role of the researcher, (b) the sampling methods, (c) the data collection and analysis techniques, along with (d) means for assuring the reliability and validity of qualitative research studies. Section 3 follows with a report of the results and findings of the study.

Section 2: The Project

In this study, I focused on understanding how small business owners used ICTs to maintain a competitive advantage and generate profits. This section includes detailed information concerning the research method and design, population, and details on data collection procedures and data analysis techniques. The section also includes a discussion of assuring validity and reliability.

Purpose Statement

My purpose in this qualitative multiple case study was to explore ICTs small business owners used to improve business profitability strategies. The specific target population was six small business owners in central North Carolina who had successfully implemented ICTs to improve their business profitability. The implication for positive social change included the potential to increase business opportunities for small businesses, resulting in better service for local communities and improved customer satisfaction through the better use of ICTs.

Role of the Researcher

My role in data collection was the primary data collection instrument during interviews, as well as to interpret and analyze data to address the research problem. Marshall and Rossman (2016) suggested using interviewing as an efficient method to obtain the necessary amount of data to accomplish a research objective. In general, the quality of data collected for a study depends on the quality of the data collection instruments, such as questionnaires and interviews, as well as the process of

administering them (Twining, Heller, Nussbaum, & Tsai, 2016). When researchers use interviews for data collection, the development of an interview protocol can increase the quality of data obtained (Castillo-Montoya, 2016). Moreover, receiving feedback on an interview protocol can enhance its reliability and trustworthiness as a research instrument (Castillo-Montoya, 2016). By enhancing the reliability of interview protocols, researchers can further increase the quality of data they obtain from research interviews (Morse, 2015). In addition to interview data and notes from the interviews, I reviewed participants' websites and did site visits to observe the business owners technology processes.

In conducting case study research in the workplace, it is important to use a flexible and understood process, abide by a study protocol and follow the same steps in each environment while applying the same methods to create a description of the case that is as accurate and as complete as possible (Cronin, 2014). I followed the interview protocol, making sure to stay focused on the interview questions and anticipate related issues without leading the participants. Researchers must use best practices when applying methodology and transparency to demonstrate a logical chain of evidence from raw data to theory (Reinecke, Arnold, & Palazzo, 2016). I conducted semistructured interviews. During interviews, fixed questions for all participants, presented in the same order, can solicit responses that will be conducive to the development of short statements about the topic that could be used later in the coding process (Morse, 2015). In keeping

with these recommendations, I used an interview protocol to provide systematic instructions regarding the interview process.

In conducting this study, I demonstrated compliance with the standards of Walden University's Institutional Review Board (IRB) concerning research on human subjects. Participation in this study volunteered. The Belmont Report outlines ethical principles that apply to research with human subjects, which serve as a framework for all IRBs (Miracle, 2016). Researchers follow these guidelines to protect the rights of all research participants with respect for persons, beneficence, and justice (Miracle, 2016). The researcher's role involves balancing participant protection and autonomy (Wilson, Kenny, & Dickson-Swift, 2017). After all participants signed the informed consent form, data collection began.

Detailed notes and electronic recordings during observations reduced errors and misinterpretation of data. Researchers must demonstrate, with valid and appropriate methods, validity, and credibility by convincing readers that their results are accurate and credible (Whitehead, Crowe, Bugge, & Coppell, 2016). Lack of reflexivity in conducting fieldwork, building rapport, and undertaking analysis reduces the validity of the reported findings (Fletcher, DeMassis, & Nordqvist, 2016). I took detailed notes and audio recorded the participant interviews.

Roulston and Shelton (2015) recommended incorporating critical self-awareness while emphasizing dialogic, reciprocal, and ethical emphasis in subjectivity and reflexivity of relationships between the researcher and research participants. I used a

reflective journal. In qualitative research, a reflective journal may be used to record thoughts and ideas during data collection about decisions made during research, which can help the researcher in developing final themes (Houghton et al., 2013) and mitigate bias (Khan, 2014a). Together, self-reflexivity and insider knowledge can enrich the experience of research practice (Devotta et al., 2016). Participants commented on the transcript of their responses and noted whether the themes and concepts adequately reflected the phenomena being investigated.

Although I have not improved business profitability by implementing ICT strategies in my own business, I held a previous position in the information and technology field. In my current position at Western Governors University, I am in the IT department. I made conscious efforts to recognize and set aside any preconceived notions arising during this process, and I documented when bias could affect the research process. Subjectivity and bias provoke questions about theory, research ethics, research design, conduct, and the value of research for society (Roulston & Shelton, 2015). The data collection techniques for the study included conducting interviews until I achieved data saturation. After the interviews, I shared a full transcript of the participant's responses with the participants for member checking.

Participants

The method of sampling is of central importance in qualitative research (Robinson, 2014). In addition to selecting a research topic and appropriate research design, obtaining an adequate sample supports the credibility of research, the collection

of sufficient data, and reliable analysis and reporting (Marshall & Rossman, 2016). The number of participants in a study should support transparency, saliency of information, and sufficient breadth of coverage within the responses (Saunders & Townsend, 2016). I used a purposeful sampling technique to select six participants for this study. Each participant was a small business owner who had successfully implemented ICT strategies to improve business profitability. Purposeful sampling is an appropriate approach for case study research involving individuals or groups who have experienced a phenomenon of interest (Palinkas, Horwitz, Green, & Wisdom, 2015). To meet inclusion criteria for this study, each participant was (a) a business owner in central North Carolina, (b) functioned as an individual in a leadership position, and (c) used successful ICTs to improve business profitability.

To gain access to qualified participants, the researcher may contact informants directly or with the help of employees, managers, personal contacts, or even research participants themselves (Peticca-Harris, deGama, & Elias, 2016). For this study, I identified six companies with ICT strategies that had contributed to achieving business goals in central North Carolina using informants. Six small business owners received an invitation to participate in the study, along with an informed consent form. Successful contact with informants depends on accessibility, the researcher's comfort level, and establishment of rapport (Luo & Bu, 2016). Prospective participants in this study received information regarding the privacy and confidentiality of the obtained data.

The informed respondents will participate in an ongoing consent process (Khan, 2014a). I prepared for the interview by reviewing background data about the interviewee. A phase of initial rapport building before data collection begins (Luo & Bu, 2016). Thus, interviews can enhance rapport between interviewer and interviewee while increasing engagement (Luo & Bu, 2016). The participants were willing to attend interview sessions and allow 30 minutes of time for interviews at their place of business. To verify the transcript and to gather any new information, if applicable, I conducted member checking after each initial interview.

Research Method and Design

Research Method

A qualitative research approach is an appropriate choice for this study. Qualitative researchers seek the understanding on the discussion of concepts of interest in literature and then attempt to add to the conversation (Roulston & Shelton, 2015). The differences between qualitative and quantitative research methods involve philosophical assumptions, research questions, methods, analysis and reporting (Dongre & Sankaran, 2016). The method of choice for a specific study depends on the research question as well as the purpose of the study. The research questions and purpose of this study of small business owners' use of ICT strategies to improve business profitability aligned with the qualitative method more than the quantitative method.

Qualitative research is appropriate when used for data collection and analysis that involves identifying and exploring facts associated with the phenomenon of the study

according to the respondents' perceptions (Khan, 2014a). In contrast quantitative and mixed method research studies involve the use of sampling strategies based on probability theory to ensure that knowledge represents the sample population (Palinkas et al., 2015). A qualitative study is more appropriate for this study than a quantitative or mixed method because my aim is to explore the meaning of the lived experiences of small business owners. Qualitative research methods include semistructured interviews designed to increase the reliability and credibility of qualitative data, as qualitative researchers are obligated to make a convincing empirical case that their findings and interpretations are consistent with the data (Arino, LeBaron, & Milliken, 2016). While developing this study, I reviewed all three methods before selecting a qualitative multiple case study design.

Research Design

The function of a research design is to ensure that the evidence obtained enables the researcher to answer the initial research question as clearly as possible. Qualitative researchers aim to design and include methodological approaches to ensure the reliability of the findings (Noble & Smith, 2015). A case study was the design of this research study. A case study design involves demonstrating how interviews are engaged as vital members of the research process (Devotta et al., 2016). Wilson (2016) reminds us that a case study is a research design used to collect the evidence based on the angle of the research question. Subjectivity and researcher bias are prevalent in case study design (Devotta et al., 2016; Fusch & Ness, 2017). Roulston and Shelton (2015) noted that

relationships between researchers and research participants that emphasize dialogic, reciprocal, ethical and self-awareness on the part of the researcher help mitigate bias and subjectivity.

Case study research design involves a flexible approach to gathering multiple perspectives from various sources to complete a picture of the phenomena portrayed (Houghton et al., 2013; Wilson, 2016). A single case study includes a comprehensive description and analysis of an individual case and is about determining what the investigated case may be (Fletcher et al., 2016; Starman, 2013). I achieved data saturation and ensured the quality of collected data. Researchers reach the saturation in the study when the participant information is repetitive and no new information emerges (Fusch & Ness, 2015). This method was suitable for analyzing the experiences of small business owners who had successfully implemented ICTs and have maintained their businesses for 5 years or more.

Other qualitative research designs such as phenomenological were less appropriate for the study. Phenomenological researchers aim for awareness of participants' experiences as a human being within specified circumstances that reflect a phenomenological lifeworld (Khan, 2014b; Willis et al., 2016). Rather than describing phenomena, phenomenological studies focus on how people perceive and talk about objects and events (Pietkiewicz & Smith, 2014). By maintaining a measure of sample homogeneity, phenomenological studies stay within a defined setting and any generalization from the study comes from the local sample and not beyond any

speculative or abstract level (Robinson, 2014). Therefore, I selected the case study as the design for this research study.

Researchers use ethnographic strategies when the goal is to understand a culture, and to explain its spoken and unspoken nature to people outside of the culture (Grossoehme, 2014). Ethnographic case study designs enable researchers to generate and study theory in real-world applications (Fusch & Ness, 2017). Ethnographic design was not appropriate for the study because this study does not detail the description of the whole of a culture outside of the country of origin of the researcher (Grossoehme, 2014). The focus of the research was to explore factors that small business owners attribute to the success of implementing ICT while sustaining a small business for a minimum of 5 years. Although all firms have cultures, this study did not focus on the cultures of small businesses. The goal of this research was to understand the strategies used to implement ICTs for business profitability. There is no intention to establish a theory or gather the unique lived experiences of individuals, so I did not select phenomenological or ethnographic as the research design.

Population and Sampling

Sampling incorporates the number of participants, the number of contacts with each participant, and the length of each contact (Marshall & Rossman, 2016). Purposeful sampling identifies and selects cases related to the phenomenon in qualitative research (Palinkas et al., 2015). When using a purposive sampling stratification, there must be clear theoretical grounds for the categories used with referenced sources (Robinson,

2014). The sampling of participants involved confirmation that each met the participant criteria. Therefore, purposive sampling is suitable when the researcher seeks participants with the best knowledge concerning the research topic (Elo et al., 2014). A purposeful sampling technique was the process I used to select all six participants from the population of small businesses who successfully implemented ICT strategies for business profitability.

I interviewed in person at the participant's selected place of business. Despite the challenges, gaining knowledge of the conditions experienced by the participants is crucial to the development of ethical research (Devotta et al., 2016). Data saturation is achieved when a researcher does not obtain additional information, and when further coding is no longer feasible (Fusch & Ness, 2015). While quantitative research highlights numbers and volumes of data collected, qualitative research prioritizes depth and quality of data collected (Onwuegbuzie & Byers 2014). Scheduling of the business visits occurred at the time selected by the participants.

Researchers use semistructured interviewing to increase the reliability and credibility of qualitative data because the method allows research subjects to provide comparable and contrasting answers to the same interview questions (Arino et al., 2016). Relevant data collection methods that produce rich and thick data descriptions assist with this process when combined with an appropriate research study design to answer the research question (Fusch & Ness, 2015). I intended to use this case study to understand small business owners' successful and profitable implementation of ICT strategies. ICTs

affect business development (Luo & Bu, 2016). My goal was to explore the successful strategies used by the owners.

Robust and transparent communication between researcher and participants require fewer participants but offers sufficient quality information (Malterud, Siersma, & Guassora, 2016). I used the purposive sampling strategy. Purposive sampling involves comparing and contrasting to identify similarities and differences in the phenomenon of interest (Palinkas et al., 2015). Justifying the sample size in qualitative studies is evidence that the chosen dataset sufficiently addresses the research problem (Marshall & Rossman, 2016).

Qualitative researchers justify sample size by selecting participants with a clear rationale for fulfilling the research question and providing quality data that is reflected (Cleary, Horsfall, & Hayter, 2014). For example, the majority of participant interviews represent the data only stopping information gathering when reaching redundancy or saturation. The researcher may use a quota sample that interviews a certain number of people with positions of interest essential for understanding the concepts (Morse, 2015). Nevertheless, the interviews provided me a beginning to seek information from those who most likely know the information required to move the understanding forward. I interviewed six small business owners who had established ICT strategies for 5 years or more and achieved profitability.

Researchers use convenience sampling in qualitative research by locating appropriate cases that meet the criteria and selecting until sample size is fulfilled

(Robinson, 2014). The data collection techniques for the study included conducting interviews until I achieved data saturation. I achieved data saturation when I had enough information to find that participants' responses are duplicative and no significant new information exists. After the interviews, I shared the transcript of the participant's responses with the participants for member checking.

The objective was to obtain the optimum amount of detailed information from the interview participants until no new themes or patterns are evident. Fusch and Ness (2015) noted that researchers reach data saturation when (a) collecting enough information to replicate the study, (b) attaining the ability to obtain no new additional, and (c) when further coding is no longer feasible. Researchers use well-saturated data to simplify its categorization and concepts (Elo et al., 2014). When no new data is collected and no new themes emerge, the researcher has achieved data saturation (Fusch & Ness, 2015). For this study, I interviewed six small business owners who had successfully implemented ICTs, maintained a business for 5 years or more, and achieved profitability. When I determined that no new themes or additional information emerged in participants' responses after the sixth in-depth interview, then the interview process stopped.

Researchers improve the quality of data when appropriately deciding about units of observation and analysis (Roy, Zyonkovic, Golberg, Sharp, & LaRossa, 2015). I analyzed the data using the NVivo software program. Researchers use specifically developed qualitative data analysis software such as NVivo to simplify complex and difficult coding procedures (AlYahmady & Al Abri, 2013). I also analyzed the

company's business reports. Researchers use corporate reports, with standardized reporting guidelines, to provide a complete picture of a business's sustainability performance (AlYahmady & Al Abri, 2013). During the interviews, I focused on the questions avoiding any additional comments.

Ethical Research

I followed Walden University's IRB procedures to guide the study. By IRB procedures, each participant received an informed consent form that identified (a) purpose of the study, (b) researcher's responsibilities, (c) procedures ensuring confidentiality, and (d) participants role. A researcher will first need to secure permission from an individual (Robinson, 2014). Potential interviewees acknowledge the purpose of the study, of what participation necessitates, of its voluntary nature, how confidentiality protects them and other information that helps interviewees reach an informed consensual decision to participate (Robinson, 2014). Prospective participants voluntarily signed the informed consent form before data collection began which occurred after IRB approval.

The consent form included a statement indicating that the participants would not receive compensation for participation, and participants were free to withdraw from the study at any time by notifying me via email. I scheduled interviews after receiving completed consent forms. I coded identities to protect privacy. I classified the items of data by assigning a number, word, or phrase. The final doctoral study document includes the Walden IRB approval number and does not include names or any other identifying information of individuals or organizations.

I stored collected data for the research study in a password-protected file on the computer's hard drive. All participants are aware research data received will be confidential. Signed and scanned consent forms advising participants of risks, benefits, and purpose of the study will remain on a personal password-protected computer for 5 years to protect the confidentiality of participants and safeguard the data (Check, Wolf, Dame, & Beskow, 2014). After 5 years, I will destroy all data by deleting electronic files from the computer. Walden University's approval number from the Institutional Review Board for this study is 08-06-18-0550435 and it expires on August 5, 2019.

Data Collection Instruments

I served as the primary instrument for data collection using semistructured interviews. The researcher is the instrument who relies on foundationalist assumptions and controlling for the personal attributes of bias when interacting with participants (Roulston & Shelton, 2015). Data from interviews were face-to-face verbatim record based on meeting with participants. Interview research with an idiographic aim seeks a small size for individual cases to have a locatable voice and intensive analysis of each event (Robinson, 2014). Researchers capture both retrospective and real-time accounts by the people experiencing the phenomenon (Gioia, Corley, & Hamilton, 2013). Scheduling of times and dates for the interviews were of mutual convenience, in a quiet and private setting.

I used semistructured interviews as the principal data collection tool in this study. The semistructured interview method offers researchers a flexible communication

medium where respondents are encouraged to speak freely about the topic of interest (Onwuegbuzie & Byers, 2014). Researchers require a signature on the consent form before beginning the interview process. Researchers must give a realistic view of the difficulties relating to confidentiality making clear to potential informants their protection of not publishing, withholding certain results or by modifying certain data (Helgesson, 2015). Having the expertise of people with lived experience helps to contextualize, communicate and apply findings (Devotta et al., 2016). Semistructured interviewing allowed participants to provide answers to the research questions in their own words.

The interview responses related to the research question and the participant's strategies made up the data. Alignment between interview issues and research questions can confirm the purpose of the meeting and ensure necessity for the study (Castillo-Montoya, 2016). Open-ended questions are appropriate for this qualitative case study, where participants respond in their own words while stimulating self-exploration and discovery (Cronin, 2014). According to Onwuegbuzie and Byers (2014) the face-to-face interview format encourages respondents to speak openly. The interviewer displays principles of neutrality that promotes a balance of sufficient interest promoting dialogue (Devotta et al., 2016). The topics included strategies about the small business owners' ICT implementation strategies.

Researchers use an interview protocol for semistructured information collection from interviewees (Onwuegbuzie & Byers, 2014). The interview questions and protocol for this qualitative case study are in Appendix A. Researchers use the interview protocol

as a guide, comprised of specific questions that ensure comparable responses from each participant (Cronin, 2014). The interview protocol in Appendix A includes six open-ended interview questions that guided the interview process. Case study research has practical applicability because the research reflects real life (Cronin, 2014). The six questions revolved around the goal of determining how small businesses in central North Carolina became successful at implementing ICT strategies for business profitability.

I ensured the privacy of each interviewee by using codes for each participant to maintain confidentiality. Data from direct observations resulted in notes taken during the interviews. I used direct observations and interviews. Researchers use direct observations to examine activities in real time, providing natural occurring contextual data on the topic (Morgan et al., 2016). Researchers use interviews to help support qualitative studies reach data saturation (Fusch & Ness, 2015). I enhanced reliability and validity using member checking. The data collection techniques for the study included conducting interviews until I achieved data saturation. After the interviews, I shared the transcript of the participant's responses with the participants for member checking.

Researchers use member checking to support credibility by affirming the interpretations are accurate and complete (Morse, 2015). Both the interviewer and the interviewee may negotiate the level of information provided about the study. I recorded all interviews on a portable digital recorder, using my iPhone as a backup, and transcribed the interviews before storing them electronically in word processing format on a secure computer hard drive for analysis and theme discovery.

Data Collection Technique

For this qualitative case study, data comes from direct observations, participant interviews, and company documents such as feasibility studies and written business plans that provide answers to the research questions. Researchers use interviews as an approach in collecting data by following a line of questions to gain information about a topic (Cronin, 2014). I used an interview protocol (see Appendix A) to conduct personal interviews with six small business owners who had been in business for 5 years or more and successfully implemented ICT strategies for profitability. The researcher develops and pilots the interview protocol, and as discussions involve interaction and sensitive issues, the researcher considers all ethical aspects (Cronin, 2014). The core interest is in collecting data that accurately address the research question and capture relevant aspects of the phenomenon (Eisenhardt, Graebner, & Sonenshein, 2016). I obtained a signed consent form from each participant before interviewing and conducting observations at the participant's place of business.

Potential disadvantages of the data collection technique include remaining focused and attentive during the interview while not being overly intrusive or excited, thus, leading the contributors (Robinson, 2014). Consequently, new concepts can emerge from questioning. A strategy to ensure trustworthiness is to choose the best data collection method to answer the research question of interest (Elo et al., 2014). Data collection from conducting interviews allows the researcher to develop rapport and gives the researcher the opportunity to observe and listen (Robinson, 2014). Accordingly, the

researchers' interviews provide the researcher a sense of the core issues to ask in the interview (Castillo-Montoya, 2016). After interviewing, researcher notes reflect the researcher's impressions of the interactions (Robinson, 2014). When transcribing the participant's responses, I recorded the interviews on my iPhone for authenticity, For establishing credibility, researchers ensure those participating in research are accurately identified (Elo et al., 2014). When the interview is complete, the investigator will continue by evaluating how well categories cover the data and identify any similarities and differences between groups (Elo et al., 2014). Respondents participated in member checking by reviewing the transcript of the participant's responses. Member checking supports credibility by affirming the interpretations are accurate and complete (Morse, 2015). In addition, the level of information provided about the study was interviewed by both the interviewer and the interviewee.

Data Organization Technique

I created a file for each contributor to store the consent form and interview transcripts. The most common methods for storing data are via desktop or computer hard drives and external hard drives (Glaser & Laudel, 2013). I used the manual coding process when reading the interview transcripts, observational notes, and other relevant documents to formulate initial categories, themes, and relationships. According to Yin (2014), coding is a key step in qualitative data analysis by breaking the data into manageable pieces.

I organized the data into manageable pieces. To arrive at explanations, researchers need to systematically reduce the complexity of the data gathered in qualitative studies (Glaser & Laudel, 2013). I used the NVivo software program to label, code, classify, categorize, and organize data. Researchers utilize a system of categories to structure data by detailing the link between the data and the interview questions (Glaser & Laudel, 2013). I coded each file to protect the privacy of the participants. As part of the organization phase, an explanation of category creation indicates trustworthiness (Elo et al., 2014). After the study is complete, all data will be stored securely for 5 years. Encryption and storing information in a secure off-line location increases the security of data (Glaser & Laudel, 2013). After 5 years, I will shred all paper documents and erase all electronic storage devices.

Data Analysis

In this qualitative case study, I used methodological triangulation and manual coding methods to analyze qualitative data about small business owners who have successfully implemented ICT to improve business profitability. Researchers use methodological triangulation to combine two or more data sources to study the phenomenon (Hussein, 2015). For confirmation, researchers use multiple methods of data collection to gain a clear, comprehensive view of the phenomenon (Cope, 2014). Gathering and comparing data from multiple sources govern the confirmation of findings (Houghton et al., 2013). I used evidence from different types of data sources, such as observations, websites, and written business plans that provided answers to the research

questions. As I completed each interview, I reviewed the data, coded the identity of each participant, and stored the transcript in an electronic database.

I followed Yin's (2014) 5-step process to provide a structured approach to data analysis, which is: (1) compile the data, (2) disassemble the data, (3) reassemble the data, (4) interpret the meaning of the data, and (5) conclude the data. During the first step, to compile the data, I consolidated and converged all data onto a hard disk. Typically, the researcher records interviews digitally to capture all of the interviewees' details and then transcribe the electronic sound files to a text-based word processing application under the interviewee's name (Hamed et al., 2013). I used NVivo as an instrument for recording the decisions.

During the second step, to disassemble the data, I used a process to code the data for obtaining a clear data structure. According to Yin (2014), coding is a key step in qualitative data analysis by breaking the data into manageable pieces, which the researcher then reconstructs to reflect back a view of reality. The data analysis process starts by reviewing data and making evidence-based decisions on organizing codes instead of beginning with a coding framework and preconceptions about the topic (Finfgeld-Connett, 2014). The analysis focuses on identifying key themes, correlating the key issues with prior literature as well as new studies published after proposal approval, and the conceptual framework established for the study (Cope, 2014). I used the manual coding process when reading the interview transcripts, observational notes, and other relevant documents to formulate initial categories, themes, and relationships.

During the third step, to reassemble the data, I continued to structure the data in an iterative manner. Data analysis continued during transcription to find themes that became evident based on interview responses. Researchers use the qualitative content investigation to extract data and create concepts (Elo et al., 2014). Researchers use procedures to ensure the validity of the data and help identify themes and mitigate research biases (Finfgeld-Connett, 2014). I focused data analysis on identifying keywords and phrases of the themes on strategies used for successful implementation of ICTs.

During the fourth step, to interpret the meaning of the data, I used an iterative process that included revisiting previous steps in the data analysis process. Preparation, organization, and reporting are phases examined in the study; together, they give the reader a clear indication of the overall trustworthiness of the study (Elo et al., 2014). Researchers use NVivo during the analysis phase of case study research as a tool to record decisions (Houghton et al., 2013). I organized data around coded responses to help categorize issues for analysis and used NVivo software as a tool to facilitate coding the responses.

During the fifth step, to conclude the data, I critically analyzed the data and derived any significance for my research study and for the implications for the findings, tied to conceptual framework, business practice, social change, and future research direction. Researchers use qualitative content reviews to build knowledge and generate theory from highly organized and contextualized data (Finfgeld-Connett, 2014). The

results of this study included the successful methods and strategies small business owners used to profit their companies using ICTs.

Reliability and Validity

Qualitative researchers incorporate methodological strategies for establishing reliability and validity of research findings (Noble & Smith, 2015). Quantitative researchers seek rigor and validity, while qualitative researchers view credibility and trustworthiness in their studies (Cope, 2014). Therefore, the quality relates to increasing the reliability of the research by establishing dependability, credibility, transferability, confirmability, and authenticity (Pandley & Patnaik, 2014). The quality of investigation tests the constructs of reliability and validity (Noble & Smith, 2015). Whenever the researcher addresses the concepts of reliability and validity, they denote credibility (Pandley & Patnaik, 2014). Researchers choose the best data collection method to answer the research questions as a strategy to ensure trustworthiness (Elo et al., 2014). According to Fusch and Ness (2015), researchers use methodological triangulation methods to ensure validity by exploring different levels and perspectives of the same phenomenon.

Reliability

Reliability in qualitative research includes sufficient presentation of the data, so the reader has enough of a background to be able to agree or disagree with the researchers' interpretation of the data (De Massis & Kotlar, 2014). In general, similar results and conclusions are possible when repeating a certain study, leading to increased reliability (Starman, 2013). To enhance consistency, researchers use a protocol that

transparently clarifies the research procedures and specifics of conducting the study (De Massis & Kotlar, 2014). Abiding by the study protocol, following the same steps and carrying out methods the same improve reliability (Cronin, 2014). Incorporating methodological triangulation improves the accuracy and the opportunity for completeness of the study (Morgan et al., 2016). Researchers include multiple sources of reliable data by displaying the same result if repeating the study under a stable state of circumstances (Starman, 2013). Cope (2014) explained that with methodological triangulation, the researcher uses multiple methods of data collection to gain a clear, comprehensive view of the phenomenon.

Researchers construct explanations of the observed phenomena with two goals of methodological triangulation: confirmation and completeness of data (Cronin, 2014). Methodological triangulation decreases the deficiencies of a single strategy and increases the scope for interpreting the findings (Cronin, 2014). Incorporating methodological triangulation improves the accuracy and the opportunity for completeness of the case study (Morgan et al., 2016). I ensured reliability through the process of member checking. To ensure reliability, researchers use member checking, where participants review a summary and interpretation of data for accuracy and the opportunity to clarify any questions (Cronin, 2014). Participants participated in a member checking by reviewing a full transcript of the findings. Member checking supports credibility by affirming the summaries are accurate and complete (Morse, 2015). In addition, both the

interviewer and the interviewee negotiated the level of information provided about the study.

Validity

Qualitative researchers establish validity by the appropriateness of tools, processes, and data (Leung, 2015). Researchers record thoughts about research decisions to enhance dependability and highlight transparency of the study (Houghton et al., 2013). Reliability refers to stable data over time under alternative conditions (Elo et al., 2014). Another method researchers use to ensure validity is methodological triangulation, which explores different levels and perspectives of the same phenomenon (Fusch & Ness, 2015). Research validity strategies also include discussing conclusions with the participants (De Massis & Kotlar, 2014). Researchers accurately present participants' perspectives and outline viewpoints that result in methodological bias (Noble & Smith, 2015). I audio recorded the interviews using my iPhone, transcribed each interview immediately, used notes, and verified the transcript for accuracy using the member checking technique.

Qualitative validity also refers to transferability, relying on findings that can be generalized to other settings (Elo et al., 2014). Houghton et al. (2013) suggested prolonged engagement and persistent observation, methodological triangulation, peer debriefing, audit trail, reflexivity, and thick descriptions as validity strategies. Researchers demonstrate confirmability by establishing that outcomes derived directly from the data (Cope, 2014). The lack of any new emerging data displays saturation

(Houghton et al., 2013). Researchers use NVivo software to include all participant opinions, demonstrate dependability and confirmability of the data by running queries that locate matching criteria (Houghton et al., 2013). I used manual steps and NVivo software for data analysis.

Dependability

Qualitative researchers apply techniques to demonstrate that a repeated study, in the same context, methods, and participants will yield similar results (Pandley & Patnaik, 2014). Dependability occurs when another researcher concurs with the decision paths of the research process (Cope, 2014). Dependability also refers to the stability of data over time and under different conditions (Elo et al., 2014). Basically, this is the the ability to repeat the study and obtain the same results (Morse, 2015). Therefore, I sent the full transcript of the interview data to the participants for review of any discrepancies or errors. The purpose is to evaluate the accuracy of findings as supported by the data and provide an outsider the opportunity to challenge the process and findings of the study (Pandley & Patnaik, 2014). I used the process of member checking to verify the accuracy of the transcript of the participants' responses.

Credibility

Credibility establishes trustworthiness by linking the research analysis with truthfulness evidence. Researchers improve credibility by describing their own experiences as a researcher and verifying findings with participants (Cope, 2014). Research biases enhance the trustworthiness of the results when documented at the outset

of the research study. Researchers use qualitative studies to provide detailed accounts of complex research phenomena in real-life contexts (Starman, 2013). Researchers confirm the accurate identification and description of participants to establish credibility. To support reliability in qualitative studies, the researcher demonstrates engagement, methods of observation, and audit trails (Cope, 2014). Cronin (2014) suggested that data is credible when presented as an accurate representation of the participant's views and experiences.

I demonstrated engagement, methods of observation, and audit trails. Another step that enhances credibility is member checking where the participants validate research conclusions from accurately interpreted data (Cope, 2014). Researchers share interpretations of the participants' responses with contributors and integrate member checking to check, clarify, or contribute additional perspectives on the topic while also reviewing with academics other than the author of the case study (De Massis & Kotlar, 2014). Credibility enhances when researchers describe his own experiences as a researcher and verify the interpretations of the participants' responses (Cope, 2014). Therefore, interviews transcribed verbatim with notes ensures the material reflects the interview process (De Massis & Kotlar, 2014). To enhance the credibility of this study, I used an interview protocol (see Appendix A), the member checking process, as well as the methodological triangulation approach. The interview protocol covers questions regarding past events, current issues, and future ambitions. (Fletcher et al., 2016). I

conducted a review of documents, websites, and procedural manuals that supported the technical analysis of the small businesses.

Transferability

Researchers assess transferability for qualitative studies by adopting the same criteria for validity. Complete generalizability of the study to other settings may not be possible because of the contextual nature of qualitative research. De Massis and Kotlar (2014) suggested enhancing validity in qualitative research by using theory to raise the level of generality describing the phenomenon. Researchers provide information on participants and the research context to assess the findings capability of being transferable (Elo et al., 2014). A qualitative study meets the criterion when the results have a meaning to the individuals not involved in the study who can associate the results with their own experiences (Cope, 2014). In this study, applicability was vital in allowing small business owners to identify strategies that are necessary for implementing ICT beyond the first 5 years of operation.

To achieve data saturation requires the researcher to conduct interviews until indicating the dataset is redundant (Marshall & Rossman, 2016). The use of the interview protocol (see Appendix A) assisted in the reliability of this study. Researchers use semistructured interviews to ask multiple participants the same questions, as a method of reaching data saturation (Fusch & Ness, 2017). I achieved data saturation when no new themes emerged. The data collection techniques for the study included conducting interviews until I achieved data saturation.

I collected data consistently from each participant to minimize bias and processing errors. Spending more time on data collection will provide time to establish trust and intimacy with participants, therefore revealing more valid data (Morse, 2015). In interviews, extensive intimate self-disclosure leads to a more open, interested sample (Robinson, 2014). Houghton et al. (2013) suggested that prolonged engagement helps the researcher understand the core issues affecting the quality of data and minimize the misrepresentations of information while developing trust with participants. I used in-person interviews as the primary data collection technique.

Confirmability

The researcher demonstrates confirmability by describing how conclusions and interpretations emerge, and providing quotes from the participants (Cope, 2014). Confirmability refers to the potential for correspondence about the accuracy and relevance of the data (Elo et al., 2014). Researchers demonstrate confirmability by describing the establishment of conclusions and interpretations that findings derive straight from the data (Houghton et al., 2013). I achieved confirmability by following an established interview protocol, recording, and analyzing all transcripts, taking additional notes during the interview process, and member checking. I demonstrated confirmability by describing how conclusions and interpretations emerge by providing quotes from the participants. During the study, I adhered to procedures for documenting data collection and analysis. I provided copies of the consent form and interview protocol (see Appendix

A) along with a description of the steps taken to transcribe and verify data. I established confirmability of the research.

Transition and Summary

Section 2 included the role of the researcher, the selection of the method and design, research questions, the defined population, sampling strategy as well as the means to analyze the data. The objective of section 2 was to discuss areas of research method and design, selected population, to provide an understanding of the selected sample, to make available protection of rights, privacy, and confidentiality of selected participants and to highlight the sampling process. I also discussed concepts of the data collection instruments, data collection technique, and data analysis. I completed section 2 with an exploration of the reliability and validity of this study. In this study, I conducted interviews with six small business owners in central North Carolina who have been in business for 5 years or more and successfully implemented ICT to achieve profitability. The findings could provide information for other small business owners who are considering applying ICT so they can understand how the participants attain sustainability and profitability. In Section 3, I included the findings of the study, the significance of the study and potential implications for social change. I also provided recommendations for action and further study, as well as a summary of the study.

Section 3: Application to Professional Practice and Implications for Change

This section includes the presentation of the findings gathered from open-ended, semistructured interviews with small business owners who have sustained business for at least 5 years and successfully implemented ICT that increased profitability. Overview of the study, presentation of the findings, application to professional practice, implications for social change, and recommendations for action are contained in this section. The section concludes with recommendations for further research, a reflection on my experience, a summary, and the study conclusion.

Overview of the Study

My purpose in this qualitative multiple case study was to explore ICT strategies small business owners use to improve business profitability. The population consisted of six small business owners in central North Carolina. The use of ICT enables small business owner's new ways of creating and delivering products and services on a local and global scale. An effective ICT investment in a number of business needs such as strategic, operational, or marketing requests can enable the business owner to store, process, and analyze data to make strategic decisions that add to the success of the organization and advancement (Goel & Sunena, 2018). Participants of this study shared their views on successful ICT strategies, partnerships or alliances in implementing ICTs, key processes used to implement successful ICT strategies, barriers encountered and addressed when implementing ICTs, and other relevant ICT strategies used to improve

business profitability that refute the aforementioned. My study results include strategies small business owners could use to prepare for successful ICT implementation.

To explore my topic, I interviewed six small business owners (P1-P6) at their small business, which was located in North Carolina. To meet inclusion criteria for this study, each participant had to (a) have been a business owner in central North Carolina, (b) have functioned as an individual in a leadership position, and (c) have used successful ICTs to improve business profitability. Using methodological triangulation my data sources included interview data and notes, company website information, and site observations. I identified three themes. The themes were (a) small business owners' optimize online business applications, (b) small business owners' ICT security awareness, and (c) small business owners' overcoming barriers to adopting an ICT strategy.

Presentation of the Findings

The overarching research question guiding this study was: What ICT strategies do small business owners use to improve business profitability? To answer this research question, I conducted semistructured interviews and conducted site visits with six eligible participants selected using the purposive sampling technique. I followed my interview protocol, which included obtaining consent first, then built rapport with the participants about their ICT small business experience and collected my data by asking six open-ended interview questions. The interviews occurred and were completed in the business

owners' place of business within the 60-minute timeframe indicated on the informed consent.

While conducting the interviews, I took notes and recorded interviews. To verify my interpretations of each participant's responses, I conducted member checking after each initial interview to gather any new information, if applicable, until I reached data saturation. I then coded the interview data. Member checking assured that my interpretations of participants' comments during the interviews accurately reflected the intended message. Thomas (2017) recommended that member checks are useful in obtaining participant approval for using quotations, which I did. I had 100% participation, which led to two opportunities for further clarification. The first opportunity was P3's clarification regarding the owner role versus the employee's role as a barrier to implementing ICTs. In the second opportunity, P4 emphasized that before adopting new technology, they initially provided training in the new technical areas.

I conducted two interviews with each participant, the initial interview then the member checking interview. Each business owner received an alphanumeric symbol to distinguish between respective responses. In order of volunteer status, the six participants received unique identifiers as P1, P2, P3, P4, P5, and P6. Open-ended questions established general topics and allowed the participants to respond with wide latitude. The small business owners responded to questions purposely designed to contribute to the central research question. Additional data came from secondary sources such as company website information, and site observations. When I achieved data, I stopped the interview

process and loaded the data through NVivo11 for Windows, which helped me code and create labeling systems to find themes within my data. With an inductive approach, I used Rogers's DOI theory as my conceptual framework to compare and interpret research findings. After review and comparison, the findings aligned with both the literature and conceptual framework. This section contains the themes discovered and verbatim responses of the participants.

Emergent Theme 1: Small Business Owners Optimize Applications

The research with the small business owner has identified a number of themes, which indicates that they have an understanding of ICT implementation and processes. The themes could provide business owner's with useful strategies for implementing ICTs. One example is the small business owners' focus on optimizing applications. In 2018, social media applications are an effective tool for small business owners in advertising of products and creating customer pages that welcome suggestions and opinions, which help in improving their businesses (Shabbir, Ghazi, & Mehmood, 2016). This theme occurred during the 12 interviews, or 100% of the total sample.

P1 emphasized, "Selecting new applications and processes that are optimized for specific business functions is vital to minimizing costs." To P1, fast broadband connectivity and online business applications provided the capability of improved information processing tasks for the small business owner. P1 also believed that the upgraded processes and services were an effective strategy in maintaining reliability, serviceability, and profitability. P1 also acknowledged the importance that appropriate

upgrades or application implementations serve in significantly lowering business costs and raising the competitive profile. The small business owner demonstrated processes where applications handled both accounting and book keeping needs.

P3 added, “Utilizing cloud computing strategies increased profits.” Cloud computing is a kind of computing service that can provide cost advantages, scalability, flexibility, and access of the shared resources to the small business owner (Gangwar, Date, & Ramaswamy, 2015). Confirmation of ICT strategies increasing profits was visible by all six business owners during site visits where, each participant admitted that the embracing of the different tech tools, applications, and software made for small businesses created more options, and better and faster ways to increase profits. P5 noted, “Implementing automated application processes may seem expensive at first, in the end, however, ICTs will become cost-effective by streamlining operational and managerial processes.” P4 added, “Having an online payment platform is essential, especially in settings where the small business owner has a visible social media presence.” Social media networks are gateways for companies to make profits and grow in their industry (Shabbir et al., 2016). Small businesses are increasingly using social media applications for business purposes, in particular as part of their communication, marketing, and recruitment strategy.

According to the participants, the effective use of small business applications can enhance business productivity. P5 stated, “Cloud computing syncs all data and devices connected to the cloud, keeping them updated with real-time information.” P1 said that

small business owners could use cloud computing to access information anywhere with any compatible device. P2 also utilized business applications to track sales and expenses, pay employees and vendors, track invoices, and file taxes. Small business owners utilizing applications is an important theme and is present in all thematic categories.

The theme supports the literature review where several researchers reported that applications are useful for communication purposes of product information (Agwu & Murray, 2015; Buxton & Walton, 2014; Idris, 2015). Researchers explained that ICT success in small businesses depends on usefulness and convenience of the applications (Gupta et al., 2013; Jones et al., 2014). The study's framework, Rogers's DOI theory, also highlighted by this theme, explores simplicity and ease of use, and visible results when adopting technology.

Small business applications provide an opportunity to both consumers and business entrepreneurs to communicate effectively. Small business owners considering implementing ICTs can benefit from investing in small business applications from a DOI theory approach. The findings from previous research studies were used to confirm whereby small business owners' lack of understanding the effective use of applications in technology as a main deterrent to effective adoption (Oni & Papazafeiropoulou, 2014). Based on the findings, I confirmed that using small business applications for small business solutions could produce the desired success.

Emergent Theme 2: Security Awareness

The second emergent theme revealed in successful ICT strategies that small business owners' use to improve business profitability was the importance of security awareness as a key component of the owner's effective strategy for success. Harris and Patten (2014) found that customer security concerns create new investments in security technology solutions for small businesses. The emergence of security awareness as a theme confirmed the existing literature reviewed.

P1 said that directing customers to sites that are not secure result in a potential loss of revenue. A vital factor for success in e-commerce is to gain the customers' trust in the security of their personal data (Raghavan et al., 2017). P1 stated that designing the business processes require the balance of protecting information, computers, and networks from cyber-attacks. P4 recognized the importance of having an effective cybersecurity strategy. P1 noted that part of creating an effective security policy includes understanding the risks the business may face when typically conducting business.

The primary security identified by P5 business owner was to prevent access or use of business computers by unauthorized individuals. P4 stated, "Firewalls provide an added layer of protection by preventing an unauthorized user from accessing the network." P6 encouraged small business owners to work with vendors to ensure the most trusted and validated tools and anti-fraud services are used. P3 added, "Whether a business owner is thinking of adopting cloud computing or just using email and maintaining a website, cybersecurity should be a part of the plan."

P2 described a strategy used to implement security for ICTs, which was to have a security-first mentality. P2 said, “Small businesses shouldn't assume they're excused from falling victim to an attack because of their size.” P2 explained, “Having a cybersecurity culture is everyone including employees and owners understanding what it takes to keep the network and data secure.” P3 elaborated by suggesting the inclusion of the training of employees in security principles. P1, P2, and P4 explained that training and adopting security policies are good ways to improve security awareness.

The participants in this study recognized that their role as small business owners was to provide security and sustainability for the business. Disaster recovery plays a key part in restoring the company's data in the case of emergency (Chang, 2015). P1 stated, “Regularly backup critical data on all computers.” P4 included, “Backup data automatically if possible and store the copies either offsite or in the cloud.” P2 pointed out that having a backup in place could help to get your business back up and running in the event of data loss.

A small business owner who operates from an innovation of theory perspective will understand the importance of security awareness within the business processes. A key component to being successful is to stay on the forefront of the technology available to small business owners. Small business owners considering participating in ICT adoption can benefit from recognizing the security awareness components involved in delivering both product and service to the customer.

Emergent Theme 3: Overcoming Barriers

Another major theme supporting the literature was the barriers that small business owners faced when implementing ICTs. Small business owners lack of technical knowledge and resources are primary barriers to adopting new technologies (Harris & Patten, 2014). Technical skills and basic infrastructures are some of the barriers to e-commerce adoption (Agwu & Murray, 2015; Olayinka et al., 2016; Taylor, 2015). The emergence of barriers as a theme confirms existing literature reviewed.

Yeboah-Boateng and Essandoh (2014) identified lack of knowledge and lack of trust and interoperability with existing systems as barriers of cloud adoption. P1 stated, “We simply did not have the knowledge, expertise, or organizational capacity needed in the beginning phases of implementations.” P6 reminded, “It is a good idea to identify areas affected by system implementation and document workflow. This will minimize risk and increase staff acceptance and successful implementation.” P1, P2, and P3 reported they initially had a poor quality of telecommunications infrastructure. They repeated that any new technology brought into the business needs to be evaluated from the perspective of existing processes and legacy technology that might be influenced.

P1, P2, and P3 developed a set of criteria that they used to review and select the appropriate technology solution to achieve its desired goals and met the business need. For example, P2 identified processes affected by the new ICTs and collected all policies, procedures, forms, and reports as part of the processes to be automated. P2 emphasized

successful implementation requires not only heavy investment by owners early in the project but also a sustained level of investment in the resources.

All six participants initially lacked personnel skills in the management, use, and support of ICT. P1 explained that he now requires knowledge and experience when implementing and managing technological change. P1 stated that a lack of organizational self-awareness, responsiveness, and competency, and a reluctance to change, would delay attempts to implement the necessary changes. DOI theory was appropriate for exploring the theme overcoming barriers to implementation regarding factors that contributed to the success of small business owners, as the small business owners were aware of and adopted the new innovative practices and ideas resulting in business success.

Connecting Findings to Conceptual Framework

I used Rogers's DOI theory as my conceptual framework. DOI indicates how, over time, a specific population or social system adopts the innovation, such as an idea or product (Rogers, 2003). According to Rogers, the five qualities that determine the adoption of new products or ideas are (a) relative advantage, (b) compatibility with existing values and practices, (c) simplicity and ease of use, (d) trialability, and (e) observable results. In this multiple case study, the innovation or new idea is ICTs. The success of an innovation depends on how well it evolves to meet the needs of individuals in a population (Rogers, 2003). The participants used new ICTs to improve business processes, remain competitive, and increase profits using new tools such as Square, a

credit card reader attached to a smart phone, and iPad small business applications such as QuickBooks for accounting, PayPal, and Cash app for faster customer service.

Participants used the innovations to design their own business websites quickly for advertising, sales, and marketing. When the websites were functional, the participants promoted company information about products and services to potential customers, and setup e-commerce, which automatically synchronized all the businesses products, inventory, orders, and customers. Gradually, each participant's business grew with consistent increased web traffic and secured return customers by building a strong brand reputation. P6 described how he created a basic website using the WordPress application and later integrated automated quoting, ordering, and purchasing processes. P6 also explained that the use of e-commerce business applications helped control asset management. The use of ICTs revolutionized business for small business owners, increased profits, and helped them remain competitive. As the small business owners adopted technological developments, they eventually observed results, a final quality of Roger's DOI theory.

Applications to Professional Practice

Small business owners continue to lag behind in efforts of digitally mapping their small businesses, but some small business owners have developed a clear understanding of the role new technology plays in the growth and development of the small business economy. These study findings, conclusions, and recommendations could provide possible solutions to address small business owners' need for suggested e-commerce and

Internet technology practices and strategies to sustain their businesses competitive advantage while providing revenues for supporting the local economy.

The findings of this study could be relevant to professional practice because the study contains the documented strategies of successful ICT implementation by small business owners who have maintained their business beyond 5 years. The findings of this study could have a positive influence on small business owners seeking to implement new and improved ICTs. This study might help small business owners discover and adopt new ICTs and more importantly, what strategies they could use to improve profits and sustainability.

Implications for Social Change

This study has several implications for social change. The implications for positive social change that could occur because of my study include a reduction of small business owners' failures and an improvement in small business owners' success rates. The implications for positive social change include the potential to increase the rate of small business owners' ICT adoption, which can result in more small business owners striving to be unique and innovative, resulting in a healthy marketplace, well-served consumers, financial security for owners and employees, and additional employment opportunities for the local community. This information might be useful for members of the Chamber of Commerce to share with new small business owners and educational leaders who teach sustaining a small business. By providing small business owners with new approaches and strategies, it is my hope that they gain an appreciation of the

importance of implementing ICT in order to succeed and sustain their businesses.

Because of the study, new and current small business owners might improve business processes and the chances of developing and sustaining their businesses.

Recommendations for Action

The purpose of this qualitative case study was to explore strategies small business owners use to successfully implement ICT for profitability. From the findings of this study, small business owners can take several actions to sustain and grow their business while increasing profitability. ICTs create the opportunity for the organization to complete commercial activities faster using e-commerce, which has revolutionized business and commerce use (Choshin & Ghaffari, 2017). Digital and social media marketing has grown as a means of building awareness, sales, and customer loyalty compared to traditional advertising (Cole, DeNardin, & Clow, 2017). By innovating processes and increasing profitability, while remaining current of new ICT trends, small business owners could remain competitive.

Current and new small business owners can benefit from the results of this study by adopting successful ICT implementation strategies. Embedded automated business processes streamline business processes and improve product and service for small business owners (Kim, Jang, & Yang, 2017). Another recommendation that emerged from the study is the need for small business owners to begin tracking business income, expenses, debt, and other financial transactions using an intuitive software application.

Finally, I advise all small business owners to invest in web-based technologies such as e-purchasing and order management systems that integrate inventory information with the organizations purchasing, accounting, and e-commerce systems to track orders and manage inventory efficiently. By following these strategies and recommendations, current and future small business owners can successfully implement ICTs, remain competitive, make a profit, and sustain their businesses for at least 5 years. I will provide the six participants with a summary of the published results and findings as well as provide the data in aggregate form to the local Chamber of Commerce.

Recommendations for Further Research

The results of this study are further evidence that many small business owners are already utilizing e-commerce and Internet technology activities, with many seeing corresponding success. In this qualitative multi-case study, there were two main limitations: data not adequately representing all small business owners, and the accessibility of the participant pool. The data only reflected strategies that successful business owners utilize that increased profits and did not reflect strategies that were not successful but could potentially be successful for small business owners. The results from this study were limited to Sanford, North Carolina, and surrounding areas only. Recommendations for further research include focusing on different sizes of small business in different industries and different geographical locations.

Recommendations for further research include focusing on the views of all small business owners who have implemented ICT strategies but have not been in business for

more than 5 years. Future researchers should also consider studying small business owners' who have unsuccessful experiences and a decrease in business profitability when implementing ICT and examine the relevance of why a digital divide exists where some small business owners do not maximize the benefits of e-commerce and Internet technologies. Focusing on each of the specific themes identified within this study would provide other areas for additional research. These approaches are vital in solidifying future studies and research.

Reflections

I took this journey with a positive outlook and enjoyed the process of becoming a scholarly writer. I have learned so much about small business owners and ICT implementation challenges and rewards during my research, the participant interviews and observations, and while attending courses in the Walden DBA program. The study has afforded me the opportunity to yield useful data that can be a source of design and instruction for small business owners in my community. Small business owners can succeed and achieve their goals if they understand and apply proper strategies when adopting ICT. As the researcher of the study, I followed the interview protocol and fully immersed myself in the research process to help reduce bias and performed member checking and triangulation methods to guarantee the reporting of all gathered data. The participants provided corrections to the initial interview summaries to clarify and edit their responses. I used NVivo software to support developing themes of the study.

Conclusion

ICT has favorably become an essential tool for small business owners in the daily operations of their organizations. As communication strategies become more influential, small business owners are searching for new, creative ways to accomplish many tasks (Turner & Endres, 2017). My purpose of this descriptive, qualitative multiple case study was to explore what skills, knowledge, and strategies small business owners use to successfully implement ICT, improve business profitability, and succeed in business beyond 5 years. The data sources for the study included: (a) participant interview data, (b) information from the participants' websites, (c) archived data from the business owners, and (d) observations from site visits of the business practices and processes. Specifically, the study revealed three primary themes: (a) small business owners' optimizing applications, (b) security awareness, and (c) overcoming barriers to adopting an ICT strategy.

In conclusion, the findings of this study can help small business owners develop and implement a more successful ICT strategy. Many small business owners are slow to adapt to new technology, leaving them completely absent of the proven benefits. The strategies reported are proven methods for small business owners adopting ICT strategies to survive and grow despite the practical and digital divide challenges present. With the importance of an online presence, small business owners are seeking more exposure and growth. Increasingly, small business owners rely on technology for efficiency, to manage expenses, improve processes and performance, and increase profitability. As small

business owners implement new technologies into their business processes, they are able to participate in the global marketplace. If the strategies presented are properly applied, positive influence is expected, and small business owners are better equipped to contribute to the local and global economy.

References

- Abebe, M. (2014) Electronic commerce adoption, entrepreneurial orientation and small- and medium-sized enterprise (SME) performance. *Journal of Small Business and Enterprise Development*, 21, 100-116. doi:10.1108/JSBED-10-2013-0145
- Afolayan, A., White, G. R. T., Jones, P., & Beynon-Davies, P. (2015). Information technology usage in SMEs in a developing economy. *Strategic Change*, 24, 483-498. doi:10.1002/jsc.2023
- Agboh, D. K. (2015). Drivers and challenges of ICT adoption by SMES in Accra metropolis, Ghana. *Journal of Technology Research*, 6(6), 1-16. Retrieved from www.pdf.semanticscholar.org
- Agwu, E. M., & Murray, P. J. (2015). Empirical study of barriers to electronic commerce adoption by small and medium scale businesses in Nigeria. *International Journal of Innovation in the Digital Economy*, 6(62), 1-19. doi:10.4018/ijide.2015040101
- Ahmad, S. Z., Abu Bakar, A. R., Faziharudean, T. M., & Mohamad Zaki, K. A. (2015). An empirical study of factors affecting e-commerce adoption among small and medium sized enterprises in a developing country: Evidence from Malaysia. *Information Technology for Development*, 21, 555-572. doi:10.1080/02681102.2014.899961
- Ahmedova, S. (2015). Factors for increasing the competitiveness of small and medium-sized enterprises (SMEs) in Bulgaria. *Procedia Social and Behavioral Sciences*, 195, 1104-1112. doi:10.1016/j.sbspro.2015.06.155

- Ainin, S., Parveen, F., Moghavvemi, S., Jaafar, N. I., & Mohd Shuib, N. L. (2015). Factors influencing the use of social media by SMEs and its performance outcomes. *Industrial Management & Data Systems*, *115*, 570-588.
doi:10.1108/IMDS-07-2014-0205
- Alford, P., & Page, S. J. (2015). Marketing technology for adoption by small business. *The Service Industries Journal*, *35*, 655-669.
doi:10.1080/02642069.2015.1062884
- Alshamaila, Y., Papagiannidis, S., & Li, F. (2013). Cloud computing adoption by SMEs in the north east of England: A multi-perspective framework. *Journal of Enterprise Information Management*, *26*, 250-275.
doi:10.1108/17410391311325225
- AlYahmady, H. H., & Al Abri, S. S. (2013). Using Nvivo for data analysis in qualitative research. *International Interdisciplinary Journal of Education*, *2*, 181-186.
doi:10.12816/0002914
- Amarilli, F. (2014). A framework for business IT alignment in turbulent environments. *Athens Journal of Technology Engineering*, *1*, 103-118. Retrieved from www.atiner.gr
- Anas A. Al-Bakri, Marios I. Katsioloudes, (2015). The factors affecting e-commerce adoption by Jordanian SMEs. *Management Research Review*, *38*, 726-749.
doi:10.1108/MRR-12-2013-0291

- Anderson, A., Wallace, C., & Townsend, L. (2015). Great expectations or small country living? Enabling small rural creative businesses with ICT. *Sociologia Ruralis*, 56, 450-468. doi:10.1111/soru.12104
- Angelou, G. N., & Economides, A. A. (2014). Investment flexibility and competition modeling for broadband business. *Telecommunications Policy*, 38, 438-448. doi:10.1016/j.telpol.2014.02.005
- Apăvăloaie, I. (2014). The impact of the Internet on the business environment. *Procedia Economics and Finance*, 15, 951-958. doi:10.1016/s2212-5671(14)00654-6
- Ardjouman, D. (2014). Factors influencing small and medium enterprises (SMEs) in adoption and use of technology in Cote d'Ivoire. *International Journal of Business and Management*, 9, 179-190. doi:10.5539/ijbm.v9n8p179
- Arino, A., LeBaron, C., & Milliken, F. (2016). Publishing qualitative research in academy of management discoveries. *Academy of Management Discoveries*, 2, 109-113. doi:10.5465/amd.2016.0034
- Ashari, H. A., Heidari, M., & Parvaresh, S. (2014). Improving SMTEs' business performance through strategic use of information communication technology: ICT and tourism challenges and opportunities. *International Journal of Academic Research in Accounting Finance and Management Sciences*, 4(3), 1-20. doi:10.6007/IJARAFMS/v4-i2/976
- Awa, H. O., Baridam, D. M., & Nwibere, B. M. (2015). Demographic determinants of electronic commerce (EC) adoption by SMEs: A twist by location factors. *Journal*

of Enterprise Information Management, 28, 326-345. doi:10.1108/JEIM-10-2013-0073

Awa, H. O., Emecheta, B. C., & Ukoha, O. (2015). Location factors as moderators between some critical demographic characteristics and ICT adoption: A study of SMEs. *Sociology and Anthropology*, 3, 493-501. doi:10.13189/sa.2015.030908

Awiagah, R., Kang, J., & Lim, J. I. (2016). Factors affecting e-commerce adoption among SMEs in Ghana. *Information Development*, 32, 815-836. doi:10.1177/0266666915571427

Baporikar, N. (2015). Information strategy as enabler of competitive advantage. *International Journal of Strategic Information Technology and Applications*, 5(1), 30-41. doi:10.4018/ijtsita.2014010103

Battaglia, M., Testa, F., Bianchi, L., Iraldo, F., & Frey, M. (2014). Corporate social responsibility and competitiveness within SMEs of the fashion industry: Evidence from Italy and France. *Sustainability*, 6, 872-893. doi:10.3390/su6020872

Bhatia, S. S., & Gupta, V. (2016). Principles and practices for the implementation of cloud based ERP in SMEs. *MATEC Web of Conferences*, 57(1), 1-4. doi:10.1051/mateconf/20165702010

Bloom, N., Garicano, L., Sadun, R., & Van Reenen, J. (2014). The distinct effects of information technology and communication technology on firm organization. *Management Science*, 60, 2859-2885. doi:10.3386/w14975

Bocken, N. M. P., Farracho, M., Bosworth, R., & Kemp, R. (2014). The front-end of eco-

innovation for eco-innovative small and medium sized companies. *Journal of Engineering and Technology Management*, 31(1), 43-57.

doi:10.1016/j.jengtecman.2013.10.004

Brunswicker, S., & Vanhaverbeke, W. (2015). Open innovation in small and medium-sized enterprises: External knowledge sourcing strategies and internal organizational facilitators. *Journal of Small Business Management*, 53, 1241-1263. doi:10.1111/jsbm.12120

Burgess, S., Sellitto, C., Cox, C., & Buultjens, J. (2015). Strategies for adopting consumer-generated media in small-sized to medium-sized tourism enterprises. *Journal of Tourism Research*, 17, 432-441. doi:10.1002/jtr.2008

Buxton, M., & Walton, N. (2014). The Internet as a small business e-commerce ecosystem. *E-commerce Platform Acceptance: Suppliers, Retailers, and Consumers*. 79-100. London, UK: Springer. doi:10.1007/978-3-319-06121-4_5

Caniëls, M. C. J., Lenaerts, H. K. L., & Gelderman, C. J. (2015). Explaining the internet usage of SMEs. *Internet Research*, 25, 358-377. doi:10.1108/IntR-12-2013-0266

Castillo-Montoya, M. (2016). Preparing for interview research: The interview protocol refinement framework. *The Qualitative Report*, 21, 811-831. Retrieved from www.nsuworks.nova.edu

Chang, V. (2015). Towards a big data system disaster recovery in a private cloud. *Ad Hoc Networks*, 35, 65-82. doi:10.1016/j.adhoc.2015.07.012

Chatzoglou, P., & Chatzoudes, D. (2016). Factors affecting e-business adoption in SMEs:

- An empirical research. *Journal of Enterprise Information Management*, 29, 327-358. doi:10.1108/JEIM-03-2014-0033
- Check, D., Wolf, L., Dame, L., & Beskow, L. (2014). Certificates of confidentiality and informed consent: Perspectives of IRB chairs and institutional legal counsel. *IRB*, 36(1), 1-2. Retrieved from www.thehastingscenter.org
- Chee, L. S., Suhaimi, B. A., & Quan, L. R. (2016). Understanding the determinants of e-commerce adoption: Evidence from manufacture sector in West Malaysia. *Indian Journal of Science and Technology*, 9(10), 1-8.
doi:10.17485/ijst/2016/v9i10/88075
- Chee Lim, S., Suhaimi Baharudin, A., & Low, R. Q. (2016). E-commerce adoption in Peninsular Malaysia: Perceived strategic value as moderator in the relationship between perceived barriers, organization readiness and competitor pressure. *Journal of Theoretical and Applied Information Technology*, 91, 228-237.
Retrieved from www.jatit.org
- Chew, E. K., & Gh Dehbokry, S. (2014). The strategic requirements for an enterprise business architecture framework by SMEs. *Lecture Notes on Information Theory*, 2(1), 32-38. doi:10.12720/lnit.2.1.32-38
- Chinedu, S., Yanqing, E., Chen, D. H., Eze, S. C., Duan, Y., & Chen, H. (2014). Examining emerging ICTs adoption in SMEs from a dynamic process approach. *Information Technology & People*, 27, 224-244. doi:10.1108/ITP-03-2013-0044
- Choshin, M., & Ghaffari, A. (2017). An investigation of the impact of effective factors on

- the success of e-commerce in small and medium-sized companies. *Computers in Human Behavior*, 66(1), 67-74. doi:10.1016/j.chb.2016.09.026
- Classen, N., Carree, M., Gils, A. Van, & Peters, B. (2014). Innovation in family and non-family SMEs: An exploratory analysis. *Small Business Economics*, 42, 595-609. doi:10.1007/s11187-013-9490-z
- Cleary, M., Horsfall, J., & Hayter, M. (2014). Data collection and sampling in qualitative research: Does size matter? *Journal of Advanced Nursing*, 70, 473-475. doi:10.1177/1049732315588501
- Cole, H., DeNardin, T., & Clow, K. (2017). Small service businesses: Advertising attitudes and the use of digital and social media marketing. *Services Marketing Quarterly*, 38(4), 203-212. doi:10.1080/02642069.2011.594878.
- Colin, M., Galindo, R., & Hernandez, O. (2015). Information and communication technology as a key strategy for efficient supply chain management in manufacturing SMEs. *Procedia Computer Science*, 55, 833-842. doi:10.1016/j.procs.2015.07.152
- Colombo, M. G., Croce, A., & Grilli, L. (2013). ICT services and small businesses' productivity gains: An analysis of the adoption of broadband Internet technology. *Information Economics and Policy*, 25, 171-189. doi:10.1016/j.infoecopol.2012.11.001
- Cope, D. (2014). Methods and meanings: Credibility and trustworthiness of qualitative research. *Oncology Nursing Forum*, 41(1), 89-91. doi:10.1188/14.onf.89-91

- Cui, M., & Pan, S. L. (2015). Developing focal capabilities for e-commerce adoption: A resource orchestration perspective. *Information and Management*, 52, 200-209. doi:10.1016/j.im.2014.08.006
- Cronin, C. (2014). Using case study research as a rigorous form of inquiry. *Nurse Researcher*, 21(5), 19-27. doi:10.7748/nr.21.5.19.e1240
- Dahlberg, L. (2015). Expanding digital divide research: A critical political economy of social media. *The Communication Review*, 18, 271-293. doi:10.1080/10714421.2015.1085777
- Dahnil, M. I., Marzuki, K. M., Langgat, J., & Fabeil, N. F. (2014). Factors influencing SMEs adoption of social media marketing. *Procedia Social and Behavioral Sciences*, 148, 119-126. doi:10.1016/j.sbspro.2014.07.025
- Davidoff, F. (2015). On the undiffusion of established practices. *JAMA Internal Medicine*, 175, 809-811. doi:10.1001/jamainternmed.2015.0167
- De Massis, A., & Kotlar, J. (2014). The case study method in family business research: Guidelines for qualitative scholarship. *Journal of Family Business Strategy*, 5(1), 15-29. doi:10.1016/j.jfbs.2014.01.007
- Devotta, K., Woodhall-Melnik, J., Pedersen, C., Wendaferew, A., Dowbor, T., Guilcher, S., & Matheson, F. (2016). Enriching qualitative research by engaging peer interviewers: A case study. *Qualitative Research*, 16, 661-680. doi:10.1177/1468794115626244

- Dongre, A., & Sankaran, R. (2016). Ethical issues in qualitative research: Challenges and options. *International Journal of Medical Science and Public Health*, 5, 1187-1194. doi:10.5455/ijmsph.2016.19102015179
- Donnelly, C., Simmons, G., Armstrong, G., & Fearn, A. (2015). Digital loyalty card “big data” and small business marketing: Formal versus informal or complementary? *International Small Business Journal*, 33, 422-442. doi:10.1177/0266242613502691
- Dunne, T. C., Aaron, J. R., McDowell, W. C., Urban, D. J., & Geho, P. R. (2016). The impact of leadership on small business innovativeness. *Journal of Business Research*, 69, 4876-4881. doi:10.1016/j.jbusres.2016.04.046
- Dwivedi, Y., Wastell, D., Laumer, S., Henriksen, H., Myers, M., Bunker, D., Srivastava, S. (2015). Research on information systems failures and successes: Status update and future directions. *Information Systems Frontiers*, 17, 143-157. doi:10.1007/s10796-014-9500-y
- Ehrenberger, M., Koudelková, P., & Strielkowski, W. (2015). Factors influencing innovation in small and medium enterprises in the Czech Republic. *Periodica Polytechnica Social and Management Sciences*, 23(2), 73-83. doi:10.3311/PPso.7737
- Eisenhardt, K. M., Graebner, M. E., & Sonenshein, S. (2016). Grand challenges and inductive methods: Rigor without rigor mortis. *Academy of Management Journal*, 59, 1113-1123. doi:10.5465/amj.2016.4004

- Ekdale, B., Singer, J. B., Tully, M., & Harmsen, S. (2015). Making change. *Journalism & Mass Communication Quarterly*, 92, 938-958. doi:10.1177/1077699015596337
- Elbeltagi, I., Hamad, H., Moizer, J., & Abou-Shouk, M. A. (2016). Levels of business to business e-commerce adoption and competitive advantage in small and medium-sized enterprises: A comparison study between Egypt and the United States. *Journal of Global Information Technology Management*, 19(1), 6-25. Retrieved from www.pearl.plymouth.ac.u
- Elo, S., Kääriäinen, M., K. O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative content analysis: A focus on trustworthiness. *Sage Open*, 4(1), 1-10. doi:10.1177/215824401452263
- Faloye, D. O. (2014). The adoption of e-commerce in small businesses: An empirical evidence from retail sector in Nigeria. *Journal of Business and Retail Management Research*, 8(2), 54-64. Retrieved from www.jbrmr.com
- Fetters, M., Curry, L., & Creswell, J. (2013). Achieving integration in mixed-methods designs principles and practices. *Health Services Research*, 48, 2134-2156. doi:10.1111/1475-6773.12117
- Finfgeld-Connett, D. (2014). Use of content analysis to conduct knowledge building and theory generating qualitative systematic reviews. *Qualitative Research*, 14, 341-352. doi:10.1177/1468794113481790

- Fletcher, D., DeMassis, A., & Nordqvist, M. (2016). Qualitative research practices and family business scholarship: A review and future research agenda. *Journal of Family Business Strategy*, 7(1), 8-25. doi:10.1016/j.jfbs.2015.08.001
- Fusch, G., & Ness, L. R. (2017). How to conduct a mini-ethnographic case study: A guide for novice researchers. *The Qualitative Report*, 22, 923-941. Retrieved from www.nsuworks.nova.edu
- Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report*, 20, 1408-1416. doi:10.1177/1468794107085301
- Gangwar, H., Date, H., & Ramaswamy, R. (2015). Understanding determinants of cloud computing adoption using an integrated TAM-TOE model, *Journal of Enterprise Information Management*, 28(1), 132. doi:10.1108/JEIM-08-2013-0065
- Garg, P., & Agarwal, D. (2014). Critical success factors for ERP implementation in a Fortis hospital: An empirical investigation. *Journal of Enterprise Information Management*, 27, 402-423. doi:10.1108/jeim-06-2012-0027
- Gërguri-Rashiti, S., Ramadani, V., Abazi-Alili, H., Dana, L. P., & Ratten, V. (2017). ICT, innovation and firm performance: The transition economies context. *Thunderbird International Business Review*, 59(1), 93-102. doi:10.1002/tie.21772
- Ghobadi, S., & Ghobadi, Z. (2015). How access gaps interact and shape digital divide: A cognitive investigation. *Behaviour & Information Technology*, 34, 330-340. doi:10.1080/0144929x.2013.833292

- Gioia, D., Corley, K., & Hamilton, A. (2013). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods, 16*(1), 15-31. doi:10.1177/1094428112452151
- Girotra, K., & Netessine, S. (2013). Business model innovation for sustainability. *Manufacturing & Service Operations Management, 15*, 537-544. doi:10.2139/ssrn.2289291
- Glaser, J., & Laudel, G. (2013). Life with and without coding: Two methods for early-stage data-analysis in qualitative research aiming at causal explanations. *Qualitative Social Research, 14*(2), 1-37. doi:10.17169/fqs-14.2.1886
- Goel, M. S., & Sunena, M. (2018). Role of Information and Communication Technology in the survival of small business. *International Journal of Research, 5*, 3038-3042. Retrieved from edupediapublications.org
- Gono, S., Harindranath, G., & Berna Özcan, G. (2013). Challenges of ICT adoption by South African SMEs: A study of manufacturing and logistics firms. *Proceedings of the Annual Conference of the Institute for Small Business and Entrepreneurship* (pp. 1-23). Cardiff, Wales. Retrieved from www.isbe.org
- Grossoehme, D. (2014). Overview of qualitative research. *Journal of iHealth Care Chaplaincy, 20*(3), 109-122. doi:10.1080/08854726.2014.925660
- Gupta, P., Seetharaman, A., & Raj, J. R. (2013). The usage and adoption of cloud computing by small and medium businesses. *International Journal of Information Management, 33*, 861-874. doi:10.1016/j.ijinfomgt.2013.07.001

- Halme, M., & Korpela, M. (2014). Responsible innovation toward sustainable development in small and medium-sized enterprises: A resource perspective. *Business Strategy and the Environment*, 23, 547-566. doi:10.1002/bse.1801
- Hamad, H., Elbeltagi, I., Jones, P., & El-Gohary, H. (2015). Antecedents of B2B e-commerce adoption and its effect on competitive advantage in manufacturing SMEs. *Strategic Change*, 24, 405-428. doi:10.1002/jsc.2019
- Harris, M. A., & Patten, K. P. (2014). Mobile device security considerations for small- and medium-sized enterprise business mobility. *Information Management & Computer Security*, 22(1), 97-114. doi:10.1108/IMCS-03-2013-0019
- Hashim, J. (2015). Information communication technology (ICT) adoption among SME owners in Malaysia. *International Journal of Business and Information*, 2, 221-240. Retrieved from www.knowledgetaiwan.org
- Helgesson, G. (2015). Informants a potential threat to confidentiality in small studies. *Medicine, Health Care and Philosophy*, 18, 149-152. doi:10.1007/s11019-014-9579-4
- Hilty, L., & Aebischer, B. (2015). ICT for sustainability: An emerging research field. *ICT Innovations for Sustainability*, Springer International Publishing, 1-34. doi:10.1007/978-3-319-09228-7_1
- Hirt, M., & Willmott, P. (2014). Strategic principles for competing in the digital age. *McKinsey Quarterly*, 5(1), 1-13. Retrieved from www.digitalstrategy.nl

- Houghton, C., Casey, D., Shaw, D., & Murphy, K. (2013). Rigour in qualitative case study research. *Nurse Researcher*, 20, 12-17. doi:10.7748/nr2013.03.20.4.12.e326
- Hung, W., Chang, L., Lin, C., & Hsiao, C. (2014). E-readiness of website acceptance and implementation in SMEs. *Computers in Human Behavior*, 40(1), 44-55. doi:10.1016/j.chb.2014.07.046
- Hussein, A. (2015). The use of triangulation in social sciences research: Can qualitative and quantitative methods be combined?. *Journal of Comparative Social Work*, 4(1), 1-12. Retrieved from www.journal.uia.no
- Idris, A. O. (2015). Assessing a theoretically derived e-readiness framework for e-commerce in a Nigerian SME. *Evidence Based Information Systems Journal*, 1(1), 1-20. Retrieved from www.ebisjournal.co.uk
- Iqbal, T., & El-Gohary, E. (2014). An attempt to understand e-marketing: An information technology prospective. *International Journal of Business and Social Science*, 5, 234-256. Retrieved from www.ijbssnet.com
- Jain, R. (2014). Business model innovations for information and communications technology-based services for low-income segments in emerging economies. *Journal of Global Information Technology Management*, 17(2), 74-90. doi:10.1080/1097198X.2014.928561
- Jansson, J., Nilsson, J., Modig, F., & Hed Vall, G. (2017). Commitment to sustainability in small and medium-sized enterprises: The influence of strategic orientations and management values. *Business Strategy and the Environment*, 26(1), 69-83.

doi:10.1002/bse.1901

- Johnson, M. P., & Schaltegger, S. (2016). Two decades of sustainability management tools for SMEs: How far have we come? *Journal of Small Business Management*, 54, 481-505. doi:10.1111/jsbm.12154
- Jones, P., Simmons, G., Packham, G., Beynon-Davies, P., & Pickernell, D. (2014). An exploration of the attitudes and strategic responses of sole-proprietor micro-enterprises in adopting information and communication technology. *International Small Business Journal*, 32, 285-306. doi:10.1177/0266242612461802
- Kabanda, S., & Brown, I. (2017). Interrogating the effect of environmental factors on e-commerce institutionalization in Tanzania: A test and validation of small and medium enterprise claims. *Information Technology for Development*, 23(1), 59-85. doi:10.1080/02681102.2016.1263593
- Khan, M. F., Ahsan, K., & Hussain, M. A. (2016). Cost effective information technology strategy for microenterprise. *Bahria University Journal of Information & Communication Technologies*, 9(1), 8-12. Retrieved from www.bujict.bahria.edu.pk
- Khan, S. (2014a). Qualitative research method: Grounded theory. *International Journal of Business and Management*, 9, 224-233. doi:10.5539/ijbm.v9n11p224
- Khan, S. (2014b). Qualitative research method-phenomenology. *Asian Social Science*, 10, 298-310. doi:10.5539/ass.v10n21p298

- Khanal, A., Mishra, A., & Koirala, K. (2015). Access to the Internet and financial performance of small business households. *Electronic Commerce Research, 15*, 159-175. doi:10.1007/s10660-015-9178-3
- Kim, S., Jang, S., & Yang, K. (2017). Analysis of the determinants of software-as-a-service adoption in small businesses: Risks, benefits, and organizational and environmental factors. *Journal of Small Business Management, 55*, 303-325. doi:10.1111/jsbm.12304
- Kirkwood, A., & Price, L. (2013). Examining some assumptions and limitations of research on the effects of emerging technologies for teaching and learning in higher education. *British Journal of Educational Technology, 44*, 536-543. doi:10.1111/bjet.12049
- Kornbluh, M. (2015). Combatting challenges to establishing trustworthiness in qualitative research. *Qualitative Research in Psychology, 12*, 397-414. doi:10.1080/14780887.2015.1021941
- Kossai, M., & Piget, P. (2014). Adoption of information and communication technology and firm profitability: Empirical evidence from Tunisian SMEs. *The Journal of High Technology Management Research, 25*(1), 9-20. doi:10.1016/j.hitech.2013.12.003
- Kurnia, S., Choudrie, J., Mahbubur, R. M., & Alzougool, B. (2015). E-commerce technology adoption: A Malaysian grocery SME retail sector study. *Journal of Business Research, 68*, 1906-1918. doi:10.1016/j.jbusres.2014.12.010

- Ladokun, I., Osunwole, O., & Olaoye, B. (2013). Information and communication technology in small and medium enterprises: Factors affecting the adoption and use of ICT in Nigeria. *International Journal of Academic Research in Economics and Management Sciences*, 2(6), 1-74. doi:10.6007/IJAREMS
- Lakatos, E. S., Bacali, L., Bercea, O. B., Muresan, C. M., & Moldovan, A. (2015). The benefits of IT tools in innovation process for SME sustainability. *Proceedings in the International Conference in Advances in Management, Economics and Social Science* (pp. 50-54). doi:10.15224/978-1-63248-081-1-43
- Lekhanya, L. M. (2016). E-commerce as an instrument of governing SMEs' marketing strategy in an emerging economy. *Risk Governance & Control: Financial Markets & Institutions*, 6, 298-305. doi:10.22495/rgcv6i4c2art7
- Lindström, T., & Polska, P. (2016). Coopetition close to the customer: A case study of a small business network. *Industrial Marketing Management*, 53, 207-215. doi:10.1016/j.indmarman.2015.06.005
- Lorenzini, E. (2014). Innovation and e-commerce in clusters of small firms: The case of a regional e-marketplace. *Local Economy*, 29, 771-794. doi:10.1177/0269094214556053
- Luo, Y., & Bu, J. (2016). How valuable is information and communication technology? A study of emerging economy enterprises. *Journal of World Business*, 51(2), 200-211. doi:10.1016/j.jwb.2015.06.001

- Madden, G., Banerjee, A., Rapoport, P., & Senage, H. (2017). E-commerce transactions, the installed base of credit cards, and the potential mobile e-commerce adoption. *Applied Economics*, *49*(1), 21-32. doi:10.1080/00036846.2016.1189507
- Malterud, K., Siersma, V., & Guassora, A. (2016). Sample size in qualitative interview studies: Guided by information power. *Qualitative Health Research*, *26*, 1753-1760. doi:10.1177/1049732315617444
- Marnewick, C. (2014). Information and communications technology adoption amongst township micro and small business: The case of Soweto. *South African Journal of Information*, *16*(1), 1-12. doi:10.4102/sajim.v16i1.618
- Marshall, C., & Rossman, G. (2016). *Designing qualitative research*. Thousand Oaks, CA: Sage.
- Martínez-Román, J. A., & Romero, I. (2017). Determinants of innovativeness in SMEs: Disentangling core innovation and technology adoption capabilities. *Review of Managerial Science*, *11*, 543-569. doi:10.1007/s11846-016-0196-x
- Martins, R., Oliveira, T., & Thomas, M. A. (2015). Assessing organizational adoption of information systems outsourcing. *Journal of Organizational Computing and Electronic Commerce*, *25*, 360-378. doi:10.1080/10919392.2015.1087702
- Mazzarol, T. (2015). SMEs engagement with e-commerce, e-business, and e-marketing. *Small Enterprise Research*, *22*(1), 79-90. doi:10.1080/13215906.2015.1018400
- Mcelheran, K., (2015). Do market leaders lead in business process innovation? The case(s) of e-business adoption. *Management Science*, *61*, 1197-1216.

doi:10.1287/mnsc.2014.2020

Mensah, P., Merkuryev, Y., & Longo, F. (2015). Using ICT in developing a resilient supply chain strategy. *Computer Science*, *43*(1), 101-108.

doi:10.1016/j.procs.2014.12.014

Miracle, V. (2016). The Belmont Report: The triple crown of research ethics. *Dimensions of Critical Care Nursing*, *35*, 223-228. doi:10.1097/dcc.0000000000000186

Mithas, S., & Rust, R. (2016). How information technology strategy and investments influence firm performance: Conjecture and empirical evidence. *MIS Quarterly*, *40*, 223-245. doi:10.25300/MISQ/2016/40.1.10

Molinillo, S., & Japutra, A. (2017). Organizational adoption of digital information and technology: A theoretical review. *The Bottom Line Issue*, *30*(1), 1-22.

doi:10.1108/BL-01-2017-0002

Morgan, S., Pullon, S., Macdonald, L., McKinlay, E., & Gray, B. (2016). Case study observational research a framework for conducting case study research where observation data are the focus. *Qualitative Health Research*, *27*(1), 1-9.

doi:10.1177/1049732316649160

Morse, J. M. (2015). Critical analysis of strategies for determining rigor in qualitative inquiry. *Qualitative Health Research*, *25*, 1212-1222.

doi:10.1177/1049732315588501

- Morse, W., Lowery, D., & Steury, T. (2014). Exploring saturation of themes and spatial locations in qualitative public participation geographic information systems. *Society & Natural Resources*, 27, 557-571. doi:10.1080/08941920.2014.888791
- Mustafa, H. (2015.). The role of ICT management to achieve organizational innovation. *The International Journal of Organizational Innovation*, 7(4), 1-16. Retrieved from www.ijoi-online.org
- Mutandwa, E., Taremwa, N.K., & Tubanambazi, T. (2015). Determinants of business performance of small and medium size enterprises in Rwanda. *Journal of Developmental Entrepreneurship*, 20, 155000-1550013. doi:10.1142/S1084946715500016
- Nazari, F., & Babalhavaeji, F. (2014). Applying Rogers? Diffusion of Innovation theory to the acceptance of online databases at University Zone of Inran. *Malaysian Journal of Library & Information Science*, 18(3), 1-10. doi:10.1186/s12913-015-0726-2
- Neirotti, P., & Raguseo, E. (2017). On the contingent value of IT-based capabilities for the competitive advantage of SMEs: Mechanisms and empirical evidence. *Information & Management*, 54, 139-153. doi:10.1016/j.im.2016.05.004
- Nduati, L. N., Ombui, K., & Kagiri, A. (2015). Factors affecting ICT adoption in small and medium enterprises in Thika Town, Kenya. *European Journals of Business Management Kenya*, 2, 395-414. Retrieved from www.ejobm.org
- Nguyen, H., Newby, M., & Macaulay, M. (2015). Information technology adoption in

small business: Confirmation of a proposed framework. *Journal of Small Business Management*, 53, 207-227. doi:10.1111/jsbm.12058

Njenga, K., & Jordaan, P. (2016). We want to do it our way: The neutralisation approach to managing information systems security by small businesses. *The African Journal of Information Systems Article*, 8(1), 42-63. Retrieved from www.digitalcommons.kennesaw.edu/ajis

Noble, H., & Smith, J. (2015). Issues of validity and reliability in qualitative research. *Evidence Based Nursing*, 18(2), 34-35. doi:10.1136/eb-2015-102054

Ntwoku, H., Negash, S., & Meso, P. (2017). ICT adoption in Cameroon SME: Application of bass diffusion model. *Information Technology for Development*, 23, 296-317. doi:10.1080/02681102.2017.1289884

Nur, W., Ismail, S. W., Mokhtar, M. Z., Ali, A., Shaari, M., & Rahman, A. (2014). Do it helps SMEs gain better performance: A conceptual analysis on RBV theory. *International Journal of Management and Sustainability*, 3, 307-320. Retrieved from www.pakinsight.com

Olayinka, O., George Wynn, M., & Bechkoum, K. (2016). Process analysis and e-business adoption in Nigerian SBEs: A report on case study research. In *eKNOW 2016, The Eighth International Conference on Information, Process, and Knowledge Management* (pp 57-63). Retrieved from www.thinkmind.org

Oliveira, T., Thomas, M., & Espadanal, M. (2014). Assessing the determinants of cloud computing adoption: An analysis of the manufacturing and services sectors.

Information & Management, 51, 497-510. doi:10.1016/j.im.2014.03.006

Oni, O., & Papazafeiropoulou, A. (2014). Diverse views on IT innovation diffusion among SMEs: Influencing factors of broadband adoption. *Information Systems Frontiers*, 16, 729-747. doi:10.1007/s10796-012-9384-7

Onwuegbuzie, A., & Byers, V. (2014). An exemplar for combining the collection, analysis, and interpretations of verbal and nonverbal data in qualitative research. *International Journal of Education*, 6, 182-183. doi:10.5296/ije.v6i1.4399

Osho, O., Onuoha, C. I., Ugwu, J. N., & Falaye, A. A. (2016). E-commerce in Nigeria: A survey of security awareness of customers and factors that influence acceptance. *OCRI*, 16, 169-176. Retrieved from www.ceur-ws.org

Palacios-Marqués, D., Soto-Acosta, P., & Merigó, J. M. (2015). Analyzing the effects of technological, organizational and competition factors on web knowledge exchange in SMEs. *Telematics and Informatics*, 32(1), 23-32. doi:10.1016/j.tele.2014.08.003

Palinkas, L., Horwitz, S., Green, C., & Wisdom, J. (2015). Purposeful sampling for data collection and analysis in mixed-method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research*, 42, 533-544. doi:10.1007/s10488-013-0528-y

Pandley, S., & Patnaik, S. (2014). Establishing reliability and validity in qualitative inquiry: A critical examination. *Jharkhand Journal of Development and Management Studies*, 12, 5743-5753. Retrieved from dl.acm.org

- Paradkar, A., Knight, J., & Hansen, P. (2015). Innovation in start-ups: Ideas filling the void or ideas devoid of resources and capabilities?. *Technovation*, *41*(1), 1-10. doi:10.1016/j.technovation.2015.03.004
- Parida, V., Oghazi, P., & Cedergren, S. (2016). A study of how ICT capabilities can influence dynamic capabilities. *Journal of Enterprise Information Management*, *29*(2), 179-201. doi:10.1108/JEIM-07-2012-0039
- Peticca-Harris, A., deGama, N., & Elias, S. (2016). A dynamic process model for finding informants and gaining access in qualitative research. *Organizational Research Methods*, *19*, 376-401. doi:10.1177/1094428116629218
- Pick, J. B., Sarkar, A., & Johnson, J. (2014). United States digital divide: State level analysis of spatial clustering and multivariate determinants of ICT utilization. *Socio-Economic Planning Sciences*, *49*(1), 16-32. doi:10.1016/j.seps.2014.09.001
- Pietkiewicz, I., & Smith, J. (2014). A practical guide to using interpretative phenomenological analysis in qualitative research psychology. *Psychological Journal*, *20*(1), 7-14. doi:10.14691/CPPIJ.20.1.7
- Raghavan, K., Desai, M. S., & Rajkumar, P. V. (2017). Managing cybersecurity and e-commerce risks in small businesses. *Journal of Management Science and Business Intelligence*, *2*(1), 9-15. doi:10.5281/zenodo.581691
- Rahayu, R., & Day, J. (2015). Determinant factors of e-commerce adoption by SMEs in developing country: Evidence from Indonesia. *Social and Behavioral Sciences*, *195*, 142-150. doi:10.1016/j.sbspro.2015.06.423

- Ramayah, T., Swee Ling, N., Khadijeh Taghizadeh, S., & Abidur Rahman, S. (2016). Factors influencing SMEs website continuance intention in Malaysia. *Telematics and Informatics*, *33*, 150-164. doi:10.1016/j.tele.2015.06.007
- Reinecke, J., Arnold, D., & Palazzo, G. (2016). Qualitative methods in business ethics, corporate responsibility, and sustainability research. *Business Ethics Quarterly*, *26*(4), 1-18. doi:10.1017/beq.2016.67
- Robinson, O. (2014). Sampling in interview-based qualitative research: A theoretical and practical guide. *Qualitative Research in Psychology*, *11*(1), 25-41. doi:10.1080/14780887.2013.801543
- Robinson, L., Cotten, S. R., Ono, H., Quan-Haase, A., Mesch, G., Chen, W., Stern, M. (2015). Digital inequalities and why they matter. *Information, Communication & Society*, *18*, 569-582. doi:10.1080/1369118X.2015.1012532
- Rogers, E. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.
- Rogers, S. (2016). Bridging the 21st century digital divide. *Tech Trends*, *60*, 197-199. doi:10.1007/s11528-016-0057-0
- Roulston, K., & Shelton, S. (2015). Reconceptualizing bias in teaching qualitative research methods. *Qualitative Inquiry*, *21*, 332-342. doi:10.1177/1077800414563803
- Roy, K., Zyonkovic, A., Golberg, A., Sharp, E., & LaRossa, R. (2015). Sampling richness and qualitative integrity: Challenges for research with families. *Journal of Marriage and Family*, *77*, 243-260. doi:10.1111/jomf.12147

- Roztock, N., & Weistroffer, H. R. (2015). Information and communication technology in transition economies: An assessment of research trends. *Information Technology for Development, 21*, 330-364. doi:10.1080/02681102.2014.891498
- Sandberg, B., & Aarikka-Stenroos, L. (2014). What makes it so difficult? A systematic review on barriers to radical innovation. *Industrial Marketing Management, 43*, 1293-1305. doi:10.1016/j.indmarman.2014.08.003
- Sandberg, K. W., & Håkansson, F. (2014). Barriers to adapt e-commerce by rural microenterprises in Sweden: A case study. *International Journal of Knowledge and Research in Management, 44*(1), 1-7. Retrieved from www.diva-portal.org
- Sarwoko, E., & Frisdiantara, C. (2016). Growth determinants of small medium enterprises (SMEs). *Universal Journal of Management, 4*(1), 36-41. doi:10.13189/ujm.2016.040105
- Saunders, M., & Townsend, K. (2016). Reporting and justifying the number of interview participants in organization and workplace research. *British Journal of Management, 27*, 836-852. doi:10.1111/1467-8551.12182
- Savrul, M., Incekara, A., & Sener, S. (2014). The potential of e-commerce for SMEs in a globalizing business environment. *Social and Behavioral Sciences, 150*(1), 35-45. doi:10.1016/j.sbspro.2014.09.005
- SBA, (2016). *Small Business Administration*. Retrieved from Office of Advocacy-Frequently asked questions: <http://www.sba.gov/advocacy>
- Seethamraju, R. (2014). Adoption of software as a service (SaaS) enterprise resource

planning (ERP) systems in small and medium sized enterprises (SMEs).

Information Systems Frontiers, 17, 475-492. doi:10.1007/s10796-014-9506-5

Senarathna, I., Warren, M., Yeoh, W., & Salzman, S. (2014). The influence of organization culture on e-commerce adoption. *Industrial Management & Data Systems*, 114, 1007-1021. Retrieved from www.hdl.handle.net/10536/dro/du:30066870

Shabbir, M. S., Ghazi, M. S., & Mehmood, A. R. (2017). Impact of social media applications on small business entrepreneurs. *Management and Economics Research Journal*, 2, 1-6. doi:10.18639/MERJ.2015.02.200914

Sharma, S. K., Ashrafi, R., Kumar Sharma, S., Al-Badi, A., & Al-Gharbi, K. (2014). Achieving business success through ICTs adoption by small and medium enterprises in Oman. *Middle-East Journal of Scientific Research*, 22, 138-146. doi:10.5829/idosi.mejsr.2014.22.01.21835

Shim, J. P., French, A. M., Guo, C., & Jablonski, J. (2015). Big data and analytics: Issues, solutions, and ROI. *CAIS*, 37, 797-810. Retrieved from www.aisel.aisnet.org

Soto-Acosta, P., Perez-Gonzalez, D., & Popa, S. (2014). Determinants of the use of Web 2.0 technologies for knowledge sharing in SMEs. *Service Business*, 8, 425-438. doi:10.1007/s11628-014-0247-9

Starman, A. B. (2013). The case study as a type of qualitative research. *Journal of Contemporary Educational Studies*, 64(1), 1-16. Retrieved from www.jsbs.org

- Tadelis, S. (2016). The economics of reputation and feedback systems in e-commerce marketplaces. *IEEE Internet Computing*, 20(1), 12-19.
doi:10.1109/MIC.2015.140
- Tarutè, A., & Gatautis, R. (2014). ICT impact on SMEs performance. *Social and Behavioral Sciences*, 110, 1218-1225. doi:10.1016/j.sbspro.2013.12.968
- Taylor, P. (2015). The importance of ICTs: An integration of the extant literature on ICT adoption in small and medium enterprises. *International Journal of Economics, Commerce and Management United Kingdom*, 3, 274-295. Retrieved from <http://ijecm.co.uk/>
- Temponi, C. (2015). Digital divide: Impact on Hispanic-owned small businesses. *Journal of Small Business Strategy*, 14(2), 1-19. Retrieved from www.jsbs.org
- Thomas, B., Miller, C., & Simmons, G. (2015). An examination of regional policy implications pertaining to SME e-business adoption in South-East Wales. *Strategic Change*, 24, 429-446. doi:10.1002/jsc.2020
- Thomas, D. R. (2017). Feedback from research participants: are member checks useful in qualitative research? *Qualitative Research in Psychology*, 14(1), 23-41.
doi:10.1080/14780887.2016.1219435
- Torrent-Sellens, J., Díaz-Chao, Á. (2014). ICT uses, innovation and SMEs productivity: Modeling direct and indirect effects in small local firms (Working paper No. WP14-001). doi:10.1016/j.jbusres.2015.01.030
- Townsend, L., Wallace, C., & Fairhurst, G. (2015). Stuck out here: The critical role of

broadband for remote rural places. *Scottish Geographical Journal*, 131, 171-180.

doi:10.1080/14702541.2014.978807

Tsang, E. (2014). Generalizing from research findings: The merits of case studies.

International Journal of Management Reviews, 16, 369-383.

doi:10.1111/ijmr.12024

Turner, S., & Endres, A. (2017). Strategies for enhancing small business owners' success

rates. *International Journal of Applied Management and Technology*, 16(1), 34-

49. doi:10.5590/ijamt.2017.16.1.03

Twining, P., Heller, R., Nussbaum, M., & Tsai, C. (2016). Some guidance on conducting and reporting qualitative studies. *Computers & Science*, 106(1), 1-9.

doi:10.1016/j.compedu.2016.12.002

Valaei, N., Rezaei, S., & Emami, M. (2017). Explorative learning strategy and its impact

on creativity and innovation: An empirical investigation among ICT-SMEs. *ISS*

Business Process Management Journal, 23, 957-983. doi:10.1108/bpmj-12-2015-0179

Varela, M. L. R., Araújo, A. F., Vieira, G. G., Manupati, V. K., & Manoj, K. (2017).

Integrated framework based on critical success factors for e-commerce. *Journal of Information Systems Engineering & Management*, 2(4), 1-9.

doi:10.20897/jisem.201704

- Venkatesh, V., Brown, S., & Sullivan, Y. (2016). Guidelines for conducting mixed-methods research: An extension and illustration. *Journal of the Association for Information Systems, 17*, 435-494. Retrieved from aisel.aisnet.org
- Verbano, C., Crema, M., & Venturini, K. (2015). The identification and characterization of open innovation profiles in Italian small and medium-sized enterprises. *Journal of Small Business Management, 53*, 1052-1075. doi:10.1111/jsbm.12091
- Ward, R. (2013). The application of technology acceptance and diffusion of innovation models in healthcare informatics. *Health Policy and Technology, 2*, 222-228. doi:10.1016/j.hlpt.2013.07.002
- Whitehead, L., Crowe, M., Bugge, C., & Coppel, K. (2016). Developing and evaluating complex interventions: Enhancing the role of qualitative research. *International Journal of Qualitative Methods, 15*(1), 1-38. doi:10.1177/1609406916672113
- Wieringa, R. (2014). *Design science methodology for information systems and software engineering* (1st Edition). Berlin, Heidelberg. doi:10.1007/978-3-662-43839-8_17
- Willis, D., Sullivan-Bolyai, S., Knafl, K., & Zichi-Cohen, M. (2016). Distinguishing features and similarities between descriptive phenomenological and qualitative description research. *Western Journal of Nursing Research, 38*, 1185-1204. doi:10.1177/0193945916645499
- Wilson, E., Kenny, A., & Dickson-Swift, V. (2017). Ethical challenges of community based participatory research: Exploring researchers' experience. *International*

Journal of Social Research Methodology, 21(1), 1-18.

doi:10.1080/13645579.2017.1296714

Wilson, V. (2016). Research methods: Design, methods, case study... oh my!. *Evidence Based Library and Information Practice*, 11(1), 39-40. doi:10.18438/b8h928

Wisdom, J. P., Chor, K. H. B., Hoagwood, K. E., & Horwitz, S. M. (2014). Innovation adoption: A review of theories and constructs. *Administration and Policy in Mental Health*, 41, 480-502. doi:10.1007/s10488-013-0486-4

Wu, I. L., & Chiu, M. L. (2015). Organizational applications of IT innovation and firm's competitive performance: A resource-based view and the innovation diffusion approach. *Journal of Engineering and Technology Management*, 35(1), 25-44. doi:10.1016/j.jengtecman.2014.09.002

Yang, T., Xun, J., & He, X. (2015). British SMEs' e-commerce technological investments and firm performance: An RBV perspective. *Technology Analysis & Strategic Management*, 27, 586-603. doi:10.1080/09537325.2015.1019453

Yeboah-Boateng, E. O., & Essandoh, K. A. (2014). Factors influencing the adoption of cloud computing by small and medium enterprises in developing economies. *International Journal of Emerging Science and Engineering*, 2(4), 13-20. Retrieved from www.vbn.aau.dk

Yin, (2013). Validity and generalization in future case study. *Evaluation*, 19, 321-332. doi:10.1177/1356389013497081

Yin, R. (2014). *Case study research*. Thousand Oaks, CA: Sage.

- Zafar, F., Ishaque, R., & Javaid, M. (2014). Use of ICT and e-commerce towards achieving competitive advantages. *European Journal of Research and Reflection in Management Sciences*, 2(1), 1-10. Retrieved from www.idpublications.org
- Zaidan, E. (2017). Analysis of ICT usage patterns, benefits and barriers in tourism SMEs in the Middle Eastern countries. *Journal of Vacation Marketing*, 23, 248-263.
doi:10.1177/1356766716654515

Appendix: Interview Protocol

I. Introduction

Hi participant, this is Rodney McIver. First of all, thank you for agreeing to take the time to participate in my doctoral study involving small business owners who have successfully implemented ICT strategies to achieve business profitability. I want to confirm that this agreed upon date and time is still good for you. (If not, interview rescheduled at participant's convenience.)

II. Acknowledge receipt of consent form

I received the signed consent form, and I want to thank you for participating. Do you have any questions regarding the study or the form? (Answer questions, if any).

III. Review confidentially procedures

We will be discussing your experiences in implementing ICT strategies for the business. I want to assure you that anything we discuss is confidential and I will not be sharing your personal information with anyone else. I will code all replies and keep them confidential. With your permission, I will be recording our discussion for later transcription and analysis. Once the interview is complete, I will transcribe the results and send a copy to you for verification and accuracy in transcribing your meaning. Please return it back to me with your signature and any comments. Are you in agreement with the terms? Let us start the interview.

IV. Interview Questions

1. What successful information and communication technology strategies did you use to improve profitability?
2. How did you use partnerships or alliances in implementing information and communication technology?
3. What are the key processes you used to implement the successful information and communication technology strategies?
4. What barriers, if any, did you encounter when implementing information and communication technology strategies in your business?
5. How did you address the key barriers, if any, to implementing information and communication technology strategies in your business?
6. What else would you like to share about your successful information and communication technology strategies to improve business profitability that I have not addressed?