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The Adoption of Information Technology Use in Small Businesses

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This is to certify that the doctoral dissertation by

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Walden University
2024

Abstract

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MS, Walden University, 2019

MA, Prairie View A&M University, 1997

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Dissertation Submitted in Partial Fulfillment

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Doctor of Philosophy

Management

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Abstract

The research problem was small business operators' lack of technology adoption and their subsequent lack of success. Specifically, the problem was that it was unknown what role, if any, the lack of IT has on the adoption by small business operators within the Houston, Texas, business community. The purpose of this qualitative, single case study with embedded units was to understand the internal and sociopsychological aspects of small-business owners' decision-making models regarding technology adoption in the greater Houston, Texasarea. The technology acceptance model provided a framework to explain and identify factors on internal beliefs, attitudes, and intentions of technology end-users. Qualitative data were collected through email questionnaires from small business owners with revenue of $250,000 and fewer than 50 employees and from a document analysis of 25 articles from the current, associated literature. The questionnaire was sent to 150 small business owners in the grater Houston area and seven small business owners returned the questionnaire. A thematic analysis of the data from questionnaires revealed six themes:leadership, barriers to adoption, strategies used, small businesses workplace accommodations, small businesses willingness to adopt, and future flaws of technology. The results of this research indicated that the small business owners adopt improving performance, and that small businesses should place importance on technology adoption, training, embracing technology, innovations, and adopting strategic behaviors toward investing in technology. Social change implications are creating opportunity from technology adoption includes improved products, services, profits, community engagement, local economies, and the society at large.

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Dedication

This dissertation is dedicated to my mother, Yahkozah Fluomo Paye, the author's wife of over 30 years, Famatta Jebbeh Paye, and children (Seigongar Ingram Paye and Lawrence Nyayowagbian Paye, Jr,) whose patience and support demonstrated averring love.

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The author is thankful for the many small business owners in Houston, Texas, who donated their valuable time by completing and returning the questionnaire.

Finally, the author appreciates the support of his family. The author is also grateful for Dr. Richard W. Griffin, who provided proof-reading services.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

Small businesses are the foundation of many economies by creating wealth and employment opportunities and reducing poverty in communities. Online retail sales have been steady growing exponentially every year since the 2000s and the worldwide retail sales were estimated to US $24.9 trillion in 2018 with e-commerce sales comprising of $2.8 trillion (Taylor, 2022), but many were not small businesses. Small business retail stores generated 52% of jobs (Kardes et al., 2021; J. Lee, 2004). Small businesses operate in an environment characterized by fragmented and incomplete information with limited owner awareness on behalf of the owners of markets, technology, policy, regulations, and finance (J. Lee, 2004; Nguyen et al., 2022). Research on the factors influencing technology adoption in small businesses is insufficient to determine the major causes of the decision-making process. Factors influencing the lack of adoption of technology in small businesses include the cost associated with technology and innovation adoption, the decision-making model involved, individual characteristics, organizational characteristics, and traditional characteristics (Peltier et al., 2012; Roberts et al., 2021).

Researchers have identified small businesses' adoption of information technology and innovations such as software for scheduling services as the foundation of any economy through creating wealth, employment opportunities, and reducing poverty in communities. However, small businesses operate in an environment characterized by fragmented and incomplete information, with limited awareness of markets, technology, policy, regulations, and finance (Peltier et al., 2012; Tsai et al., 2021). As a result, small businesses are affected by many entrepreneurial activities since the absence of

information impinges on the scope for the discovery and exploitation of profitable opportunities (Albar & Hogue, 2017; Mokaya, 2012). The research surrounding the factors affecting technology implementation within small businesses and the decision-making models is important for conducting an in-depth study.

Background of the Study

Small business owners may not understand that failing to adopt technology could lead to a competitive disadvantage (Peltier et al., 2012; Tsai et al., 2021). According to O'Connor and Rice (2013) and Santini et al. (2021), small business owners who choose not to update their technology inhibit themselves from creating new markets, increasing market share, developing new products, being innovative, and having their businesses remain profitable. Small business creation, survival, technology, and innovations are the catalysts to create competitive advantage, and this can only happen with technology adoption (O'Connor & Rice, 2013; Tsai et al., 2021). Technology adoption makes a positive social change because innovation is also good for customers since it allows for delivering better products, services, market shares, and visibility and improves profits due in part to technology adoption (Feldens et al., 2012; Rauch et al., 2019). Current researchers point to the slowness of decision-making models involved in small businesses' technology adoption, and innovation is important.

The first concern for small businesses is identifying resources and financing for business operations. A second area of concern for small businesses is adopting technology-driven decision-making processes (Hotho & Champion, 2011; Rauch et al.,

2019). The knowledge gained from addressing this concern can affect the adoption of such processes.

Another concern is the active roles information technology (IT) resources development focus on abilities, capabilities, capacities, and applications can play in technology adoption by small businesses. IT abilities refer to skills and knowledge, capabilities refer to resources and strategies, and capacities refer to the ability of companies to adequately represent the company's information (Bianchi et al., 2014; Rauch et al., 2019). The decision making surrounding technology adoption will aid in understanding core constructs that small businesses must address, and the costs and benefits associated with technology adoption.

Researchers who focus on technological innovation suggested two main considerations that are important in determining innovation adoption: individual characteristics and organizational characteristics (Thong & Yap, 1995; Tsai et al., 2021). Small business owners tend to forego technology adoption because they lack adequate technology training and understanding (Peltier et al., 2012; Tsai et al., 2021). The pace of technology adoption has slowed, but the opportunity exists for organizations to take advantage of the untapped potential of innovations and technology adoption to transform these organizations and create tremendous value for all stakeholders (Akpan et al., 2021; Bughin et al., 2013). Although researchers have addressed some factors influencing technology adoption, they have neither identified nor conveyed a functional understanding of which influential factors may be the most important. Information on these aspects of technology adoption will contribute to the preexisting literature.

Small businesses are affected by many entrepreneurial activities since the absence of information impinges on the scope of discovery and exploitation of profitable opportunities (Albar & Hogue, 2017; Mokaya, 2012). As such, small business owners who fail to adopt technology could suffer a competitive disadvantage (Albar & Hogue, 2017; Peltier et al., 2012). Additional research could enhance understanding of the internal or sociopsychological determining factors associated with technology adoption by small-business owners. The current research regarding the influential factors in adopting technology in small businesses is limited to external sources; a company's wealth and basic knowledge are objective factors that researchers can measure, record, and determine if those factors are positive or negative influences. Yet no matter how sophisticated technology might be, any technology implementation can fail if consideration is given to the user's perspective and involvement in training and from there to implantation by decision making by all stakeholders involved in the business operation (Albar & Hogue, 2017; Bergiel et al., 2008). The quantifiable external data and the more ambiguous internal or sociopsychological factors make the cost associated with technology and innovation adoption complex and susceptible to fluctuation. The internal and fluctuating elements are primarily challenging to quantify since such factors are sociopsychological and not easily gathered quantitatively (Albar & Hogue, 2017; Peltier et al., 2012).

Problem Statement

Technology adoption can lead to economic growth, surviving global communities' economic challenges, profitability, and opportunities for improving services (Taneja et

al., 2016). Small businesses must be willing to adopt technology and the benefit of cost-efficient operations to improve profit and efficiency. Between 2010 and 2013, small businesses lost $83 billion due to a lack of information technology adoption (Andaregie & Astatkie, 2021; Ghobakhloo & Tang, 2014; Newby et al., 2014; Taneja et al., 2016). According to Eurostat's (2020) report suggested that the gross domestic product (GDP) fell by more than 3.8 % in the first quarter within the Eurozone. As compare with UK, economy, the decline in outputs has been around 2%. The COVID-19 implications are more severe on micro and small businesses enterprises and, according to national statistics, the monthly GDP estimate declined by 10.4% for March and April 2020 (Bai et al., 2021) due to their inability to adopt technology adequately within their internal and external operations (Andaregie & Astatkie, 2021; Brunswicker & Vanhaverbeke, 2014).

The research general management problem is embedded in a learning situation in the continuing education of small business operators who lack technology adoption and their subsequent lack of success due to numerous mitigating factors such as a lack of technological training or understanding, the relatively slow speed of technological advancement in small businesses, and the lack of understanding regarding untapped market potential (see Albar & Hogue, 2017; Bughin et al., 2013; Peltier et al., 2012).

The specific management problem within this study was that it is unknown what role, if any, the lack of information technology has on the adoption by small business operators within the Houston, Texas, business community. These responsibilities may lead to identifying perceived learning needs by small businesses. A relationship is the

first step to determine if an intervention or change is needed; further exploratory research is required to close the literature gap.

Purpose of the Study

The purpose of this qualitative case study was to understand how internal and sociopsychological aspects of small-business owners' decision-making models are related to technology adoption in the greater Houston, Texas, area of the United States. Adopting technology is an investment that requires further exploratory research when a lack of understanding exists. Within this qualitative study, I used a qualitative research approach through a questionnaire from a selected group to gain detailed answers to the research questions. The population for the study included the owners of Houston-area small businesses with at least $250,000 in annual revenue registered with the Small Business Association. In addition, I also included data from a content analysis of 25 articles. Further research could enhance an understanding of the internal or social-psychological determining factors associated with technology adoption by small business owners.

Within the study, I aimed to apply a broader perspective in which technology adoption includes and is related to a few organizational solutions. Regarding the study's significance, I demonstrated a new meaning in understanding the underlying problem of technology adoption by closing a key research gap between external and internal causes. As shown above, the current scholarly literature concerning the relationship between and among decision-making models associated with technology adoption in small businesses, organizational, individual, and traditional characteristics is limited. While a limited amount of current literature is evidence of a gap in research, the scholarly works

referenced above relate to the decision-making model about technology adoption in small businesses in the United States and Houston, Texas.

Research Questions

According to Abdul et al. (2014) and Qader et al., (2023), the current research into the lack of technology adoption within small business communities' reviews e-commerce or technology in general adoption across cultures, but its scope is limited. As a result, support for the factors that influence e-commerce technology adoption remains equivocal. Researchers who have studied decision making models of adopting technology used in small businesses suggest that there is a need for an in-depth study to adequately understand the underlying factors responsible for the adoption of technology among small business operators or owners. Technology adoption rates within small businesses remain low (Albar & Hogue, 2017; Mokaya, 2012). As a result of the gaps in current and relevant research, I investigated the perceptions of small business operators about the mechanisms that foster technology adoption by small business owners. Given the preceding discussion, I aimed to address the following questions:

RQ1: How are internal and sociopsychological aspects of small-business owners' decision-making models related to technology adoption in the greater Houston, Texas, area of the United States?

SQ1: What sociopsychological elements or attitudes do small businesses use when making decisions involving technology adoption?

SQ2: What are the observable behaviors intrinsic to small businesses' decisions involving adoption of technology?

SQ3: What are the observable factors related to technology adoption?

Conceptual Framework

I used Davis's (1986) technology acceptance model (TAM) as the conceptual framework for my study. TAM was initially established by Davis to understand and develop a theoretical model that could define the human acceptance of computer-based information systems. Adapting a theory of reasoned action, which ascertained that certain acceptances were the result of consciously intended behaviors, Davis and Rahimi et al. (2018) set out to improve the human understanding of the user acceptance process, thereby providing new theoretical insight. In addition, Davis provided a theoretical road map for the basis of *user acceptance* that would enable systems designers to evaluate proposed new systems before implementation.

TAM provides a framework to explain, predict, and identify factors on internal beliefs, attitudes, and intentions of technology end-users. According to Ghani et al. (2017) and Vukovic et al. (2019), TAM assumes that the applied system directly determines the behavioral intentions of use, affecting the user's attitude towards using the system and the perception of the system's usefulness. Perceived usefulness is reflected in a person who demonstrates belief in the ease of use of the technology, which will assist this person in improving effectiveness and efficiency (Davis, 1986; Ghani et al., 2017; Vukovic et al., 2019). Perceived ease of use is heavily based on personal belief in technology use (Davis, 1986; Rahimi et al., 2018). Because the main objective of this research was to understand how the adoption of technology in small businesses decisions are made regarding how internal and sociopsychological aspects of small-business

owners' decision-making models influence technology adoption in the greater Houston, Texas, area of the United States, the conceptual framework was appropriate. TAM could allow insight into adopter behaviors, influencing whether certain technologies are accepted.

Nature of the Study

I used a qualitative research approach through questionnaires from a selected group to gain detailed answers to the research questions. The qualitative method is the only form of research useful in gathering in-depth information about thoughts or perceptions, integral to understanding the psychological aspects of decision making (Hancock et al., 2021; Yin, 2014). Using a case study design allowed the incorporation of multiple data sources in understanding the particular and tightly bound case of decision making regarding technology adoption in small businesses in the greater Houston, Texas, area of the United States. A case study was appropriate to my research question and I incorporated multiple data collection methods to ensure methodological triangulation: questionnaire results as well as content analysis of 25 articles.

I considered other qualitative approaches, but the case study approach was most appropriate. The phenomenological and narrative analysis methods were also considered but ultimately rejected based on their misalignment with the goals and boundaries of the case. The phenomenological design helps understand the underlying experience of a phenomenon (Moustakas, 1994). Still, it does not pertain to the specific understanding of a decision-making model and would not allow for this specific kind of topic to be explored (Moustakas, 1994). Similarly, a generic qualitative analysis would be

misaligned with the very specific boundaries of the case of interest, and this method does not include the addition of secondary data sources (Hancock et al., 2021; Houghton et al., 2015).

The understanding gained through following a case study designed to inquire about and observe relationships between data sources could help mitigate the challenges of technology adoption decision-making models for business owners. One way of mitigating challenges of technology adoption could be accomplished by increasing stakeholder knowledge regarding adopting the technology models. In addition, the study could help ascertain whether these characteristics have an overall influence, be it positive or negative, on technology adoption.

The targeted research population included Houston-area small businesses with $250,000 in revenue annually registered with the Small Business Association. Groups were purposefully chosen for qualitative research. Once the groups were selected, the data collection consisted of questionnaires. The questions on these questionnaires were organized in the following categories: organizational, individual, traditional, and leader demonstration. Questionnaire results were also organized in the same four categories. Additionally, public documents from the Houston Small Business Association and journal articles were examined to determine why small businesses in Houston do not maximize their technology resources.

Definitions

For the study, the following terms are defined within general technology adoption by small businesses.

Applied technology: Applied technology creates opportunities for improved business performance, as well as new approaches to targeting, promoting, and developing high quality personal and electronic services (Quinton & Harridge-March 2006, p. 88; Rahimi et al., 2018).

Change implementation model: There are eight stages in change adaption and organizational transformation using Kotter's (2008) organizational change to technology adoption. The stages include establishing a sense of urgency, the formation of a powerful coalition, vision creation, vision communication, the empowerment of followers to enact the vision, short-term gain planning, improvement consolidation, and change production, and the institutionalization of new approaches using Kotter's model of organizational change to the technology adoption process.

Consistent connectivity: A coherent, logical, ordered, seamless reflecting the IT capability for correct and valid technology connection on an ongoing basis (Camilleri & Bresciani, 2022; Morgan, 2006).

Decision-making model: A representation of reality, the process for conducting a business decision by small business operators, in which decisions that need to be made and how to find alternatives are mapped out. The approach to understanding organization is originally referred to as the decision-making approach (Camilleri & Bresciani, 2022; Morgan, 2006, p. 76).

Enterprise resource planning (ERP): A system that combines methodologies with software and hardware components to integrate numerous critical back-office functions across a company. ERP is made up of a series of modules or applications that are

seamlessly linked together through a common database. An ERP system enables various departments or operating units such as accounting and finance, human resources, production, and fulfillment and distribution to coordinate activities, share information, and collaborate (Ritz et al., 2019).

Entrepreneurial ability: The ability of innovators, risk takes, managers, and resource organizers to incorporate and take the initiative in combining resources like land, labor, tools, and other items to produce some service or product (Gopal & Schnabi, 2022; McConnell et al., 2012). Entrepreneurial ability is the human resource that combines with additional resources to produce a product, makes non-routine decisions, innovates, and bears risks (Gopal & Schnabi, 2022; McConnell et al., 2012, p. G-6).

Innovation adoption: Innovation adoption is the process that occurs when a business owner decides to enhance efficiency through operations, ensure sustainability in small business management, improve business reputation, gain competitive advantage, and attract investors and customers through demonstrating a small business commitment to product and service efficiency (Akpan et al., 2020; Tyagi et al., 2013, p. 281).

Organizational characteristics: Organizational characteristics include firm innovativeness, firm internationalization, efficient, reliable, predictability, and firm size. Organizational characteristics are crucial for performance, growth, and survival (Dong et al., 2021; Vandekerkhof et al., 2014, p. 3).

Small business: An important strategy and organization designed to create wealth, which has beneficial effects such as a decrease in unemployment, flexibility, character, creative behavior, and quick decision making that are considered to benefit institutions

with 50 to 250 employees and $250,000 in revenues or less (Azizzadeh et al., 2012, p. 190; Tsai et al., 2021).

Technology adoption: A process or vehicle that allows small business operators to improve or produce new and better goods and services and new and better ways of producing or distributing them (Gopal & Schnabi, 2022; McConnell et al., 2012, p. G-20).

Traditional characteristics of small business: The opinions and perceptions of employees, organizational business practices, bureaucratic structures, beliefs, relationships, and informal social networks for information gathering (de Berranger & Meldrum, 2000, p. 1828; Turkina, 2017).

Assumptions

Leedy and Ormrod (2005) and Hawke et al. (2018) posited that disclosing any biases or assumptions about any research study upfront is extremely important, as is the truthfulness of the study for others to evaluate the quality and validity. The first assumption I made was that all participants would be small business operators in Houston and surrounding areas and that they would voluntarily agree to participate fully. The second assumption was that participants within the small businesses are at least somewhat knowledgeable of the technology relating to their work. Following this was the assumption that small business owners have a level of technical skills and computer literacy to understand the importance of technology adoption. An additional assumption was that all participants would answer the questions truthfully. My final two assumptions were that the leadership of the small businesses would accept the research and the value

associated with technology adoption and that the targeted small businesses can adopt technology and willingness to invest in human capital development and technology adoption soon.

Scope and Delimitations

The study was framed around technology adoption in small businesses with $250,000 in revenue annually registered with the Small Business Association. The small businesses represented various industries and were assumed to have the technology adoption needed to remain competitive and operate cost efficiently. The selected population was 50-100 small businesses, which is not 10% of the total population due to the difficulties in the large size of the small business population in Houston, which is over 100,000 as of 2012 (Next Street, 2023). In a more general perspective, small businesses are also found in any community or society, so although the sample size is not the standard 10%, it is sizable for other cities and counties; and previous literature and research have been successful with similar samples and methods. For example, Obiri-Yeboah et al. (2013), Selase et al., (2019), Peltier et al. (2012), Albar and Hogue (2017), Woldesenbet et al. (2012) and Ismail, 2022) all conducted similar research on Small Business Manufacturing Enterprises (SMEs) using similar methods. With precedence, I based my interpretation on the results of the questionnaires, 25 articles, and codified mapping. Also, due to the direct and simple manner of the research method and the focus, the study has a high potential to be reused and transferred across a wide range of related studies and research.

Limitations

The study was limited to information technology adoption by small businesses and the decision-making models on how ownership makes decisions related to adopting technology. The ability to transfer the results of the study to other settings was limited by the specificity of the criteria and the richness of the data collected. Speficially, geographical location (Houston and surrounding areas), which was an ideal singular location because, as an international port city, Houston has diverse small businesses that will have a greater chance than most cities because of its diversity of being representative on a national or global scale. An additional limitation was that the technologies used by small businesses were not included in this research.

I aimed to include participants who were employees of only small businesses in Houston within the research. Studying the entire small business community would require time, money, and resources beyond my capability. I relied on small business operators to be truthful in their willingness to participate in the research about the need for technology adoption to spur economic growth and bring about positive social change because technology adoption has the potential to be the catalyst for improving products and services. The results were based on respondent participation and relied on small business owners' willingness to disclose private information. Given this, the participants who responded may not be truthful or may misrepresent the facts included in the questionnaires to their benefit. To mitigate the potential bias, the study involved internet and e-mailed questionnaires with rephrased questions to help clarify misinterpretation and help avoid dishonest answers and misinterpretations as a control measure.

Significance of the Study

This research study was significant to the small business community, because it provided relevant information gathered from small businesses within the country's fourth largest city. In addition, the focus on leadership, innovation, and the willingness to adopt technology at the small business level provided a platform to promote these important initiatives within the broader business arena. The study's questionnaire was designed to cover a broad set of topics that the author identified as critical for small business development and sustained growth. My expectation was that questionnaire responses could be applied across the small business community throughout the United States.

Significance to Practice

Adopting technology is an investment for future economic growth and human capital development (Chen et al., 2020; O'Connor & Rice, 2013). It can enhance small businesses' ability to produce cost efficiently (Chen et al., 2020; O'Connor & Rice, 2013). Increased technology usage is a strategy for increasing the power of small business operators' potential to affect positive social change in a way that benefits all stakeholders. The potential significance of this research study is that it can disclose new meaning in understanding the underlying problem of lack of technology adoption by closing a key research gap on the influence of leadership roles and characteristics of individuals and businesses' culture as it relates to decision making. Fuller (2012) and Marchiori and Mendes (2018) posited that, theoretically, computers and software programs (IT) are business tools that can be used to reduce costs, create stronger linkages with customers, innovate, and facilitate niche markets. Subsequently, Ghobakhloo and

Tang (2014) and Mahliza (2019) posited that small businesses need to adopt new strategies that will enable them to adopt new technology to operate cost efficiently, increase profit, and provide improved services.

Technology adoption requires new thinking and innovations to spur economic growth. In addition, Allen et al. (2017), Medvedeva (2012), and Zahra et al. (2021), in reviewing adaptability openness to technology adoption, posited that technology adoption plays an important role in e-business management, supports e-business based organizations and small businesses to achieve excellence, and requires small businesses' willingness to understand the important role technology adoption plays in open-source technological approach to innovation.

Significance to Theory

Regarding the significance of the theory, there is a potential to understand and develop a theoretical model that could bring to light the lack of technology adoption and use in small businesses. Through the TAM, I could disclose an accessible and theoretically flexible approach to understanding why some small business owners hesitate to implement technological changes within their businesses. Forming and testing the TAM within the geographical location, could allow for an expansion of theory in terms of literature that does not currently exist. My study's results could significantly influence the research surrounding TAM in that I could determine what sociopsychological elements small business owners use when making decisions involving technology adoption. Additionally, I could determine how these observable behaviors relate to technology adoption.

Significance to Social Change

My study can potentially contribute to social change in a few ways. The potential implication for social change is that technology adoption can decrease costs, improve products and services, increase productivity, and enable small businesses to gain a competitive advantage for profitability (Campbell et al., 2012; Cefis et al., 2021). Other researchers, such as Tang and Murphy (2012) and Paiola et al. (2021), posited that technology adoption provides opportunities for small businesses to acquire technology that spurs economic growth, reaches more consumers, and improves product quality and cost-efficient operations. Feldens et al. (2012) and Akpan et al., (2020) posited that incorporating technology and innovation is an endeavor from which consumers and small business owners both benefit because technology incorporation allows better services with more cost efficiency, improves the potential for positive social change through improved products, services, stakeholders' engagement, and cost-efficient operations; enhances the standard of living; and creates a positive human condition.

Summary and Transition

In Chapter 1, an in-depth general introduction to the dissertation was presented with the problem statement, background, purpose statement, nature of the study, research question, limitations, and the significance of the study. The study could close a significant research gap. Small businesses could benefit greatly as more ownership becomes aware of technology adoption's role in creating wealth, growth potential, and profit increase. Small businesses face conflicting demands and confusion because of a requirement to prioritize their learning needs, such as technology adoption (Cefis et al.,

2021). The research noted that new technology has the potential to open new market opportunities for small businesses and allow small businesses to enter previously inaccessible markets (Akpan et al., 2020). Relatedly, social implications could prove significant in using technology to engage all stakeholders for improving services, products, and standard of living. Chapter 2 contains a literature review of the problem statement and related focuses for the research.

Chapter 2: Literature Review

The general problem of this study was embedded in the learning situation in the continuing education of small business operators' lack of technology adoption and their subsequent lack of success due to numerous mitigating factors such as a lack of technological training or understanding, the relatively slow speed of technological advancement in small businesses, and the lack of understanding regarding untapped market potential (see Albar & Hogue, 2017; Peltier et al., 2012). Specifically, the problem within this study was that it was unknown what role, if any, the lack of IT has on the adoption by small business operators within the Houston, Texas, business community.

Further exploratory research was needed to close this literature gap. Additional research could enhance understanding of the internal or sociopsychological determining factors associated with technology adoption by small-business owners. The purpose of this qualitative study was to understand how internal and soci-psychological aspects of small-business owners' decision-making models are related to technology adoption in the greater Houston, Texas, area of the United States. In Chapter 2, I address the significant literature that deals with technology adoption, such as motivation, in accepting or rejecting technology adoption, roles of company attitudes, ethnic influences, scale of reach and other motivating factors, strategies for organizational, individual, and traditional decision-making model processes for successful integration, and nonmonetary social benefits.

Literature Search Strategy

The sources for the literature review included business and management databases, Business Source Complete, ABI/Inform Complete, Emerald Management, Sage Premier, and multidisciplinary databases such as ProQuest Central and Academic Search Complete. A keyword search list was compiled during initial inquiries regarding *small business technology adoption, decision-making models,* and *leadership*. Additionally, I researched peer-reviewed journals such as *Management Science, International Small Business Journal, International Journal of Business and Management, International Journal of Business and Social Science,* and *International Journal of Management*.

Within this study, I examined the decision-making mechanism in how small businesses adopt technology from the organizational, individual, and traditional perspectives of adopting technology and innovations in small businesses. Within the literature disclosed in this chapter, I covered technology adoption, decision-making models, and various factors such as organizational characteristics, individual characteristics, traditional characteristics, and effective leadership's role that affect both topics.

Literature Review Road Map

To better understand technology adoption by small businesses, I conducted a multilayered approach to the literature by analyzing the conceptual lens of adoption of technology use in small businesses in Houston, Texas, to spur economic growth and profitability. Ghobakhloo and Tang (2014) and Andaregie and Astatkie (2021) posited

that there are five factors influencing technology adoption: (a) organization, (b) customer relations, (c) external IT consultants, (d) consultant relations, and (e) internal IT resources. Most small businesses lack effective strategies that address organization, better customer service, and create allowances for external IT help (Andaregie and Astatkie, 2021). They lack an effective understanding of consultant relations' role in improving company profits and adequate IT resources' role in fostering cost-efficient operations and productivity. These small business owners' organizational culture often impedes their incorporation of an effective strategy and organization to effect appropriate change. Technology adoption has the potential to improve productivity, while failure to adopt could lead to financial losses and competitive disadvantage. However, decision-making processes that consider the value of technology adoption, the environment, stakeholders in general, the benefit of better consumer service, sources, the accuracy of information, and technology adoption have the potential to be the catalyst to protect ability.

Figure 1 shows the organizational structure of technology adoption by small businesses.

Figure 1

The Impact of Technology Adoption by Small Business Structures

Organization

An organization's management strategy must establish focus, policy, goals, and objectives before a crisis reveals weaknesses. Doern (2011) and Sharma and Rautela (2021) posited that planning before a crisis is better; enhancing preventative actions exposes organizational failures, accidents, and interruptions. The inability to organize before disasters or crises leads to ineffective, costly operations. The key to small business survival leads directly to effective organization and technology adoption to spur economic growth. Technology adoption also improves positive social change through improved products, services, and community engagement.

Better Customer Relations

Entrepreneurship and crisis management require better customer relations when small businesses organize to engage all stakeholders, leading to increased market shares (Kennedy et al., 2022). I adopted an inductive approach by conducting qualitative questionnaires with small business owner-managers directly affected by technology adoption, including those who may think technology adoption is a good idea and with the prospect of cost-efficient operations. Technology adoption relates to better customer relations and helps to identify factors affecting positive social change opportunities through (Asgary et al., 2012; Kennedy et al., 2022) customer engagement. According to Asgary et al. (2012) and Kennedy et al., (2022), better customer relations play an important role in postcrisis community recovery by providing access to goods and services, jobs, and tax income.

External IT Adoption Strategy

Small business organizations should adopt external IT strategies through their shared interest in technology adoptions to remain connected with the latest innovations and training opportunities (Mole, 2002; Verdu & Tierno, 2018). According to Mole (2002) and Verdu and Tierno (2018), the role of business advisers and managers is the key to external IT adoption strategy policy is to overcome small business knowledge deficiencies and external knowledge information from external sources as needed. The policy strategy guidelines stated that the "Business Link shall have a documented process to identify businesses that may benefit from Personal Business Adviser and external counselor support" (Mole, 2002, p. 183).

Consultant Relation Strategy

Consultant relation strategy occurs when small and medium-sized businesses want sector-specific advice (Mole & Worrall, 2001; Verdu & Tierno, 2018). I further argued that the strength of the consultant relation strategy approach allows small business sectors to receive wisdom, implying that sector-received wisdom is deficient in small business decision-making and provides opportunities for experts. Outside consultants bring perspectives that could bring new life into the thinking related to technology adoption among small business operators.

Internal IT Strategy for IT Adoption

The internal IT strategy for IT adoption must be aligned with organizational strategy as it relates to technology by small businesses. B. C. Lee et al. (2014) and Cao et al. (2022) described social capital as a diverse field and topic. Internal IT strategy adoption requires investment in human capital and social capital. Creating a division within the small business will lead to focus within the organization and establish directions. Although many scholars have defined social capital differently, they tend to share the central proposition that the network of relationships constitutes valuable resources for private and collective goals. The idea emphasizes social relations that generate productive benefits (Cao et al., 2022; B. C. Lee et al., 2014).

A preoccupation exists in small businesses' literature regarding barriers to effective strategies addressing adoption development (Doern & Goss, 2013; N. Lee & Cowling, 2013; Nuryyev et al., 2020). Given that, the literature on small businesses has not examined small business failure because of the inability to adopt technology (Doern,

2011; Sharma & Rautela, 2021). Doern (2011) and Sharma and Rautela (2021) posited that entrepreneurship and crises failed to recognize that technology adoption by small business literature focuses on the association between planning and the enhancement of preventative measures or responses to organization failure due to a lack of technology adoption strategy within the small business culture.

Conceptual Framework: TAM

The conceptual framework for my study was Davis's (1986) TAM. TAM was originally established by Davis and later explored by Ritz et al. (2019) to understand and develop a theoretical model that could define the human acceptance of computer-based information systems. Adapting a theory of reasoned action, which ascertained that certain acceptances were the result of consciously intended behaviors, Davis and Ritz et al. set out to improve the human understanding of the user acceptance process, thereby providing new theoretical insight. Additionally, Davis and Ritz et al. provided a theoretical road map for the basis of user acceptance that would enable systems designers to evaluate proposed new systems before implementation.

TAM provides a conceptual framework to explain, predict, and identify factors on internal beliefs, attitudes, and intentions of technology end-users (Davis, 1986; Ritz et al., 2019). TAM assumes that the applied system directly determines the behavioral intentions of use, which in turn affects the user's attitude towards the use of the system and the perception of the usefulness of the system. Perceived usefulness is reflected in a person who demonstrates belief in the usefulness of the technology, which will assist this person in improving effectiveness and efficiency (Davis, 1986; Ghani et al., 2017; Johar

& Suhartanto, 2019). Perceived ease of use is heavily based on personal belief in using the technology without any personal effect (Davis, 1986; Johar & Suhartanto, 2019). Understanding the specific drivers across national patterns of e-commerce technologies is crucial for companies struggling with the technology complexities of effectively targeting customers internationally. Small businesses could benefit the most by adopting technology, providing more evidence, or filling the missing gap related to technology adoption among small businesses in general. Small businesses' technology adoption relies on small businesses' end user's decision to adopt technology (Cao et al., 2022; J. Lee, 2004). Because the main objective of this research was to understand how the adoption of technology small businesses decisions are made with regards to how internal and sociopsychological aspects of small-business owners' decision-making models influence technology adoption in the greater Houston, Texas, area of the United States, the conceptual framework was appropriate. TAM allows insight into adopter behaviors, influencing whether certain technologies are accepted (Cao et al., 2022).

A Brief Primer on Technology Adoption

In the literature review I discuss the theoretical principles and assumptions relating to the small business's technology adoption model, a redaction of the reality of the U. S. small business, and their relationship with technology adoption. The purpose of this chapter was to review the body of literature relevant to this study. The chapter was not intended to cover all the literature; however, I identified major themes. I explored relevant literature on an on-going basis throughout the study to enhance data analysis. In qualitative research, data analysis is enriched by continuous examination of the

substantive literature in the study (Ribeiro et al., 2022). In the most recent reports of technology adoption, technology, and innovations play a key role in small and medium-sized businesses' ability to improve products and efficiently produce services (Moreira & Torres Garcez, 2013; Ribeiro et al., 2022). Such findings from the previously stated categories include that a small business is likelier to adopt technology when internal and external motivating factors and traditional attitudes towards technology inhibit small businesses from taking advantage of technology opportunities. Other findings include that small businesses owned by minorities are less knowledgeable and willing to adopt modern technology. Internal changes, such as attitudes and decision-making processes, increase a small business's likelihood of technology adoption, and small businesses stand to gain better relations with their customers and community by integrating with modern technology at the same rate as the nonbusiness-related parts of the community (Ribeiro et al., 2022).

During the literature review, I gleaned the following findings from preexisting studies on the topic of technology adoption by small businesses:

- Organizational change is based on six main categories: evolutionary, teleological, life cycle, dialectical, social cognition, and cultural (Kezar, 2001; Schwatka et al., 2018).
- Governments need to adopt strategies that encourage effective ways for small businesses to facilitate new technology adoption, including loan programs, financial institutions' willingness to give loans to small business operators, consistent connectivity, and government contributions to the advancement of

businesses in developing countries to remain competitive and develop an entrepreneurial spirit (Ghobakhloo et al., 2011; Hancock et al., 2021).

- The materials needed for technology adoption by small businesses are important because small businesses lack the resources necessary for IT investment (Pham et al., 2010; Wang et al., 2020).
- The success or failure varies according to countries' technology adoption. Still, most small business failure is associated with a lack of funds for research and development due to decreased profitability and growth (Kang, 2012; Wang et al., 2020).
- Technology represents an additional means by which banks can improve market performance by recovering from palpable inefficiencies, which may, in turn, contribute to competitive advantages in the small business environment (Pepper, 2010).
- Integrating technology can increase a small business's capacity to create, store, distribute, and use information (Quattrone & Hopper, 2005; Rikhardsson & Yigitbasioglu, 2018). Technology adoption and successful implementation create sustainable competitive advantages and provide a means for adapting to rapidly changing markets (Albar & Hogue, 2017; Peltier et al., 2012).
- Globalization and access to new information technology are interdependent forces, creating opportunities and threats for individuals, organizations, and nations, particularly developing countries (Lindvall & Iveroth, 2011; Rikhardsson & Yigitbasioglu, 2018).

- Technology in marketing for small firms is often fraught with difficulties, but the successful marriage of marketing and technology can lead to more successful business development (Hong et al., 2023; Quinton & Harridge-March 2006).

The argument that small business owners tend to avoid internet usage in their businesses was also addressed because the internet is perceived as complex to use, and the cost of adoption has been recognized as an important factor in adopting technology and innovation. The existing literature points to the lack of technology adoption or use and the need for further research to gain a deeper understanding of the factors that either promote or inhibit the adoption and usage of technology to remain competitive in the marketplace (Hong et al., 2023; Obiri-Yeboah et al., 2013). Small businesses are the key to expanding economic growth, prosperity, social benefit, and expansion of various services. Technology adoption and innovations enable management to control change, wherein IT-driven change is made possible from a practical perspective in a global context.

Pepper (2010) and Ghobakhloo et al. (2022) argued that technology and innovations are necessary for small business's survival and global competition. As such, Pepper asserted that for small businesses to compete globally, small business owners needed to manage large-scale change and have greater agility and flexibility to thrive within the international marketplace. Small business owners also needed to practice more knowledge-sharing because most organizations are technologically equitable while practicing better use of resources. After all, demands grow faster than small businesses'

budgets (Ghobakhloo et al., 2022; Pepper, 2010). Knowledge sharing also allows for better planning, delivery, and IT infrastructure management (Ghobakhloo et al., 2022; Pepper, 2010). Pepper also suggested that small business owners invest in faster, more efficient technology to keep up with the changing IT world while honing the ability to manage complex programs that combine technology and business change. The final two suggestions Pepper recommended were that small business owners should take new approaches to customer service. Better leadership is needed to lead organizations in a world "in which dynamic change had become the normal standard" (Pepper, 2010).

The Motivation in Small Businesses Adopting Technology

Due to the existence of a globally heterogeneous culture, globalization, leadership style, ownership, motivation, and competition, effective leadership requires ownership to navigate through channels of sources of conflict. Conflict management strategies that consider international and cultural aspects of the social world and knowledge of how action is related to the environment in which it is embedded within organizational culture (Gibson & McDaniel, 2010, p. 459; Howard et al., 2022). What leads to a lack of beneficial change in organizations is small businesses being unable to compete at the present levels, ineffective operations, high costs, and multiple orders.

The evolutionary change responds to external circumstances, situational variables, and the environment (Kezar, 2001; Tsai et al., 2021). Examples include strategic choice and population ecology. Traditional practices that have been practiced over a long time and facilitate employees' unwillingness to adapt to new changes include ownership's ineffective business practices and high training costs associated with organizational

change (Kezar, 2001; Tsai et al., 2021). Teleological change, or planned change, occurs because organizations are assumed to be purposeful and adaptive (Kezar, 2001; Tsai et al., 2021). However, life cycle change is focused on stages of growth, organizational maturity, and organizational decline. Dialectical change, or political change, results from clashing ideologies or belief systems, while social cognition change is a change tied to learning and mental processes such as sense making and mental models (Kezar, 2001; Tsai et al., 2021). Finally, cultural change occurs naturally as a response to changes in the human environment, cultures are always changing, and the change process tends to be long-term and slow. The process for change is rational and linear, as in evolutionary models, but individual managers or small business owners are much more instrumental in the process (Kezar, 2001; Tsai et al., 2021). Because each category can collectively or independently influence an organization's perspective and actions, all influence the decision-making processes, including those targeted at technology. Such factors are important to consider as the study's organizational, individual, and traditional characteristics are examined, as such categories can be grouped into the four characteristics.

Government Incentives

Governments need to develop and adopt policies that encourage effective ways for small businesses to facilitate new technology adoption. Incentives include loan programs, financial institutions' willingness to give loans to small business operators, consistent connectivity, and government contributions. However, the advancement of businesses in developing countries is inconsistent, and incentive programs must be

designed to remain competitive. Due to globalization, developing countries need to develop an entrepreneurial spirit in terms of independent business owners starting and maintaining businesses outside of franchises. According to M. Ghobakhloo et al. (2011, 2022) adopting electronic commerce will eventually improve firm performance in sales, internal processes, and customer relationships through market expansion, information sharing efficiency, and transactional efficiencies. Governments can become facilitators, creating policies that promote technology adoption by small businesses and help open future markets.

Regarding governments fulfilling the role of facilitators, Kang (2012) and Ghobakhloo et al. (2022) argued that technology adoption is encouraged by policy makers and incentives given to small businesses to adopt technology because of the role technology plays in economic development. Small businesses generally operate at a disadvantage. Implementing technology solutions is challenging and requires a major commitment from the government and other financial institutions to make technology adoption a reality and effective (M. Ghobakhloo et al., 2022; Kang, 2012). Incentives include loan programs, financial institutions' willingness to give loans to small business operators, consistent connectivity (internet and communication technologies in reducing cost), and government contributions to the advancement of businesses in developing countries to remain competitive and seize an opportunity to develop the entrepreneur spirit. Ghobakhloo et al. (2011, 2022) asserted that adopting electronic commerce will eventually improve firm performance in sales, internal processes, and customer relationships through market expansion, information sharing efficiency, and transactional

efficiencies. Governments can become the intermediary, creating policies to promote technology adoption by small businesses, setting guidelines or regulations for decision-making, and helping open future markets (Ghobakhloo et al., 2011, 2022). The United Kingdom (UK) used a variety of schemes to aid small and medium-sized enterprises, confirming the UK government's consultation over the new Small Business Service. The effort by the government offered a more coherent and effectively marketed system that complemented, rather than competed with, private sector suppliers. The government encouraged agencies to partner on some issues by providing financial and other support, such as a competitive bidding process that included preparing a business plan to show how businesses will deliver services locally but developed operations that did not necessarily devolve power.

While operational managers may be given real control over the resources necessary to do the job right, the center of the firm or government retains control over key strategic questions such as the allocation of resources to operational units and the framework of financial and personnel rules and performance targets within which devolution over operational matters if allowed to occur" (Mavimbela & Dube, 2016). According to Mavimbela and Dube (2016) and Bai et al. (2021), growth has given the Internet much needed focus by businesses and government, especially on contributing to economic growth. "Globally, governments have been identified as the key facilitator to accelerate Internet adoption by supporting growth, which will foster firm innovation of new network services and promote access by firms and users" (Bai et al., 2021; Mavimbela & Dube, 2016).

Resources

The materials needed for technology adoption by small businesses—credit, the ability to expand, financing for technology adoption, human capital, financial capital for investment, advertisement, continuing education training, and technical training (Bai et al., 2021; N. Lee & Cowling, 2013) are crucial factors because small businesses tend to lack the resources that are necessary for IT investment (Pham et al., 2010; Wang et al., 2020). Having the means to incorporate technology into a business is one of the major motivating factors on which this study will focus because, despite having a strong desire to adopt more technology, a business cannot thrive without the physical or economic means to do so. Conversely, a business will not use modern technology due to a lack of interest, even if it has the funding and material (Cao et al., 2022; N. Lee & Cowling, 2013).

Resources and lack thereof can also affect the consumer and the relationship between them and the business. Small businesses lack the resources necessary for equipping consumers with the knowledge, skills, and self-efficacy to make and exercise informed, confident, and efficient money management decision makers. Advertisement dollars are necessary to sell the product, and part of the selling process is also to educate consumers but cannot guarantee that they will conform to technology adoption (Cao et al., 2022; N. Lee & Cowling, 2013). Understanding the antecedents to adopting technology by small businesses provides a strategic opportunity to understand better customers, particularly in developing mutually beneficial relationships that directly benefit small businesses. According to Peltier et al. (2009) and Ghobakhloo et al. (2022),

technology adoption can sustain significant competitive advantages by delivering value-added services that respond to customer's changing needs and preferences. On the other hand, Abualrob and Kang (2016) and Ghobakhloo et al. (2022) posited that the barriers that hinder the adoption of e-commerce by small businesses point directly to government instability and restrictions enforced by the occupation. They further posited that e-commerce and e-business have become necessary components of the business world and strong catalysts for economic development.

Research and Development

The success or failure of small businesses varies according to different countries' technology adoption. Still, most small business failure is associated with a lack of funds for research and development due to increased profitability and growth. Kang (2012) and Albar and Hogue (2017) identified the lack of technology adoption as inadequate training and human capital development and insufficient funding for technology and innovation adoption. This inadequacy is especially prominent within developing countries, particularly those in Africa. West Africa lacks consistent connectivity due to a lack of effective leadership, leading to a country-wide scale of small businesses harmed by the lack of technology adoption (Gong & Janssen, 2021; Hounkonnou et al., 2012). Such lack of technology adoption may be due to not having the means to know, understand, and act on such knowledge (Gong & Janssen, 2021; Hounkonnou et al., 2012). The research by Kang (2012) and Ghobakhloo et al. (2022) applies to first-world countries and the small businesses within because the businesses are local and similar in size. First-

world small businesses are more likely to have more opportunities and ways to overcome the factors inhibiting technology adoption.

Any small business stands to benefit from becoming informed of modern technologies. Neumeyer et al. (2019) argued that small businesses need to adopt technology and become innovative to increase licensing for product development. Neumeyer et al. (2019) considered technology integration the largest influence on small business development and strategic planning for market share. Technology exploitation research through distinguishing product development and licensing as the internal and external processes of exploiting small businesses is a resource base. Small businesses must decide whether new technologies are generated internally or acquired from external sources (Neumeyer et al., 2019). The determination of external versus internal and distinction through the addition of new knowledge determines a firm's technology exploitation potential to the potential benefit of small business bottom lines.

While internal and external factors demonstrate small business owners' willingness and ability to adopt technology within their organizations, potential barriers can still occur during adoption. Quinton and Harridge-March (2006) and Neumeyer et al. (2019) noted that marketing for small businesses is often fraught with difficulties and that technology has the potential to generate more future successful businesses. Technology and innovations can enhance distribution and improve communication methods by developing interactive channels, but small businesses lack the ability to conduct research, collect data, and facilitate forward thinking (Neumeyer et al., 2019; Quinton & Harridge-March 2006). Understanding why small businesses cannot or will not employ the means

to take these actions is a second tier aim after understanding why and how small businesses desire to adopt the technology. Quinton and Harridge-March (2006) and Neumeyer et al. (2019) asserted that such decision models involved in technology adoption suggest that small businesses offering financial planning must adopt technology and innovations to provide clients with new services. These new services are extensive in that they include services such as financial and investment planning; attracting and retaining talented staff; improving administrative procedures; and professional networking (Neumeyer et al., 2019; Quinton & Harridge-March 2006). Despite the widespread recognition of the important role that innovative, technology-oriented small and medium size businesses play in economies, limited research has focused on the integrated aspects of technology, management, and related factors in the context of small businesses (Albar & Hogue, 2017; Kang, 2012). Kang's (2012) and Albar and Hogue's (2017) research used the Bank of England as an example. It operationalized technology-based innovative small businesses as companies dependent on scientific and technology-based products while providing services. Technology-based approaches allow businesses to innovatively adopt new or existing technology, enabling them to generate competitiveness (Albar & Hogue, 2017; Kang, 2012).

Banking

Technology and innovation should provide a means for banks to reduce costs and risks and provide an improved service that satisfies the financial system stakeholders' demand to remain profitable and competitive. Technology represents an additional means banks can improve market performance by recovering from palpable inefficiencies,

which may contribute to competitive advantages in the small business environment. As such, competitive advantage in technology and innovation should allow banks to reduce costs or risks or provide improved service that satisfies stakeholders' needs for profitability and competitiveness. Suppose banks invest in innovations promoting the economy and the market. In that case, they can be found to be a strongly viable influence on the financing options available to small businesses for technology adoption. This strategy allows for a greater probability for small businesses to increase technology adoption. Small businesses involved in banking were significantly affected by the 2007-2008 economic downturn, and they continued to suffer as late as 2014 (Cirera et al., 2021; McConnell et al., 2012). The March 2023 bank failures lead to negative effect on green stocks after the March 2023 bank failures due in part to the role involved banks financing climate tech investments (D'Ercole, F. et al., 2023). The authors posited that the crises created a trust issues, the loss of trust was devastating to consumers trust and largely led to societal trust issue and small businesses inability to trust banks; Given this finding, a competitive banking system must ensure that banks are influential forces for financial intermediation that channel savings into investment opportunities for more substantial economic growth (Cirera et al., 2021; McConnell et al., 2012).

Technology adoption for consumers and small businesses can benefit from a framework that uses benefit-cost adoption of the new technology associated with a mobile banking system. Mobile banking has played a more significant role in promoting small business sales and visibility in places like Canadian hotel industries using the wireless local area network (WLAN) technology which recognized three risk factors—

trust, behavioral introspection, and technology anxiety—as influencing the security concern in adopting the mobile banking service. In other words, the decision-making modeling is affected by insecurity and fear of the unknown. Small businesses are accustomed to self-financing and relying on a structural approach, which causes difficulty for banks to lend or establish lines of credit. Consumers and small businesses would benefit from considering the costs and benefits and the possible trade-off between benefits and costs before deciding the following action in integrating technology.

The impact of banking on small businesses' adoption of technology focuses on demand-side factors influencing the profitability of internet banking; the form of organization could also affect the willingness of firms to adopt internet banking. Large firms understand the benefits of Internet banking and technology adoption in general, and small businesses have an equal ability to understand the benefits as well. The for-profit bank versus not-for-profit credit unions might also influence the willingness of a firm to adopt the technology needed to grow and expand the capability of small businesses. An important aspect of technology adoption is the availability of credit and the changing mental model of small business operators. The availability of banking services for small businesses is crucial for technology adoption decision-making. For a small business to profit from using technology, it must know the financing methods available.

Narayanasamy et al. (2012) and Sanchez (2020) asserted that technology adoption, such as banking services, is the key to further profitability. Technology advancement has created a new wave of delivering financial services around the world, and good examples can be found in places like Malaysia by tracing the growth through

the internet and examining how financial services were conducted (Narayanasamy et al., 2012; Sanchez, 2020). The results demonstrated how the internet has provided a new medium for delivering financial services that were not available before. The facts point to a new avenue that has enabled financial services to operate more efficiently and relatively faster. Narayanasamy et al. (2012) and Sanchez (2020) also cited the speed at which e-commerce has grown in popularity and how e-finance has facilitated the securities market industry, where online trading services quickly took up large market shares for better and higher profit.

Technology adoption does not exist in a vacuum. It, therefore, requires participants to ensure its success, and the created technology adoption configuration involves four stakeholders: billers, bill consolidators, banks, and consumers. Small businesses can use electronic bill presentation and payment technology to grow and compete in the marketplace. As a result, banks and bill consolidators can compete to act as an intermediary between billers and consumers. The role of banks makes these institutions an integrated piece in the decision-making processes of small businesses now and in the future, so the study is designed to aim at this and other such factors.

Efficiency

Quattrone and Hopper (2005) and Neumeyer et al. (2019) posited that integrated technology can increase a small business's capacity to create, store, distribute, and use information. At the same time, integration facilitates a relational database, making re-arrangement of work in time and space possible. As a result of technology adoption, the work that previously needed to be sequential can now be performed in parallel

(Neumeyer et al., 2019; Quattrone & Hopper, 2005). The data, once entered, are immediately accessible as information throughout the company. In this way, small businesses can grow in number, and work that was formerly highly bound to a specific physical place can now be visualized, virtualized, reconfigured, and replaced in a new geographical location (Neumeyer et al., 2019; Overby, 2008). Such benefits are difficult to refuse, and this phenomenon is what the study aims to explain-how some small businesses may reject incorporating technology and what can be done to change this, if reasonable and consented.

Competition

Peltier et al. (2012) and Ghobakhloo et al. (2022) further purported that technology adoption and successful implementation create sustainable competitive advantages and provide a means for adapting to rapidly changing markets. Regarding technology adoption related to competition, the opportunities enhance business operations, which is critical for leveraging applicable systems in customer-centric marketing (Ghobakhloo et al., 2022; Peltier et al., 2012). Small businesses stand to gain the most from technology adoption options since they often have difficulty competing cost efficiently with larger firms and have more room to grow. What prevents or motivates a small business from doing so is rooted in many factors, but the positive results remain. Technology adoption is an investment, and small businesses stand to gain the most from employing new technology to improve productivity and profit (Ghobakhloo et al., 2022; Peltier et al., 2012). The reason is directly related to how few

small businesses adopt modern technology and how that adoption is often more limited than larger companies.

Attitude

As organizations strive to operate cost efficiently and become successful in day-to-day operations, they are confronted with the need to rethink their business and ideological structures, change identity, and employ a strategy that will lead to ways to be successful. Peltier et al. (2012) and Ghobakhloo et al. (2022) asserted that the basic characteristics of attitudes are one of the foundations of a small business's decision-making, which will be observed through previous literature and the research within the current study.

The Traditional Approach

Traditionally, the small business community often sees technology adoption as black-boxed and as a given, static, and narrowly defined concept. Chinyanyu Mpofu and Watkins-Mathys (2011) and Tsai et al. (2021) asserted that the owner-manager characteristics include perceived benefits of technology adoption, literacy, level of assertiveness in terms of business decision processes, perceived control over requirements for opportunities and resources as well as mistrust of technology adoption and lack of time. As organizations strive to operate cost-efficiently and become successful in their day-to-day operations, they are confronted with rethinking their reasons for being, changing their identity, and employing strategies that will lead to ways to be successful.

> Organizational resistance to change is considered one of the major reasons that IT initiatives fail to materialize and provide the expected return on investment. Hence, changing individuals' mental model, cultural practices, behavioral change, and perception of technology adoption was the second step of the study (Lippert & Davis, 2006; Tsai et al., 2021).

The social identity of a group of employees provides a useful way to assess how different meanings can be attached to the same change process, and the research highlights the link between social identity and loyalty by focusing on perceptions of change (Schwarz & Watson, 2005; Tsai et al., 2021). The author's argument led organizations to understand the need and role of adopting technology by small and medium-sized businesses (Schwarz & Watson, 2005; Tsai et al., 2021).

Perspective Change

Walters et al. (2006) and Tsai et al. (2021) argued that organizational change perspective on societal factors should be included in the implementation of technologies as these technologies become more widely available to businesses, small and large. Adopting these technologies is the key to innovations and small business survival, as the interaction between technology and society affects a company's perspective by influencing culture in the business's industry field and public and private social interactions (Tsai et al., 2021; Walters et al., 2006). The study encompassed all characteristics influencing technology adoption, whether such traits are inherently business- or industry-related. Bergiel et al. (2008) and Akpan et al. (2020) argued that

forward-thinking business leaders readily embraced technology and innovations, enabling organizations to become agile and compete more robustly in the global marketplace. In a similar situation, many small businesses face the techno-economic perspective, which focuses on external pressures for change, such as changes in competition; the structural perspective focuses on the internal mechanisms in organizations that enable change (Akpan et al., 2020; Verbeeten, 2010). "The structural perspective on change suggests that different organizational strategies and structures vary in the capacity for change due to the patterns of social action that those structures encourage" (Akpan et al., 2020; Verbeeten, 2010). To survive, prosper, and compete globally, small business leaders should adopt a clear strategy that addresses the need for technology adoption and innovations.

Advertising

Hanafizadeh et al. (2012) and Ritz et al. (2019) stated that the internet has become a popular advertising medium because marketers found that the internet has greater flexibility and control over advertising than traditional print and word-of-mouth advertising. Interest in internet advertising has grown partly due to the progress in computer-based businesses. Many small businesses have made the internet part of the advertising media mix to use the platform to reach a large customer base (Hanafizadeh et al., 2012; Ritz et al., 2019). Small businesses benefit from technology adoption, such as Internet advertising, because the medium has advantages such as personalization, customization, reduced costs, high flexibility, and rapid updates. The potential for growth of small businesses utilizing the internet to increase their market share globally is large in

comparison to businesses that do not. The authors further reviewed internet adoption from a non-stage-based spectrum, suggesting that owners' recognition of the business value of the Internet combined with an attitude toward business growth are key attributes in determining internet adoption strategies (Hanafizadeh et al., 2012; Ritz et al., 2019).

In terms of technology adoption as a means of advertising, K. O. M. Lee and Cheung (2004) and Ritz et al. (2019) developed a theoretical framework for analyzing the adoption of internet retailing for small businesses in Hong Kong. They discovered that organizational readiness (IT sophistication, financial resources, and customer readiness), perceived benefits of internet retailing, and environmental factors are the key variables affecting the adoption of internet retailing (K. O. M. Lee & Cheung, 2004; Ritz et al., 2019). Regarding the explanation of internet technologies adoption in small businesses, K. O. M. Lee and Cheung examined the relationships of the relative advantages of using IT: compatibility, ease of use, computer self-efficacy, financial slacks of the firm, innovativeness of the firm, image of IT and competitive pressure against adoption of four different internet technologies – email, business, homepage, e-sale, and e-procurement.

Ethnicity

Although perspectives on technology adoption vary, most experts recognize technology adoption as the key to corporate social responsibility in that a deep-rooted digital divide may limit productivity and reduce profitability in minority-owned small businesses (Jere & Ngidi, 2020; Middleton & Byus, 2011). Middleton and Byus (2011) and Jere and Ngidi (2020) further stated that other research showed technology adoption as the key to productivity and profitability rises when small businesses adopt the

technology. Middleton and Byus (2011) and Jere and Ngidi (2020) demonstrated that ethnic minority-run small businesses could add billions of dollars to the nation's gross domestic product if technology adoption becomes a priority. For example, little empirical research is available as to whether Hispanic small businesses use information technology tools to achieve efficiency and effectiveness in ways that are like non-Hispanic small business owners. Middleton and Byus's (2011) and Jere and Ngidi's (2020) research centered on the notion that ethnicity may influence technology adoption and use of information and communications technologies in small and medium enterprises. Researchers have reviewed that ethnicity has more to do with small businesses' technology strategy than previously known. Kim and Park (2008) and Jere and Ngidi (2020) concluded that ethnicity uniquely influences the rate of Internet access and how the Internet is used. The social constructs of ethnic minorities, especially in the United States of America, hold an equally unusual influence on how willing minority-owned businesses are to integrate more technology and their decision-making processes versus the Caucasian majority. Such an influence will be noted within the study, although not as high as other factors, such as characteristics and resource availability, due to prioritizing factors, which are more significant in the study context (Jere & Ngidi, 2020; Kim & Park, 2008).

Scale and Reach

Technology adoption and innovations have enabled management to control change; IT-driven change is made possible from a practical perspective in a global context. Chinyanyu Mpofu and Watkins-Mathys (2011) and Jere and Ngidi (2020)

explained the process of information and communication technology adoption among small businesses located in South Africa, Botswana, and Zimbabwe in that technology is the driving force behind the three Southern African development communities. Technology adoption in developing countries varies with the competing needs of others. E-commerce literature has shown that only a few studies focused specifically on adopting technology (Chinyanyu Mpofu & Watkins-Mathys, 2011; Jere & Ngidi, 2020;). The adoption rate of technology in small businesses in developing countries remains relatively low, while large companies have noticeably profited more than small businesses. Ghobakhloo et al. (2011, 2022) focused on how e-commerce contributes to the advancement of businesses in developing countries, which is driven by the perceived potential of internet and communication technologies in reducing transaction costs by bypassing some, if not all, of the intermediary and facilitating linkages, to the global supply chains. The e-business value of technology adoption enables those who adopt technology and innovations to improve firm perforce in sales, internal processes, and customer/supplier relationships through market expansion, information sharing efficiency, and transactional efficiencies (Ghobakhloo et al., 2011, 2022).

Parities

Premkumar and Roberts (1998) and Ghobakhloo et al. (2022) posited that the advent of the digital revolution has created a society increasingly dependent on information and technology to process it. However, the result is yet to be seen on how well society and the small business community will accept and assimilate these technologies. Premkumar and Roberts (1998) and Ghobakhloo et al. (2022) articulated

that due to new communications, technologies have made geographic locations and distances irrelevant, especially in the service industry. Lindvall and Iveroth (2011) and Ghobakhloo et al. (2022) posited that globalization and access to new information technology are interdependent forces, creating opportunities and threats for individuals, organizations, and nations, particularly developing countries like Liberia. Small businesses can take advantage of the opportunity by adopting technology, opening new markets, and expanding their customer base for many small businesses (Ghobakhloo et al., 2022; Lindvall & Iveroth, 2011). Unfortunately for many small businesses, the threat to surviving can include the development of new and innovative business models that include technology adoption and innovation because these kinds of models can increase the possibilities for new competitors to enter any given market and prosper due to the availability of new, advanced technology (Chapman, 2005; Ghobakhloo et al., 2022). In other words, the technology phenomenon has allowed small businesses to become global competitors. However, this phenomenon has also introduced a greater chance that a small business in one country will be surpassed in productivity by a business of equal size in the same country and different counties. Research such as this has made it imperative for this study to balance the cost-benefit of technology adoption and the decision-making involved. How a business uses new technology can influence how competitive said business will be in a growing economic market (Chapman, 2005; Ghobakhloo et al., 2022).

Nye et al. (2010) and Kusuma et al. (2020) reported on the difficulties of evaluating change, noting how authentic experimental designs allow the strongest causal

interpretations; however, these designs are often difficult to implement in realistic organizational settings. Technology adoption strategy (i.e., decision-making) processes should be evaluated continuously to determine capability, resources, and motivation for the specific technology adoption. “For some small businesses, evaluating the changes is not possible due in part to lack of resources, poor timing, or ethical considerations of withholding information from control group subjects” (Kusuma et al., 2020; Nye et al., 2010).

Strategies

Technology in marketing for small firms is often fraught with difficulties, but the successful marriage of marketing and technology can lead to more successful business development (Neumeyer et al., 2019; Quinton & Harridge-March 2006). The argument is that small businesses rarely strategize. Instead, they perform many tasks; their decision-making processes lack expertise and time. As a result, technology and innovation costs are fraught with indecision and complications; meanwhile, technology adoption is an investment and strategic change in thinking to remain competitive and profitable (Neumeyer et al., 2019; Quinton & Harridge-March 2006). Different approaches have been used for outcome measures in technology adoption. Within the proposed study, there was an effort to apply a broader perspective in which technology adoption includes, and relates to, a few organizational solutions.

The Internet: Information Communication Development

An analysis of a business case for technology adoption leading to the development and evolution of technology has provided small businesses with

opportunities to widen and enhance their services, product distribution, and communication methods through interactive channels (Neumeyer et al., 2019; Quinton & Harridge-March 2006). Communication is critical to ensure technology promotes success within a small business. Building on the idea of having multiple interactive channels is a way to enhance the understanding desired within the study. Budriene and Zalieckaite (2012) and Neumeyer et al. (2019) argued that small businesses respond to the changing dynamic in the marketplace-required technology adoption, which requires high quality and speed of information that can be provided by the modern means of information and communication technologies. Budriene and Zalieckaite (2012) suggested that small and medium-sized businesses can create information and communication technology structures and strategic thinking. Additionally, cloud computing is an IT resource that is easy to access, easy to use, very cost efficient, and available only through technology and innovation adoption as an investment (Budriene & Zalieckaite, 2012). Small businesses stand to benefit from adopting cloud technology because cloud programs are cheap, easy to use and understand, and cost-efficient (Budriene & Zalieckaite, 2012).

In Southeast Asia, businesses have begun to benefit from technology and innovation adoption. Vietnam is becoming a country with high internet usage in Southeast Asia (Pham et al., 2010). Artificial Intelligent technology investment strategy will lead to great economic benefits in small business market and bring about rapid growth and development (Xue et al., 2020). The authors analyzed that the business case for technology adoption led to the development and as a result, evolution of technology, which has provided small businesses with opportunities to widen and enhance their

services,-product distribution, and communication methods by developing interactive channels. The program is designed to encourage small and medium-sized businesses to be more aware of IT improvements in general and e-commerce in particular because the advantages of utilizing the internet for all business processes have been making significant contributions to the advent of e-commerce in Vietnam (Pham et al., 2010).

Financing

The decision-making models involved in technology adoption suggest that small businesses look for improving financial planning need to adopt technology and innovations to address other companies that are offering new services to clients, such as financial planning, investment planning, attracting and retaining talented staff, improving administrative procedures, networking among professionals and serving each other as sounding boards as well as being on the cutting edge of technology (Pham et al., 2010). Abdullah et al. (2000) noted that small firms must also stay attuned to technological changes, which promise ever-greater gains in efficiency and new practice opportunities. ~~This~~ Financing is a key factor in determining why a small business owner may or may not adopt the technology.

Heuristic Decision-Making

One of the key facets of heuristic decision-making is working relationships among various entities within the business process. Supply chain relationships can facilitate the growth of small businesses, and current policy initiatives promote small businesses through friendly procurement practices with technology and innovations incorporating strategic thinking (Woldesenbet et al., 2012). With a receptive and prepared

method of adoption, small businesses could increase their capabilities to supply to large organizations in the public and private sectors. Small businesses' decision-making needs to change as these relate to technology and innovations adoption and adopt a heuristically based decision-making approach instead of thinking with only rationally based methods (Woldesenbet et al., 2012).

Increasing Competition

Small businesses must embrace technology and virtual teams to expand and become competitive (Bergiel et al., 2008; Thambusamy & Bekirogullan, 2020). Small businesses can incorporate virtual teams only by adopting technology and innovations. In other words, technology and innovations are the keys to a successful operation, and virtual teams result from technology adoption as an investment. de Berranger and Meldrum (2000) and Thambusamy and Bekirogullan (2020) argued that small businesses can develop local clusters to increase global competitiveness; in the process, small businesses use local cohesion to explore the relationship between physical and digital networking. The argument suggests that strategic thinking and flexibility can make technology adoption easier than for most prominent businesses. The keys to thriving small businesses are technology adoption, strategic forward-thinking, and technology adoption intending to broaden the available market and cost-efficient operations. The research above applies to this study by providing a strategy that is aimed to be expanded by examining how small businesses think of competition concerning technology and determining additional methods for promoting competition on both a local and global scale (de Berranger & Meldrum, 2000; Thambusamy & Bekirogullan, 2020).

Changing Thought Processes

Organizations need to respond to several needs, such as the postmodern environment, in examining the multiple ways to be successful (Kezar, 2001; Schwatka et al., 2018). Technology adoption and innovation is the key to moving the process forward and the factors on which this study is based. Secondly, when considering adopting technology, an organization should take control or understand the organization's subcultures (political, bureaucratic, traditional practices, symbolic, and human resource cultures) (Kezar, 2001; Schwatka et al., 2018). Thirdly, examining other organizations' cultural practices, entrepreneurial ability, and ability to easily adapt to changes. Organizational change is technically conceptualized as becoming less homogenous and more responsive to the multiplicity of various constituents, such as diversity in leadership, genders, customers' services, and other stakeholders (Kezar, 2001; Schwatka et al., 2018). Adapting effectively to changes occurring within and outside the organization is the key to transforming the organization into the 21st century. Finally, organizations need to focus on the actions and processes they do best because another factor is updating the knowledge base on organizational change, which is the plethora of new models developed and research conducted in the last decade (Kezar, 2001; Schwatka et al., 2018). Understanding the steps that lead to organizational change is critical to this study's later results and conclusion, which is to provide successful implementation plans.

Small business owners must think of ways to promote economic regeneration when they wish to provide successful implementation plans. Small businesses' practices of thinking small in the strategic section are responsible for the lack of technology

adoption (Woldesenbet et al., 2012; Woldesenbet & Worthington, 2018). To promote economic regeneration, small businesses need to be more willing to accept technology adoption and innovations (Woldesenbet et al., 2012; Woldesenbet & Worthington, 2018). Lippert and Davis (2006) and Woldesenbet and Worthington (2018) also supported the need for proper adoption, explaining the steps that lead to organizational changes involve building trust and changing individual perceptions of the complexity and attitude toward the technology.

Relationships must first be established to build trust, support the need for technology adoption, and change individual perceptions toward technology. New technology adoption is an interactive process that involves both formal and informal relationships, which exist among diverse factors that interact through social networks today on a large scale (Craig et al., 2020; Lee et al., 2014). The exchange of knowledge involving a large diversity of actors in situations of interdependence is a process whereby success rests upon continuous interactions and trust building among participants. As a result, "integrating social capital into the technology acceptance model is the key to successful technology adoption in organizations" (Craig et al., 2020; Lee et al., 2014). The explosion of technology adoption strategy arguments among small business operators includes internal technology adoption and outsourcing, but effective positive organizational change is the key. Avey et al. (2008) and Shani and Noumair (2021) concluded that small businesses must have the confidence to adapt to organizational change and the resilience to recover from setbacks that are likely to occur during the change process with technology adoption. Avey et al. (2008) and Shani and Noumair

(2021) also posited that “positive organizational change is any change that does better than harm in and for an organization, considering aspects of employees’ psychological resources, behavior, and performance that may be affected by the change”.

Social Benefits

Stakeholders have used social identity in organizations to demand corporate social responsibility and accountability. Sharma and Good (2013) and Irvine et al. (2023) argued for creating positive social change in corporations and small businesses to affect positive social change within the organizations and beyond. Sharma and Good's (2013) and Irvine et al. (2023) research centered on the commitment to improve the well-being of communities on local and global levels in such areas as health, race relations, the environment, or economic development to improve human conditions. The technology adoption by small businesses study is grounded on the theory that technology adoption by small businesses will influence positive social change and demonstrate strong relationships between usefulness and social influence in creating responsible behavior among users and consumers (Irvine et al., 2023; Sharma & Good, 2013). The positive social benefits of small business adoption of technology include better services, economic growth, greater accessibility, cost saving, high profitability by increasing efficiency in the workplace, community engagement, and improved relationships between consumers and small business operators. Competitive advantage is also created through diverse communication and marketing media, which allow financial investment in the local community, productivity gain, significant contribution to employment opportunities for

the local community, and overall acts as a driver of new economic activities (Irvine et al., 2023; Sharma & Good, 2013).

Technology and Women-Owned Small Businesses

Kunz and Ratliff (2012) and Shekhar et al. (2021) suggested that small business ownership and entrepreneurship have noticeable differences between male and female motivations, operations, and success, resulting in factors such as how men and women differ in their willingness to take on such a venture. These factors include reasons for pursuing the business venture, approaches used in performance, growth, and financial successes, and how to succeed overall in their small business endeavor. Women determinants and female entrepreneurs are also most prominent regarding effective mentoring on technology adoption, personal characteristics such as creativity, marital status, education level, and a tolerance level for risk of failure. A study in 34 countries discovered gender differences in entrepreneurs primarily existed in perceptions of necessary skills, knowledge related to technology adoption, attitude towards opportunities, and persistence regarding the threat of failure. Both women and men said a lack of confidence and bluster, an aversion to risk, and a continued scarcity of women in engineering programs may explain the shortages of female business owners. Furthermore, the study reported that the result is the same, that the number of male entrepreneurs far exceeds that of female entrepreneurs. As such, the ratio of female entrepreneurs to male entrepreneurs worldwide is a significant concern regarding the lack of willingness to adopt technology.

Female-owned startups typically have lower growth rates than their male-owned counterparts due partly to a lack of technology adoption, and not wanting to grow. At the same time, other studies investigated why female-owned businesses are much smaller than male-owned firms. The problem is not derived from technology adoption or financing; it is a problem of female owners wanting to be independent, and as a result, they do not seek outside equity or debt. According to Manolova et al. (2008, 2012) and Shekhar et al. (2022), female business owners also have different motivations and expectations; conversely, men are motivated by financial gains and self-realization. Meanwhile, status is a more important motivating factor for women.

Generational Challenges in Women-Owned Small Businesses

Doms et al. (2010) and Shekhar et al. (2022) argued that "women entrepreneurs represent a large and untapped resource for generating jobs and high-growth business". Women are still underrepresented among business owners. Doms et al. (2010) and Shekhar et al. (2022) posited that women are less likely to take risks, and women-owned firms are typically smaller and are concentrated in services and retail industries. According to Gius (2012) and Shekhar et al. (2022), in terms of profitability and business success, previous studies also discovered mixed evidence of whether women-owned firms underperform compared to men. Robb and Watson (2012) and Shekhar et al. (2022) used three measures of business performance. They found that women do not lag men even after controlling the firm's size, risk-related factors, and key demographic differences. Coleman and Robb (2009) and Shekhar et al. (2022) posited that women

owners not only start their businesses with smaller start-up capital, but also raise smaller outside equity in subsequent years.

Voelker and McDowell (2010) and Shekhar et al. (2022) state that many federal contracts go to large-scale and publicly traded firms, but small businesses are well represented. The federal government has recognized small and mid-sized businesses' job creation and innovation potential. Small businesses have been identified as uniquely suited for partnerships with other organizations due to many advantages such as a simple organizational structure, a focus on growth and continuity, flexibility, and central decision making related to technology adoption. Voelker and McDowell (2010) and Shekhar et al. (2022) further posited that the second thrust of public policy addresses institutional inequities blocking certain entrepreneurs from equal market opportunities. Female-owned businesses are systematically underrepresented in most industries and face many institutional obstacles that extend well beyond simply running an effective small business. Minority-owned and women-owned businesses suffer excessively high mortality and face substantial challenges in securing institutional sources of capital. Seeking to mitigate these inequities, the federal government fills a gap in sourcing for entrepreneurial capital, extending several programs targeting strategically disadvantaged businesses (Shekhar et al., 2022; Voelker & McDowell, 2010).

Banks’ loan denial decisions often have a long-lasting negative effect on female small business owners’ decisions to apply for loans, investments in technology adoption, and growth due to their inability to obtain loans for expansion (Barkley & Schweitzer, 2020; Carrington, 2006; Mijid, 2015b). Female-owned businesses find it difficult to

obtain loans because investors do not see them as attractive for investment purposes. They are viewed as risky because they often do not have enough assets to leverage a loan. Women-owned and minority small businesses' success heavily depends upon credit access, especially traditional bank loans (Barkley & Schweitzer, 2020; Williams & Ou, 2008). According to Doms et al. (2010) and Barkley and Schweitzer (2020), the problem with women-owned small businesses is that they lack assets for credit and loans compared to large firms. As such, women-owned small businesses are organized as sole proprietorships or partnerships and are less likely to be corporations.

Technology and Minority-Owned Businesses

According to Fairlie and Robb (2008) and Barkley and Schweitzer (2020), minorities who are approved for loans tend to receive lower loan amounts and pay higher interest rates than non-minorities. Data from the 2003 questionnaires of Small Business Finances show that the average loan amount for minority-owned small businesses was about $9,300, while the non-minority average was more than twice this amount, at $20,500. Furthermore, it was found that minority businesses pay, on average, 7.8% for loans, compared with 6.4% for nonminority businesses (Barkley & Schweitzer, 2020; Doms et al., 2010, p. 11). Minority-owned small businesses may have varying expectations, but the differences may be driven in part by leaders' stereotypes about the ability of African American and Hispanic-owned businesses to succeed under certain circumstances (Barkley & Schweitzer, 2020; Blanchard et al., 2008). Due to these intertwined factors, minority-owned businesses rely less than nonminority-owned businesses on external debt. A review of the theoretical framework for this study outlined

the current study's ability, particularly with its use of TAM, to be applied across multiple disciplines. Still, minority-owned and women-owned firms have less access to equity financing. Research by Fairlie and Robb (2008) and Barkley and Schweitzer (2020) found that the average amount of new equity investment in a minority-owned business was about $3,400, 43% of the average equity investment in a nonminority business. The problem is that technology adoption is difficult since minority-owned businesses have less access to equity financing. Fairlie and Robb (2008) and Barkley and Schweitzer (2020) suggested that these small businesses have limited access to equity capital compared to the majority owned. They further posited that minority-owned businesses are approximately three times more likely to be denied loans than comparable nonminority businesses.

Research by Harris et al. (2005) and Barkley and Schweitzer (2020) examined the critical problems associated with rural small businesses by comparing African American and White-owned formations. The authors posited that the survival rate of minority-owned businesses continued to grow slowly compared to white-owned businesses. According to Harris et al. (2005) and Barkley and Schweitzer (2020), two contributing factors generally lead to higher failure rates for African American-owned small businesses: less capital access and better management and technical training. Heilman and Chen (2003) and Barkley and Schweitzer (2020) posited that the general lack of mentors and mentoring opportunities for minorities leads to small business failure. The lack of mentors, mentorship, a strong support network, and a positive relationship with a mentor helps future small business owners learn the skills needed to operate and manage

a small business successfully. Minorities may have fewer opportunities to engage in professional relationships with mentors because of cross-cultural differences, such as the unwillingness of minority business leaders to participate in mentoring relationships.

Despite the fewer opportunities minority businesses and owners receive, businesses owned and operated by minorities and women are growing faster than male-owned businesses (Barkley & Schweitzer, 2020; Barr, 2015). Minority and women business owners are a growing segment of the entrepreneur population, but their businesses also tend to be relatively under supported when compared with businesses owned by majority populations. According to Barr (2015) and Barkley and Schweitzer (2020), helping minority and women business owners could potentially expand employment opportunities and economic growth for these groups as well as others. Minority-owned businesses often cannot effectively access business networks even though they might benefit the most from technology adoption and networking. Women-owned and minority-owned small businesses operating from different generations may have varying expectations of what they want (or value) from the small business industry, both from an intrinsic and extrinsic standpoint, and may approach technology adoption differently. Suppose women-owned and minority-owned small businesses are given similar opportunities exercised by large firms. In that case, they can successfully find ways to bring the best from the Four Generations. The challenge can be an opportunity for a more efficient, productive, and successful women-owned and minority-owned small business company that contributes meaningfully to the global community.

Summary

In Chapter 2, I summarized the literature on technology adoption and the related decision-making model. I discussed the technology adoption literature in light of technology's role in productivity increase, profitability, economic growth, small business decision making strategy, and economic impact. I focused on the motivating factors that encourage or deter small businesses from participating in technology adoption, the influences that determine the adoption's success, and the various strategies that would benefit small businesses. I cited effective technology strategies and decision-making models relating to implementation of technology adoption that could promote more cost efficient and effective business-operations for greater empowerment, productivity, and profitability in the global market. Chapter 3 will address the research methodology, design, data triangulation, population sampling, and data organization techniques.

Chapter 3: Research Method

Researchers have identified small businesses' adoption of technology and innovations as the foundation of any economy through creating wealth, employment opportunities, and reducing poverty in communities. Although Lee (2004) and Kardes et al. (2021) credited small retail stores with generating 52% of jobs in 1999, most of the $2.8 trillion consumers spent went to large businesses or corporate locations. Researchers have noted that this gap is possibly due to the collective inability of small businesses to adopt technology, with approximately $83 billion in lost income between 2010 and 2013 credited to this lack of adoption (Ghobakhloo & Tang, 2014; Kardes et al., 2021; Newby et al., 2014; Taneja et al., 2016).

During the pandemic, small businesses struggled with changes in consumer behavior, decrease in cash flow, and reduction of resources (Klein & Todesco, 2021). The organizations that impacted the most during this time had not invested in technology or the training knowledge to use it. The purpose of this qualitative study was to understand how internal and sociopsychological aspects of small business owners' decision-making models are related to technology adoption in the greater Houston, Texas, area of the United States.

I used the qualitative method for this study. The qualitative method was selected because this degree of understanding could not be derived satisfactorily from quantitative data. I used a case study design to discover the decision-making model involved in technology and innovation adoption. Given this, the participants who responded may not be truthful or misrepresent the facts included in the questionnaires to their benefit. To

mitigate the potential bias, the study involved onlinequestionnaires and e-mailed questionnaires that included rephrased questions to help clarify misinterpretation and help avoid dishonest answers and misinterpretations as a measure of control.

Within the study, I explored specific research questions in the context of small businesses in Houston, Texas, to understand the decision-making models involved in technology adoption from organizational characteristics, individual characteristics, traditional characteristics, and the role of effective leadership. One overarching research question and three subresearch questions were developed to guide the research:

RQ1: How were internal and sociopsychological aspects of small-business owners' decision-making models related to technology adoption in the greater Houston, Texas, area of the United States?

SQ1: What sociopsychological elements or attitudes do small businesses use when making decisions involving technology adoption?

SQ2: What are the observable behaviors intrinsic to small businesses' decisions involving adoption of technology? \

SQ3: How do these observable behavior factors relate to technology adoption?

Research Design and Rationale

The research design was a case study—a process for collecting, measuring, and analyzing data—in line with Yin's (2014) and Smith's (2020) parameters. According to Yin, the case study design is applicable for examining a subject when some commonality, such as the setting or situation, bound the design. The design was open to the availability of additional forms of data, including additional notes and document analysis of the

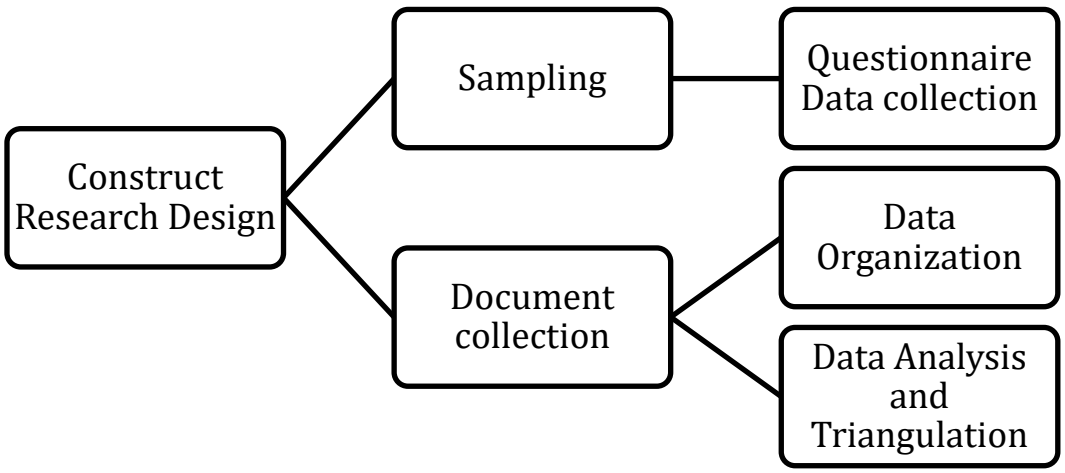
current, associated literature. Case study research tends to require fewer participants than other forms of research because those in the sample tend to have similar perceptions and responses, meaning that saturation can be attained with fewer data (Smith, 2020; Yin, 2014). This requirement aligned with what was available for sampling within this study's relevant population and focused on the specific case of interest to this study.

The research goal was best met using this design, as the case was defined as small business owners in the Houston area who were adopting new technology; both questionnaires and document analysis of the current, associated literature were necessary. As Yin (2014) and Smith (2020) prescribed, the case study design should be used when multiple data sources exist. These sources may be compared so that the findings result from data source triangulation and can comprehensively describe the case of interest (Smith, 2020; Yin, 2014). Thus, a case study was employed to examine the research problem. The major steps of the research follow in line with Figure 2.

- Find willing and able small business/ small business owners who qualify for the requirements by conducting cursory online questionnaires.
- Collect relevant documents as available and administer questionnaires.
- Categorize data based on organization, individual, and traditional characteristics.
- Analyze, compile, and interpret data.

Figure 2

Research Steps



Role of the Researcher

As the researcher, I was the main source of data collection and all data passed through my hands at some point. For this reason, it was important to consider my personal biases concerning the subject matter. My biases pertain to the impact of technology adoption by small businesses and a comprehensive understanding of technology adoption. The primary influences on this study included family dynamics, willingness to adopt technology, working environment, individual perception about adopting technology, organizational characteristics, leadership, and willingness to invest in technology. This process included questionnaires, data entry, and data analysis. I had no personal relationship with participants related to any conflict of interest and did not suggest any incentive. The primary role of the researcher in a qualitative research study entails data collection, data organization, and analysis of the results (Grossoehme, 2014).

I interacted with participants through questionnaires. The data quality depends on the researcher's ability to reduce bias and validate the correct interpretation of the phenomenon (Marshall & Rossman, 2016; Smith, 2020; Yin, 2014).

To preserve all ethical standards, I adhered to the recognized protocols throughout the study and pursued the fundamental tenets of research linked to human subjects in my study. Personal reflection and self-awareness are important considerations in qualitative research (Grossoehme, 2014; Putra & Cho, 2019). The data quality depends on the researcher's skill to reduce bias and properly interpret the data (Bernard, 2013; Cronin et al., 2014; Putra & Cho, 2019; Rubin & Rubin, 2012). Qualitative researchers aim to decrease inaccuracy and researcher bias (Marshall & Rossman, 2016), so I summarized themes that emerged, reviewed data with participants, and asked the participants follow-up questions for clarification.

I am familiar with small businesses in Houston, Texas, and Monrovia, Liberia, in West Africa. Due to my experience managing a small business in Houston, Texas, I gained firsthand knowledge of what causes some businesses to cease operations. I was not familiar or knew anyone at the organizations to which I sent questionnaires.

Methodology

Although there is much research on the characteristics of more small businesses' technology adoption, it is unknown what role, if any, internal or sociopsychological aspects of the decision-making process impact technology adoption, particularly within small businesses within Houston, Texas. To understand this adoption process in terms of sociopsychological and internal aspects, I applied a qualitative research method. This was

mainly comprised of questionnaires, which formed the base of the research. I posted these questionnaires to respondents according to their level of business sophistication, which was how I aimed to segment small businesses. This helped to isolate results from small businesses registered annually with the Small Business Association. Therefore, the study's findings could apply to small business owners' thoughts and perspectives regarding improving services, products, profits, and cost-efficient operations when adopting new technology. In the following sections I outline the procedures I used to conduct my research.

Participant Selection Logic

The population pertinent to this research included Houston area small businesses with $250,000.00 or less in revenue annually registered with the Small Business Association. Texas has 2.6 million small businesses; most are Hispanic-owned (approximately 687,500), with most owned by men (approximately 1.3 million; Next Street, 2023). Of these, approximately 361,282 consisted of between one and 20 employees or 413,777 with between one and 499 employees. Most of these businesses were either health care or social assistance related; retail, professional, scientific, and technical services; or construction. Though the exact metrics for Houston are unavailable, these figures were expected to be proportionally similar for the research.

Nine small businesses were chosen to be contacted for participation along with the analysis of 25 articles. There were 150 questionnaires distributed during this timeframe until the goal of eight to 10 was completed. Yin (2014) suggested case study research should consist of a smaller sample, such as six to 10 participants, as those in the

sample tend to have similar perceptions and responses, meaning that saturation can be attained with fewer data. This method constitutes purposeful, convenience sampling, as the pool from which participants were chosen was based on the requirements of the study, which limited the sampling frame to small businesses in Houston, Texas, with $250,000 or less in revenue, who were annually registered with the Small Business Association. Potential participants were identified on a list the Small Business Association provided, which detailed each small business's annual revenue, location, and contact information.

Though participants were chosen in no particular order from this list, the specific *criteria did not allow* for true random sampling, which would allow all possible participants an equal chance of being sampled. The case study was designed to help me understand the organizational, individual, and traditional characteristics and the role of effective leadership. Many nonadopters and technology adopters were selected to account for the lower expected response rate by creating diversity in business and technology perspectives.

Instrumentation

Qualitative data were gathered through questionnaires and document analysis. For the questionnaire data, the source of contact information was drawn from the Small Business Association, sampling included only small business owners, thus narrowing the sampling frame, and ensuring that the main inclusion criterion was met. Following initial contact and informed consent processes, questionnaire data were gathered through emails, followed by additional emails and questionnaires, as appropriate for each

participant. Though the two main sources of data pertain mainly to different research questions, the information gathered from each source also contributed to different facets of the case, which in concert helped to create a fuller picture of the *how* and *why* concerning the adoption of technology among small businesses. The data from these sources were used in response to each research question, whereas none would provide the data needed for study completeness.

Questionnaires

I emailed approximately 150 questionnaires to Houston, Texas, small businesses selected from applicable business community members, and a gatekeeper at each applicable business was contacted to seek permission to participate in the questionnaires. Once participants were selected and allowed to provide informed consent, I emailed the questionnaires to these participants. The questions for the questionnaires were developed to gather information relevant to one of the three subresearch questions. They were posed primarily to address the decision-making process for technology adoption among this population. To hone these questionnaires, the questions were assessed by a team of subject matter experts for clarity, comprehensiveness, and applicability. Based on the suggestions of these experts, revisions were made before using the questionnaire protocol for final data collection. Notation of expert suggestions and a trail of any modifications made were maintained for auditing purposes.

The time frame/window for data collection via questionnaires was conducted from July to August 2018. The period represented a minimum of 2 months following approval of the institutional review board (IRB). Following IRB approval, I sent 150

email questionnaires. Small business owners who choose not to participate could do so at any time without explanation by excusing themselves and by not returning the questionnaires. If participants wished to be removed following the questionnaires, they could use the contact information on their consent form to share their desire to be removed from the dataset. All participants received notice of the expected timelines for analysis (i.e., 1 month) and were informed that they must voice their desire to be removed before completing this timeline.

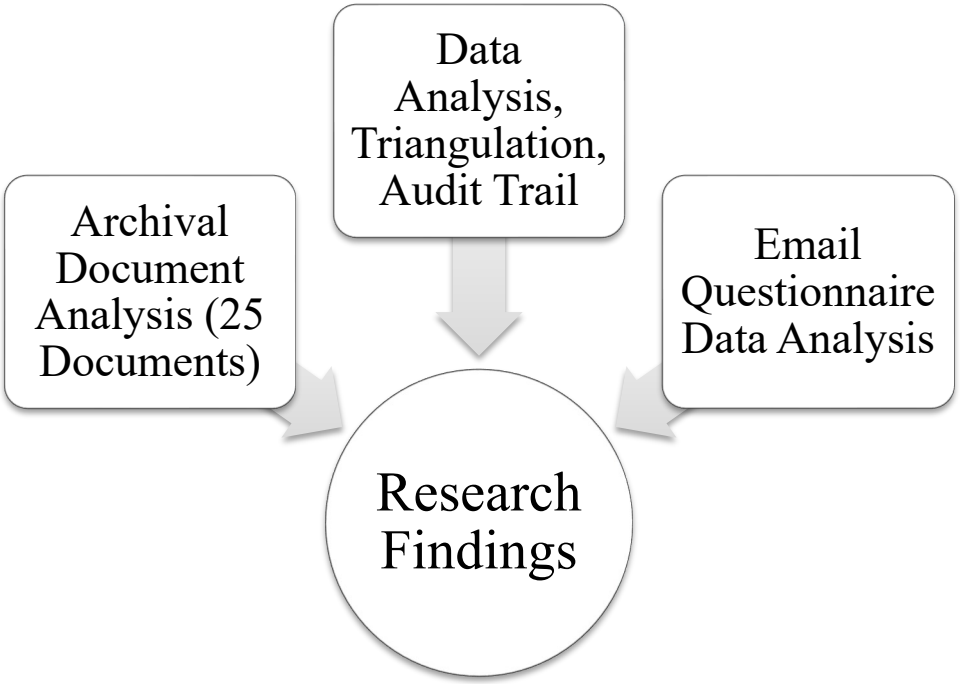
The questionnaire questions were designed to examine organizational characteristics such as attitudes, opinions, policies, revenue, and cultural norms; individual characteristics such as behaviors, attitudes, and opinions on technology adoptions; and traditional characteristics such as traditional business practices, cultural norms, and attitudes toward technology adoption. I collected data by emailing 150 questionnaires to selected key business community members at multiple hierarchical levels during daily operations.

I sent letters to all potential participants, soliciting consent to questionnaires at the close of business and giving detailed information about the study. I emailed questionnaires to all research participants. Questionnaires were intended to occur after closing time to not interfere with the business's operations. At the close of data collection, these different data sources were triangulated so that the case was comprehensively assessed, and the results returned a high degree of trustworthiness (Yin, 2014). Halcomb and Andrew (2005) and Smith (2020) posited that data triangulation involved the use of multiple sources of data to answer the research questions. They also

indicated that this provides a holistic view or understanding of the phenomenon under investigation in an in-depth manner. I used questionnaire data, document analysis of 25 documents from the current, associated literature, and an audit trail as methods of data trialngulation. Figure 3 shows the intended sources of triangulation.

Figure 3

Triangulation of Data Sources



Document Analysis

Qualitative data analysis was employed to categorize the collected information into meaningful themes. In examining this case, I assessed organizational characteristics, individual characteristics, traditional characteristics, and demonstration of leadership. Current literature was examined for the social psychological aspects within technology decision making. The documents were organized into groups based on similar

characteristics within each category of characteristics, such that (a) organizational characteristics, (b) individual characteristics, (c) traditional characteristics, and (d) demonstration of leadership categories of traits were assessed individually within each categorical group, common observations were compiled into an overarching type of trait, where examples may include common facial expressions, such as smiles, which may become a common observation within the *individual characteristic* group of observations. Additionally, this observation within the common dominant leadership styles, such as offering incentives, may become one of the common observations within the demonstration of leadership characteristics category.

I have obtained 25 articles from library related to the problem statement. The updated articles included different categories of observed personality traits, such as positive attitude, ability to welcome criticism, ability to take advantage of opportunities, ability to motivate employees, willingness to change internal and decision-making processes, communication skills, and leadership skills. Specific observations to provide evidence of these personality traits included occurrences such as the attempt to use new processes or technologies; investments in new customers or new technologies; production of new goods, services, or technologies; or meetings regarding new technologies, particularly if the focus was on the best way to implement them smoothly.

Procedures for Recruitment, Participation, and Data Collection

The study also involved questionnaires completed by small business owners and operators regarding technology adoption within their businesses. The Houston Small Business Association and Cypress Chamber of Commerce databases provided participant

contact information. Initial contact was made with small business owners in Houston, Texas, by personal email. I provided all the details in document form through an email to all prospective participants, including the informed consent form. All participants have my cell phone number, email, and address from this consent form.

Upon receipt of a signed informed consent form, I proceeded to email all research participants the questionnaires, with at least one email questionnaire weekly until I received 9 responses as participants provided their consent, which was professionally transcribed later. Data collection spanned approximately 2 months, which a professional transcriptionist received upon signing a confidentiality agreement.

The results of this procedure were a series of Word documents with one questionnaire transcript per document. If the original data collection did not garner a sufficient sample size, I continued sampling using the same procedures in nearby Houston until a suitable sample size was reached. Participants knew they may leave the study anytime by requesting to cancel or not completing the questionnaires.

I followed ethical procedures, avoided human rights violations, and obtained approval from the Walden IRB); the approval number for this study was 12-02-19-0289309. The participants were identified from a public list presented by the Houston Small Business Association and I selected 150 small business owners who met the criteria.

I emailed letters of invitation detailing the study's objectives and incorporated the consent form into the businesses. Next, I sent out a follow-up email until I started receiving responses and advised all research participants that their participation in the

study was voluntary and that they were free to withdraw at any time. A good relationship was established between the participants and myself to establish the questionnaire protocol.

Improved response quality might result if the participants feel relaxed by creating a shared connection with the proper amount of professional distance (Smith, 2020; Yin, 2014). Another winning strategy for building a successful relationship with study participants was trustworthiness. Researchers should build trust with the research study participants by being honest about the intended purpose and result of the study (Perry et al., 2018; Rubin & Rubin, 2012). Using the consent form and ensuring the research participants' confidentiality and anonymity reinforced our effective relationship.

I attempted to select small business operators who were members of the Houston Small Business Association. The research was conducted with businesses that have revenues of $250,000.00 and with less than 50 employees who were high participants in the association continuing education activities with traditional and nontraditional providers.

Data Analysis Plan

Data organization took place largely through Microsoft Forms, which was used to organize questionnaires and data analysis, and to organize the resulting data for comparison with additional documents. By using Microsoft Forms, the questionnaire data submitted by the research participants allowed the interpretation of their responses in the context of the study. Through the questionnaire, participants had an opportunity to formulate their own opinions and answers and explore their ideas with peers. Though the

questionnaires' questions were developed about a specific research question, any question in the questionnaires may prompt participants to provide information pertinent to all the sub-research questions. The questionnaire results were then compared to the 25 analyzed articles; the questionnaire results affirmatively lined up with both the research questions and the literature reviewed.

Questionnaires were assessed to make full use of the data, and any data related to one or more research questions were listed in the description of that research question's findings. I used this method because thematic analysis provides core skills useful for conducting many other qualitative analysis forms. Thematic analysis is an accessible and theoretically flexible approach to analyzing qualitative data or patterns concerning different epistemological and ontological positions (Braun & Clarke, 2006; Perry et al. (2018). To use this method of analysis, Braun and Clarke (2006) and Perry et al. (2018) suggested the following six analytical steps: (a) familiarize oneself with the data, (b) generate initial codes, (c) search the research questionnaires for themes, (d) review themes, (e) define and name themes, and (f) produce a report of the findings.

After the questionnaire data were analyzed, triangulation among these findings and the alternative data sources occurred. The research data triangulation integrated four data sources: (a) the researcher's thoughts and reflections on participants' comments and behavior (facilitated by questionnaire responses), (b) any written materials made available by questionnaires, (c) review and codified mapping of effective leadership competencies identified in the literature, and (d) recurring themes of effective leadership competencies identified through questionnaires (Halcomb & Andrew, 2005; Perry et al.,

2018). The method of triangulation led to reduced risk by confirming findings using multiple sources of data. With triangulation, research findings can reduce biases or limitations that would otherwise arise from using any one source method (Maxwell, 2005; Perry et al., 2018).

The Houston Small Business Association was the primary data source for the study. Data collection included information retrieved in the questionnaire process. The researcher was sensitive to facts, issues, and concepts not included in the questionnaires. The researcher pursued responses likely to lead to greater identification and understanding of the research questionnaires. I provided my analysis and interpretations after the questionnaires. The ability to do a complete review of the documents about technology adoption allowed for assessing data from the questionnaires, checking for accuracy, and developing further information.

Methodical triangulation utilizes multiple data sources to guarantee comprehensive data collection to answer the research questions (Grossoehme, 2014; Hanson et al., 2011; Perry et al., 2018). Using methodical triangulation when conducting multiple-case study research improves data analysis through accurate comparisons during data collection (Knoblauch & Schnettler, 2012; Perry et al., 2018).

The small business' financial records were private, so I worked with the Houston Small Business Association to obtain these records but in the end I did not review any financial records. These sources of evidence might have provided insight into strategies that small businesses use to implement solutions for lack of technology adoption. Thus, I

was not able to obtain my targeted third source of data for triangulation. I focused on data obtained through the questionnaires and the 25 articles reviewed.

I used Microsoft software questionnaire instruments to analyze and identify themes and address the purpose of the study. Qualitative researchers use questionnaire protocols to achieve cohesion and add to reliability (Marshall & Rossman, 2016; Putra & Cho, 2019). I followed the same questionnaire protocol with each participant to ensure that I did not neglect any requirements.

Qualitative data analysis was employed to categorize the collected information into meaningful themes. In examining this case, I assessed organizational characteristics, individual characteristics, traditional characteristics, and demonstration of leadership. Documents were organized into groups based on similar characteristics within each category, such that (a) organizational characteristics, (b) individual characteristics, (c) traditional characteristics, and (d) demonstration of leadership. These categories were assessed individually by compiling common observations into an overarching type of trait, where examples may include common facial expressions, such as smiles, which may become a common observation within the *individual characteristic* group of observations. Additionally, this observation within the common dominant leadership styles, such as offering incentives, may become one of the common observations within the demonstration of leadership characteristics category. The data analysis methods compared the questionnaires' results that emerged from the data, the literature, and the conceptual framework (Grossoehme, 2014; Perry et al. (2018).

Issues of Trustworthiness

Questionnaire respondents must have an adequate level of trust that the questionnaire provider will handle their responses in a manner that does not create a disadvantage in their business operations and, more importantly, does not create an unfair advantage to their competitors. Mazanai and Fatoki (2011) and Perry et al. (2018) indicated that startup small and medium sized enterprises (SMEs) in South Africa must build trust in the financial system by becoming aware of Business Development Services (BDS) to improve their access to finance and join trade associations to become aware of information about government assistance. Cai et al. (2013) and Perry et al. (2018) conducted a large-scale mail survey in Singapore and their results indicated that trust and power are two important antecedents of technical exchange and technology transfer between a buyer and a supplier.

Credibility

According to Houghton et al. (2013), Perry et al. (2018), and Hudson et al. (2014), *credibility* is the element of the study that allows others to recognize and duplicate the procedures described within this study. Kisely and Kendall (2011) and Perry et al. (2018) defined credibility as the accuracy of the study results relating to the participants' actual accounts. The research study provided several opportunities for prolonged engagement, peer reviewing of the questionnaire questions, and triangulation to establish credibility. Chenail (2011) and Perry et al. (2018) posited that the credibility of any research construct validity entails the legitimacy of the concepts and the link

between theory and research measurements. The researcher should conduct research in a manner that is consistent, reliable, and constructively demonstrable to the reader.

Transferability

Cahoon et al. (2012) and Nascimento et al. (2023) posited that *transferability* represents the extent to which knowledge of study can be transferable to other disciplines or settings. Anney (2014) and Wong et al. (2018) defined transferability as the extent to which qualitative research results can transfer or generalize to other contexts or circumstances and emphasized that transferability is generally the reader's responsibility. The strengths of qualitative research were based on determining whether the findings were accurate from the standpoint of the researcher, the participant, or the readers of an account.

To this aim, the researcher’s approach should be repeatable across different researchers and projects, and the details of the study should be clear enough that the reader can determine whether the findings apply to their setting (Gibbs, 2007; Wong et al., 2018). I met this goal by expressing every detail of participant recruitment and data collection, including the questionnaire guide and any recruitment materials. This observation follows Yin's (2014) and Wong et al. (2018) proposition that qualitative researchers need to document the procedures of their case studies and to document as many of the steps of the procedures as possible.

Dependability

Kemparaj and Chavan (2013) and Perry et al. (2018) further posited that rigorous qualitative researchers adopt the concept of dependability for the quantitative concept of reliability. According to Hudson et al. (2014) and Perry et al. (2018), *dependability* is the constancy of the study findings over time; for this reason, it is like the quantitative concept of reliability, which regards the same concept but with numeric data. The researcher can improve dependability by helping future researchers understand the specific procedures used in the study. To this end, the researcher must create a road map for future researchers to follow when replicating the study.

Dependability is enhanced when another researcher can pursue the same process as the current researcher and contribute their findings to the collective body of knowledge (Perry et al., 2018; Ward et al., 2012). Notably, different findings may show low dependability, while a successful replication indicates that the results are dependable. To ensure dependability, I provided details for the procedures employed throughout the study, including participant responses from the research questionnaires.

Dependability involves preserving all transcripts, notes, and other data. Authenticity refers to reporting each participant's experiences in a way that preserves the original context of the data and evenly presents differing perspectives so that the reader can reach an impartial decision (Smith, 2020; Yin, 2014). Rigorous qualitative researchers adopt the concept of dependability for the quantitative concept of reliability (Kemparaj & Chavan, 2013). Dependability is also enhanced when another researcher can pursue the same process as the current researcher (Smith, 2020; Ward et al., 2012).

To ensure dependability, I provided details of the procedures conducted throughout the study and excerpts from actual participant responses.

Confirmability

Confirmability refers to the ability of other researchers to verify both the neutrality of the research and the accuracy of the data collection process, thus bolstering the ability of others to confirm the findings (Houghton et al., 2013; Perry et al. (2018). According to Grossoehme (2014) and Perry et al. (2018), confirmability is achieved by linking the data collected to their sources so that clarifications can be made if there is a lack of clarity in one or more of the participant's responses.

Grossoehme (2014) and Perry et al. (2018) also posited that the role of validity in case studies is to achieve analytical generalization, reporting multiple perspectives, identifying the many factors involved in a situation, and transparency within the context of the data collection and analysis processes. The primary objective of validity in a case study was to provide other researchers or readers the opportunity to compare findings and procedures, verify the accuracy of the study, ensure consistency throughout, ensure transparency in terms of biases and limitations, and ensure the accuracy of the data collection process (Perry et al., 2018; Rapport et al., 2015).

A research case study is reliable, valid, and credible when the researcher has established transparency, trustworthiness, credibility, dependability, transferability, and confirmability. This study included an audit trail and adopted reflexivity to optimize confirmability. Reflexivity is a method wherein the researcher considers any biases or unconsidered expectations of the study. In following this procedure, I maintained a short

notebook for preserving records of my interpretations and values. By reflecting on these notes, Rapport et al. (2015) and Perry et al. (2018) indicated that reducing the effect of such biases or expectations on the study findings is possible.

Ethical Procedures

I conducted this research am ethically and followed the procedures outlined in the proposal following expressed approval from the Institutional Review Board (IRB). The research proposal plans were reviewed by the IRB and met all the university criteria for ethical research before any participant contact was made. In addition, Walden University and federal regulations protect against human rights violations. I followed the three basic ethical rules of research involving human subjects: (a) respect, (b) beneficence, and (c) justice (Vu & Nguyen, 2021; Weber & Kauffman, 2011;). The IRB process required assessing the potential for risk, such as physical, psychological, social, economic, or legal harm to participants in a study.

I contacted all research participants by IRB-approved written communication and supplied IRB-approved copies of informed consent forms. The consent form acknowledged that participants' rights will be protected during the data collection and analysis and that their responses will be kept safe. I explained all due to the participants and requested their signatures before the questionnaires. All research participants were at least 18 years of age or older. Before engaging in the research, I received a written commitment from the participants. Participants had the right to withdraw from the research at any time during the research process, and no participant received compensation for their participation, ensuring that all were treated equally.

All data collections employed confidentiality, ensured the privacy of each participant to maintain confidentiality, and all the participants' identities remained confidential. The participants retained ownership and respect for their voices and were free to exert their independence in deciding their roles in the research. To protect the data from unauthorized access, I locked the data in a safety deposit box at my residence. I will discard the data five years from the project's completion, allowing time for auditing if necessary.

Data sources included public and the Small Business Association archival research, thoughts and reflections in an audit trail, and several in-depth questionnaires of groups within the small community (See exhibit 2). These sources allowed me to get as close to the topic of technology adoption among small business owners as possible. They optimized my understanding of the individuals, events, and actions that form the business relationship's content, context, and processes under investigation concerning the technology adoption decision-making model. Different sources of information were used, including documents, minutes of meetings, small business reports, and planned visits, all intended to triangulate respondents' answers for research validation. The identities of the case study's small businesses or informants will not be revealed in the study for confidentially and open participation reasons.

Chapter Summary

Within Chapter 3, I addressed study population, sampling, research design, evidence of quality, methodological triangulation, data triangulation, and data organization techniques. I utilized a qualitative approach with a case study design to explore the

decision-making model involved in technology and innovation adoption in the context of small businesses in Houston, Texas. Qualitative data was gathered through additional documents and questionnaires, then organized into themes through Microsoft Form or NVivo. Thematic analysis and triangulation of the data were then performed by comparing the details of each of the three data sources. I examined the technology adoption decision-making model from organizational, traditional, and individual perspectives during the study. I also addressed issues of trustworthiness and explored the concepts of credibility, transferability, dependability, and confirmability. The ethical procedures implemented throughout the study were also specified.

Chapter 4: Results

In this qualitative case study, I aimed to understand how internal and social-psychological aspects of small-business owners' decision-making models were related to technology adoption in the greater Houston, Texas, area of the United States. A thematic analysis method was used as a flexible approach that identified patterns concerning the different theories of knowledge and ontological positions. This method employed conditions conducive to technology adoption among small businesses in Houston, Texas, and surrounding areas (Abebe, 2023; Braun & Clarke, 2006).

To use this method of analysis, Braun and Clarke (2006) and Abebe (2023) suggested the following six analytical steps: (a) familiarize with the data, (b) generate initial codes, (c) search for themes, (d) review themes, (e) define and name themes, and (f) produce a report of the findings. Yin (2014) and Vu and Nguyen (2021) suggested case study research should consist of a smaller sample, such as six to 10 participants, as those in the sample tend to be attained with fewer data. Participants were selected using the Houston, Texas, and surrounding areas' email database in this qualitative data collection. This method constituted purposeful convenience sampling, as the pool from which participants were chosen based on the requirements of the study limited the sampling frame to small businesses in Houston, Texas, with $250,000 or less in revenue whose earnings were annually registered with the Small Business Association.

This research study's findings and the outcome are organized chronologically, presenting the conclusions addressing each question. My primary goal with this qualitative research case study was to understand how internal and social-psychological

aspects of small-business owners' decision-making models influence technology adoption in the greater Houston, Texas area of the United States. As a result, these conclusions were derived from the interpretation of the outcomes of the data analysis performed based on the questionnaires' data collected as described. I conducted an email questionnaire in Houston, Texas, and surrounding areas to obtain data to answer the following questions:

RQ1: How does internal and sociopsychological aspects of small-business owners' decision-making models influence technology adoption in Houston, Texas, and surrounding areas of the United States?

SQ1: What sociopsychological elements do small businesses use when making decisions involving technology adoption?

SQ2: What are the observable behaviors intrinsic to small businesses' decisions involving adoption of technology? (

SQ3: What are the observable factors related to technology adoption?

The results from these questionnaires established complete responses from each participant (see Marshall & Rossman, 2016; Vu & Nguyen, 2021; Walker, 2012). Also, I used Yin's (2014) and Vu and Nguyen's (2021) methods as the basis for data collection and analysis. The data were entered into the qualitative analysis software tool, Microsoft Forms. From December 2019 to March 2020, I emailed approximately 150 small business operators with $250,000 in revenue or less within the Greater Houston, Texas, and surrounding areas. The research goal entailed the use of data from 8-10 respondents.

I then used Braun and Clarke's (2006) model for data analsysi and theme generation. Table 1 shows the major themes that emerged.

Table 1

Categories and Themes

Category	Themes	Small businesses in Houston, Texas & surrounding areas	Research themes
Leadership	Communication	Small businesses	Technology adoption costs
Barriers to adoption	Lack of funding training, fear of technology and privacy	Technology	Implementation
Strategies used	Coping techniques Technology adoption strategy	Identifying funding	Cloud technology
Small businesses' workplace accommodation	Technology training	Cost	Willingness to adopt new ways of doing things
Small businesses' willingness to adopt	Fear of adoption Internet Cloud technology Computers in general and smartphone emergence		Privacy concern Personal information

The following themes emerged from the nine respondents who completed the questionnaire. The implementation strategy was the first theme related to the relationship between organizational technology leadership decision-making technology adoption costs. The second theme related to technology adoption was training costs. The third theme reviewed cloud technology, its value, and its benefits to small businesses. The fourth theme was the relationship between technology adoption and the cost of adoption. The fifth theme related to technology adoption reviewed concerns about the internet, cloud, artificial technology, computers in general, and smartphone emergence. The sixth

and final theme related to technology adoption was the relationship between future flaws of technology, the effect it may have on privacy, and the compromise of personal information. The research findings reviewed the potential risks, such as privacy, costs, and benefits. The participants discussed the risks of adopting technology, such as privacy, and worth considering as it relates to selecting technology's potential benefits and pitfalls.

The conceptual framework was the TAM. A thematic analysis method is an accessible and theoretically flexible approach to analyzing qualitative data patterns concerning theories and ontological positions (Abebe, 2023; Braun & Clarke, 2006). Braun and Clarke (2006) and Abebe (2023) put forward the following six analytical steps: (a) become thoroughly familiar with the data, (b) generate initial codes, (c) search for themes, (d) review themes, (e) define and name ideas, and (f) produce a report of the findings. In this study, I used the theory as a framework to help find correlations in the findings to understand better the best strategic way to influence technology adoption among small businesses in Houston, Texas, and surrounding areas.

Newby et al. (2014) and Tsai, et al. (2021) posited that the development of information technology created a demand for companies to adopt the technology. Such technology adoption is the gateway to more opportunities for small business operators and owners to cost-efficiently improve products or services; improve products, services, and profitability; and spur economic growth within their community and beyond (Purkayastha & Sharma, 2016; Tsai et al., 2021). From my research, the participants indicated that they want to grow their businesses, but technology adoption costs, privacy

concerns, and benefits associated with technology adoption are keeping them away from technology adoption. There is clear evidence among current users and nontechnology adopters. The questions were structured to address the research question about technology adoption by small businesses adoption of technology within Houston, Texas, and surroundings areas.

Setting

The potential participants for this study were identified via the Houston Small Business Association in Houston, Texas, and surrounding areas. After selecting the research participants, I emailed more than 150 participants and explained in detail what the research entails. I repeated the same information with a follow-up email encouraging participation from the initial 150 participants. The Houston Small Business Association and Cypress Chamber of Commerce databases provided participant contact information.

Initial contact was made with small business owners in Houston, Texas, by personal email. I discussed the details with participants upon initial contact and provided all the details in document form through a letter to all prospective participants, which included the informed consent form. The participants were sent the recruitment letter with a copy of the IRB approval for the research and consent form. I made it a point to send a weekly reminder until enough sample data is returned before starting the analysis. In my follow-up email, I explained the procedure involved and made known the importance of the study to the local community and at large.

Demographics

The study involved email questionnaires with small business owners and operators regarding technology adoption within their businesses. The Houston Small Business Association and Cypress Chamber of Commerce databases were my sources for participant contact information. Initial contact was made with small business owners in Houston, Texas, by personal email. I sent each research participants a copy of the consent form discussed through email communications along with the study details with participants upon initial contact. I provided all the details in document form through questionnaires to all prospective participants, which included the informed consent form.

All participants were given my cell phone number, email, and address from this consent form. Upon receipt of a signed informed consent form, the data collection spanned approximately two months. Participants knew they could leave the study anytime by requesting to cancel or not returning the questionnaires.

I followed ethical procedures, avoided human rights violations, and obtained approval from the Walden IRB; the approval number for this study was 0289309. The participants were identified from a public list presented by the Houston Small Business Association and I selected 150 small business owners who met the criteria. I emailed letters of invitation detailing the study's objectives, and I incorporated the consent form for the businesses.

Using the consent form and ensuring the research participant’s confidentiality and anonymity reinforced our effective relationship. I selected small business operators, including males, females, and minorities, who were Houston, Texas Small Business

Association members with revenue of $250,000 with less than 50 employees who were active participants in the association's continuing education activities with traditional and non-traditional providers.

Data Collection

Data collection questionnaires were sent to participating Houston, Texas, and surrounding small businesses on December 15, 2019, and the final questionnaires were collected on March 15, 2020. The IRB approval to collect data was granted on December 2, 2019. There were 150 questionnaires distributed during this timeframe until the designated goal was completed.

Sample

Yin (2014) and Smith (2020) posited that case study research should consist of a smaller sample As six to 10 participants, those in the sample tend to have similar perceptions and responses, meaning that saturation is attained with fewer data responses. On the other hand, a sample size that is too large can lower reliability and exaggerate the results (Smith, 2020; Yin, 2014). Data for this research were collected from small businesses located in Houston, Texas, and surrounding areas. I had nine participants, as shown in Table 2.

Table 2

Participants' Demographics and Characteristics

Participant	Gender	Age in years	Highest academic degree	Years ICT experience	Remote, on-ground, or hybrid
P1	Female	18-25	Bachelor's	3	Hybrid
P2	Male	35	Master's	10	Hybrid

P3	Male	35	Bachelor's	10	Hybrid
P4	Female	25-35	Bachelor's	10	On-ground
P5	Female	25-35	Master's	10	On-ground
P6	Female	25-35	Master's	5	Hybrid
P7	Female	60	Bachelor's	5	Hybrid
P8	Male	34	Bachelor's	10	On-ground
P9	Female	51	Bachelor's	5	Hybrid

The sampling population was identified using a purposeful convenience sampling approach through a local large small business association email database called Houston Small Business Association. The questionnaire instrument was made available to all eligible small businesses in Houston, Texas, and surrounding areas with $250,000 or less in revenue. I provided written instructions to the participants and their questionnaires outlining the purpose of the research study confidentiality. Confidentiality and consent issues were outlined, and my contact information was provided as required.

All these guidelines met IRB requirements established by Walden University, and approval was received before questionnaire administration. All research participants received a timeline on when to return the questionnaires. Nine of the 150 intended respondents completed the questionnaires and were included in the final analysis. Nine participants provided complete information, and all were from Houston, Texas, and surrounding areas between the designated time frames. I augmented my approach by emailing each intended research participant weekly with a reminder to complete the questionnaires until returns began arriving.

Data Analysis

The data analysis methods compared the questionnaire results that emerged from the data responses, the literature, and the conceptual framework (Ajimoko, 2018; Grossoehme, 2014). The conceptual framework in this case study was thematic analysis. Data analysis consisted primarily of using Microsoft software to organize research questionnaires and to organize resulting themes for comparison with additional documents. The questionnaires allowed the inclusion of responses to questions. By combining data from both sources, participants could formulate their opinions and answers and explore their ideas with peers.

Though the questions were developed regarding a specific research question, any question in the questionnaires could prompt participants to provide information pertinent to all the subresearch questions. Research questions were listed in the description of the research question's findings to make full use of the data. I used the thematic analysis method because thematic analysis provides core skills that are useful for conducting many other forms of qualitative analysis.

To use this method of analysis, Braun and Clarke (2006) suggested the following six analytical steps: (a) familiarize with the data, (b) generate initial codes, (c) search data analysis for themes, (d) review themes, e) define and names themes, and (f) produce a report of the findings. After the data had been coded, triangulation among these findings and the alternative data sources occurred.

The research data triangulation integrated four data sources: (a) my own observations on participants' comments and behavior (facilitated by questionnaire

responses), documented by my audit trail; (b) any written materials made available by participants; (c) review and codified mapping of effective leadership competencies identified in the literature; and (d) recurring themes of effective leadership competencies identified through questionnaire responses (see Halcomb & Andrew, 2005; Kukuh & Maranatha, 2020). The triangulation method reduces risk by confirming findings using multiple data sources. With triangulation, research findings can reduce biases or limitations that would otherwise arise from using any one source method (Kukuh & Maranatha, 2020; Maxwell, 2005).

The questionnaires were the first data source and the document analysis of 25 documents was the second source. My notes, descriptions, and reflections from the audit trail can also be considered a data source. Questionnaires were the first data collection included in the questionnaires used as a guide in the process. I was sensitive to facts, issues, and concepts not included in the questionnaires. The researcher-pursued responses likely to lead to greater identification and understanding of the research questionnaires. I provided my analysis and interpretations after the questionnaires were collected. The ability to do a complete review of the documents about technology adoption allowed for assessing data from the questionnaires, checking for accuracy, and developing further information.

Methodical triangulation involves multiple data sources to guarantee comprehensive data collection to answer the research questions (Grossoehme, 2014; Hanson et al., 2011; Kukuh & Maranatha, 2020). Using methodical triangulation when conducting case study research improves data analysis through accurate comparisons

during data collection (Drewry et al., 2020; Knoblauch & Schnettler, 2012). These sources of evidence provided insights into the technology adoption strategies that small businesses used to implement solutions for lack of technology adoption.

The data analysis methods compared the results from the data, literature, and conceptual framework (see Grossoehme, 2014; Kukuh & Maranatha, 2020). The conceptual framework is the Technology Acceptance Model (TAM). From the open and closed-ended questions on my questionnaire I gleand the following categories, themes and larger meaning.

Table 3

Themes, Subthemes/Codes, and Frequencies

Themes	Subthemes/Codes	Frequency	Meanings
Leadership	Willingness to invest/technology	9	To gauge participants' understanding of the subject matter
Barriers to adoption	Cost, training, funding	9	Education and benefit of technology adoptions
Strategies used	Seminars or workshops	8	Willingness to train
Small businesses' workplace	Training, investment technology	9	Leadership willingness to invest
Accommodation	Investing in workplace, technology	9	Becoming member small business association, benefit associated with membership
Small businesses' willingness to adopt		9	Securing investment capital
Cost technology	Technology adoption cost	9	Ascertain train requires financial investment
Fear of technology	Buzzword among all participants	9	Why they fear technology adoption
Training resources for technology adoption		9	To gauge knowledge of different types financial resources available for small businesses
Online training	Benefit of training and technology adoption	9	Small business association being the conduit for acquiring resources for technology adoption
Potential for growth	Potential for social change and profitability	9	Participants warm up to the idea that their personal information will be safe and the small business association was the right place to start

Comparison of Houston Small Business Association Archival Topics and Questionnaire Responses

The data triangulation, derived from analyzing 25 articles regarding small business practices, and reviewing public documents from the Houston Small Business Association, as well as the questionnaire responses, was as follows: According to the Houston Small Business Association, the following has to be followed; (a) getting proper registration and ID numbers, (b) meeting size standards, (c) registering with SAM (System for Award Management), (d) maintaining compliance, and (e) cybersecurity requirements. Small businesses that meet these requirements can do business with local, state, and federal bidding requirements. To participate as a small business in government contracting, one must register their business in the federal government's SAM. SAM is a database that government agencies search to find contractors. By using SAM, small businesses can be satisfied that they are eligible for contracts reserved for small businesses. Small businesses can represent if they are eligible for contracts under an SBA contracting program because it has criteria for businesses representing disadvantaged, women-owned, veteran-owned, or underutilized areas.

The choice to review 25 articles was a result of the restrictions put in place by the COVID-19 pandemic, which prevented the in-person interviewing of the participating small business owners. This eliminates the possibility of having a third data point and, instead, lends the study to conduct data triangulation by comparing the 25 articles regarding small business practices, the public documents from the Houston Small Business Association, and the questionnaire responses.

Maintain Compliance

For small businesses to maintain compliance to participate in government contracting, one must comply with all laws and regulations. The Federal Acquisition Regulation governs the federal government's purchasing process. Rules covering government contracting programs for small businesses are listed in 13 CFR 125. Small businesses looking to contract with the U. S. Department of Defense (DoD) will have shown the ability to safeguard their systems and data. Each DoD request for proposal will list a Cybersecurity Maturity Model Certification (CMMC) level required to bid for the work.

To help small businesses with the tools and training to meet this standard, DoD developed Project Spectrum, a free platform that assists in CMMC certification; provides tools and training for cybersecurity awareness; educates users and outlines risk management; and helps small businesses install or boot cybersecurity hygiene.

The research question and the constructivist paradigm are aligned with how I used public documents from the Houston Small Business Association that served as an additional source of data collection. Journaling and reflective field notes are common techniques in qualitative research and case study research. Over time, reflexivity has become a major aspect of qualitative research methods in organizational research and a critical component of data analysis within the case study design.

The reliance on different sources of advancing the knowledge on defining new roles within the Houston Small Business Association participants and surrounding areas contributes to positive, constructive outcomes relating to small business technology

adoption. The scarcity of technology adoption by most small businesses in Houston and surrounding areas calls for new thinking in conceptualizing a new role in technology adoption and how to increase the long-term value of acquired or promoting technology adoption among small businesses.

In principle, all qualitative social research analysis methods, such as the code-based standard procedures in qualitative thematic analysis, can formulate implications for the study and focused recommendations for further research in Chapter 5.

Governments' Rules and Regulations

According to the Houston Small Business Association, rules and regulations are published by a government agency in the Federal Register, the official daily publication for rules, proposed rules, notices of federal agencies and organizations, executive orders, and other presidential documents. An agency is "An entity that publishes rules of notices in the Federal Register." Some of these are the Code of Federal Regulations (CFR), Federal Acquisition Regulations (FAR), and Defense Federal Acquisition Supplement (DFARS).

These rules and regulations are designed to help small businesses with local, state, and federal business regulations. Those rules and regulations are enforced by government departments, such as the Department of Defense (DOD), Department of Labor (DOL), U. S. Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), U. S. Citizenship and Immigration Services (USCIS), and Internal Revenue Service (IRS).

Small or big businesses must comply with all these rules once they do business in the industry concerned. A recent study released by USSBA stated that the cost of federal regulations totals $1.1 trillion; the cost per employee for small businesses with less than 20 employees is $7,647. In the face of higher costs of federal regulations, research shows that small businesses continue to bear a disproportionate share of the federal regulatory burden. Businesses, however small, would have to comply with any of the numerous local, state, and federal regulations.

Small Business Size Standard

The USSBA uses small business standards to determine whether a business is a small business concern. The size standard is based on the average annual revenue, number of employees, and other measures. The table includes the North American Industry Classification System (NAICS) and its modifications by the office of Management and Budget (OMB), referred to as *NAICS 2007*. For federal government procurements, a business concern must meet the small business size standard to get the benefits of a small business.

Government Special Programs

- Socio-Economic Programs (Small Business (SB) Special Categories) small businesses could enjoy success opportunities by being recognized as one or more of the SB categories in doing business with the government, such as Small Disadvantage Business (SDB), Women-Owned Small Business (WOSB), and Veteran-Owned Small Business (VSB) and so on.

- Small Business Size Standard – A business concern has an advantage by being within the threshold and recognized as a small business. This advantage is notwithstanding the actual advantage/disadvantage of the business size.
- Contract Bundling: The Small Business Reauthorization Act of 1997 defines contract bundling as "consolidating two or more procurement requirements for goods or services previously provided or performed under separate, smaller contracts into a solicitation of offers for a single contract that is unlikely to be suitable for award to a small business concern."

Trustworthiness

Qualitative researchers struggle to define truth, objectivity, reliability, and validity (Marshall & Rossman, 2016). In multiple-case study research, trustworthiness and credibility correspond to validity, and transferability connects to reliability (Street & Ward, 2012). The purpose of trustworthiness is to document detailed procedures reproducible by future researchers interested in replicating the findings of a study (Cronin et al., 2014; Eze et al., 2019; Thomas & Magilvy, 2011).

This research study provided several opportunities for prolonged engagement and triangulation to establish credibility. The researcher established procedures to record their actions in detail for reliability or procedural consistency (Cronin et al., 2014; Eze et al., 2019). As a result, designing precautions to minimize bias improves reliability (Bernard, 2013; Eze et al., 2019; Thomas & Magilvy, 2011). The method demonstrated to have high credibility included the following characteristics: (a) used a case study protocol, (b) recorded and accurately transcribed the questionnaire data, (c) documented data analysis

techniques, and (d) disclosed the procedures used in the case study (Eze et al., 2019; Marshall & Rossman, 2016). The following section explains my strategies to ensure reliability, credibility, transferability, dependability, and confirmability.

Credibility

The concept of *credibility* in a qualitative case study involves gaining dependable results that are transferable to other contexts (Bernard, 2013; Drost, 2011; Eze et al., 2019). Credibility is the element of study that allows others to recognize and duplicate the procedures described within this study. Kisely and Kendall (2011) and Camilleri and Bresciani (2022) defined credibility as the accuracy of the study results relating to the participants' actual accounts. One concept of validity refers to ensuring the trustworthiness and credibility of the data (Camilleri & Bresciani, 2022; Chenail, 2011). Construct validity entails the legitimacy of the concepts and the link between theory and the research measurements (Street & Ward, 2012; Tsai et al., 2021). The reason for construct validity is to ensure a relationship exists between the study's purpose and the data collection results (Cahoon et al., 2012; Tsai et al., 2021).

I used methodical triangulation of data collected from the questionnaires and document analysis to ensure that the collection of comprehensive data from multiple sources answered the research question. Triangulation allows for a comparative correlation and cross-examination of the data (Baumgarthner & Schneider, 2010; Bekhet & Zauszniewski, 2012; Marshall & Rossman, 2016; Tsai et al., 2021). Researchers establish validity using several approaches. First, accurate definitions, descriptions, and

representations of the case (s) under study demonstrate credibility as viewed by the research participants in the study (Chenail, 2011; Street & Ward, 2012; Tsai et al., 2021).

Transferability

Transferability represents the extent to which knowledge of the study can be transferable to other disciplines or settings (Cahoon et al., 2012; Flavian et al., 2020). The evidence of transferability includes using a chain of evidence, accurately recording thoughts and reflections, and documenting the assumptions present in the study (Cahoon et al., 2012). In the process, assuring researchers, peers, and practitioners that the methods and findings accurately reflect the purpose of the study is the objective of validation in research (Flavian et al., 2020; Street & Ward, 2012; Thomas & Magilvy, 2011).

Anney (2014) and Flavian et al. (2020) defined transferability as the extent to which qualitative research results can transfer or generalize to other contexts or circumstances and emphasized that transferability is generally the reader's responsibility. The strengths of qualitative research are based on determining whether the findings are accurate from the standpoint of the researcher, the research participants, or the readers of an account. Validity encompasses trustworthiness, authenticity, and credibility (Flavian et al., 2020; Marshall & Rossman, 2016). Trustworthiness is determined by credibility, transferability, dependability, and confirmability (Cahoon et al., 2012; Flavian et al., 2020).

Credibility

Credibility is present when the researcher analyzes the data by reflecting, exploring, judging the relevance of the data, and ultimately developing themes and essences that precisely depict the experience (Drost, 2011; Flavian et al., 2020). To this aim, the researcher's approach should be repeatable across different researchers and projects, and the details of the study should be clear enough that the reader can determine whether the findings may apply to their setting (Flavian et al., 2020; Gibbs, 2007). I met the goal by expressing every detail of participant recruitment and data collection, including the questionnaire guide and any recruitment materials.

Dependability

Dependability involves preserving all transcripts, notes, and other data. Authenticity refers to reporting each participant's experiences in a way that keeps the original context of the data and presents differing perspectives evenly so that the reader can reach an impartial decision (Smith, 2020; Yin, 2014). Rigorous qualitative researchers adopt the concept of dependability for the quantitative concept of reliability (Kemparaj & Chavan, 2013; Smith, 2020). Dependability is also enhanced when another researcher can pursue the same process as the current researcher (Smith, 2020; Ward et al., 2012). To ensure dependability, I provided details of the procedures conducted throughout the study and excerpts from actual participant responses.

Confirmability

Confirmability occurred by linking the data to their sources (Grossoehme, 2014; Kukuh & Maranatha, 2020). Confirmability refers to the ability of other researchers to

verify both the neutrality of the research and the accuracy of the data collection process, thus bolstering the ability of others to confirm the findings (Houghton et al., 2013; Kukuh & Maranatha, 2020).

The validity in case studies aims to achieve analytical generalization, as opposed to the statistical generalization typically associated with quantitative research studies (Marshall & Rossman, 2016; Smith, 2020; Yin, 2014). The primary objective of validity in a case study is to provide other researchers or readers the opportunity to compare findings and procedures, verify the accuracy of the study, ensure consistency throughout, ensure transparency in terms of biases and limitations, and ensure the accuracy of the data collection process (Kukuh & Maranatha, 2020; Rapport et al., 2015).

Data Triangulation of Public Documents

The public documents and the Houston Small Business Association archival research, several in-depth questionnaires within the small business community. The methods allowed the researcher to get as close to the main subject as possible, which enabled an understanding of the individuals, events, and actions that formed the content, context, and processes of the business relationship under investigation as it relates to the technology adoption decision making model. The Houston Small Business Association made available only public documents within their archive and reviewed due in part to privacy issues and concern.

The Small Business Association documents were reviewed, and data analysis consists of data organization and management, immersive engagement, writing and representation and additional documents into findings and conclusion. I began the public

documents data analysis by reviewing and examining the data to determine what was worth investigating by reading through the archives: documents included government and other local resources available to the small business community.

To ensure the validity of this case study, different sources of information were used; but due to privacy concerns, participants did not make available documents, minutes of meetings, or small business reports, and allow plant visits to triangulate the respondent's answer to validate the research findings. For privacy concerns, the identities of the small businesses or informants' case study will not be revealed for confidential reasons and to enable open participation by all parties.

Study Results

The results interpretation is based on data collection analysis from the research participants' questionnaires. The questionnaire results are presented in a form that aligns the emergent themes from the participants' responses with the questionnaires helping to address the research driving questions.

Theme 1: Leadership

This theme emerged from Question 1 and addresses research participants' understanding of how leadership addressed internal and socio-psychological aspects of small-business owners' decision-making models related to technology adoption in the Houston, Texas, area of the United States. The research analysis showed nine participants demonstrated an understanding of the importance of technology adoption. Five participants indicated that finance programs would help their businesses. While another three selected schedule programs could help their business.

Four research participants selected communication and software for announcement technology adoption tools. Another four demonstrated interest in data organization programs, while another five indicated updated hardware (Computer). Only one respondent had no interest in technology adoption.

Theme 2: Barriers to Adoption

Barriers to adoption generated lots of discussion about the cost of adoption, privacy, and fear of exposure of their trade secrets and sharing knowledge. Almost all participants had some reason for not adopting technology related to technology adoption decisions. Lack of funding became the swan song of all research participants, as fear of technology and privacy issues or concerns.

Theme 3: Strategies Used

Coping techniques, identifying funding, cloud technology, value, and businesses to find funding for small businesses require a different strategy. Identifying resources designed for small businesses requires research, the ability to read, and the willingness to seek help. Most used personal funds for technology adoption, if any, the cost of new technology adoption prevented growth and productivity.

Theme 4: Small Businesses Workplace Accommodations

This fourth theme emerged from Subquestion 2, and respondents indicated that there were no technology investment funds available and that new technology was a luxury they could not afford or was not budgeted for. Ongoing technology research was never conducted.

Theme 5: Small Businesses Willingness to Adopt

The fifth theme related to technology adoption concerns technology, the internet in particular, cloud technology, artificial technology, computers in general, and smartphone emergence.

Theme 6: Future Flaws of Technology

The sixth and final theme related to technology adoption is the relationship between future flaws of technology, the effect it may have on privacy, and the compromise of personal information. The research findings reviewed the potential risks, such as privacy, costs, and benefits were major concerns. The participants discussed the risks of adopting technology, such as privacy, and worth taking for the fact as it relates to selecting technology's potential benefits and pitfalls.

Research Question 1

All research participants were informed about agreeing that they received an email of consent and had read it. All participants agreed to all terms in the consent form by clicking yes to their willingness to answer the questionnaire questions without reservation. All research participants accepted the consent form and completed the questionnaires within a reasonable time.

How are internal and socio-psychological aspects of small-business owners' decision-making models related to technology adoption in the greater Houston, Texas, area of the United States?

Sub1: What socio-psychological elements or attitudes do small businesses use when making decisions involving technology adoption?

Questionnaire items: (a) What kind of technology is your company using now? (b) Is your company using cloud technology? (c) If not, why? (d) What is your company's concern about using cloud technology?

Sub2: What are the observable behaviors intrinsic to small businesses' decisions involving adoption of technology?

Questionnaire items: (a) Does your company have technology research ongoing? (b) Does your company have technology investment capital for the business?

Sub3: What are the observable factors related to technology adoption?

Questionnaire items: (a) What is your company attitude toward new technology adoption? (b) Is your company open to learning new technology? (c) If not, why?

Questionnaire Question 2

What kind of technology adoption would help your business the most? Select all that apply. Five participants selected a finance program, three selected scheduling programs, four communication/announcement software, another four selected data organization programs, one selected none, and five selected updated hardware (computer).

Questionnaire Question 3

What is an acceptable cost or expense for implementing technology into your business? Seven participants responded that they did not have any idea, one participant indicated $2,500, and others indicated that it was personal, while others were guarded

with their response and not completely transparent. I asked to see some evidence, but all declined and did not want to disclose or directly answer the question based on their response.

Questionnaire Question 4

Are you registered with the Small Business Association? Four participants indicated they were registered, while four others said they did not want to register. Membership with the small business association was not a priority for many participants.

Overall Research Question: How are internal and socio-psychological aspects of small-business owners' decision-making models related to technology adoption in the greater Houston, Texas, area of the United States?

Sub1: What socio-psychological elements or attitudes do small businesses use when making decisions involving technology adoption? (a) What kind of technology are you using now? (b) Is your company using cloud technology? (c) If not, why? (d) What is your company concern about using cloud technology?

Sub2: What are the observable behaviors intrinsic to small businesses' decisions involving adoption of technology? (a) Does your company conduct ongoing technology research? (b) Does your company have technology investment capital for the business? (c) How do your company feel about new technology? Sub3: What are the observable factors related to technology adoption? (a) What is your company attitude toward new

technology adoption? (b) Is your company open to learning new technology? (c) If not, why?

Table 4

Responses to Question of What Kind of Technology Adoption Would Help the Most

Questions	Responses
Finance programs	5
Schedule programs	3
Communication/Announcement	4
Data organization program	4
Updated hardware (computer)	5
None	1
Other	0

The research findings indicated that five of the research participants selected technology adoption software for financial record keeping. Another three respondents selected a scheduling software program for the route. Four other respondents selected communication and software for announcement technology adoption tools. Four respondents reported that updated organization programs could help spur growth. Five respondents reported that updated hardware (computers) and software for adoption could be the key to improving productivity, and one respondent selected none. Another respondent selected zero or did not care one way or another. A likely explanation could be that the respondent did not meet the criteria or disclose private information during the questionnaires among small businesses. Five participants disclosed they have one to five

employees, one participant indicated six, others zero to 10 employees, and two participants indicated 10 or more employees.

Most research study respondents indicated that they earned more than $19,000 annually, between $20,000-$49,999 one respondent indicated that their earnings fell within this category, between $50,000-$99,999 one participant disclosed their earnings within this range, between $100,000-$149,999 two respondents disclosed earnings, between $150,000-$199,999 none indicated earnings within that range, while between $200,000-$250,000 there were four participants whose earnings fell within this range. These research participants possibly earned more than $250,000 but were reluctant to disclose that for personal reasons. No respondents indicated they had been in business for less than one year. One respondent reported 1-3 years, 3-5 years, and three reported 5-10 years in business. Four indicated they have been in business for at least ten years.

Responses from the questionnaires revealed the least effective strategies in technology adoption. The participants' responses showed that small businesses recommended a flexible culture to change is more innovative than one unwilling to change. For flexible small businesses, technology adoption is more likely to be adopted and succeed. Small business owners make most of the key decisions, and these decisions are derived from the owners' existing knowledge, personal judgment, and communication skills and showed that business owners, in making the key decisions, are also influenced by the prospect or the potential profit that technology adoption brings. Still, their commitment to the adoption process derives from their knowledge, personal judgment, and fear of the unknown.

Technology adoption could bring some degree of fear, cost, training, and risk, such as invasion of privacy. The study's results may assist small businesses in gaining a practical overview of technology adoption. Research participants revealed fear of adopting technology and stated the cost, training, and lack of financing created a roadblock to technology adoption as part of their strategic approach. Most small businesses have been operating without technology and are relatively successful. However, frequently, because there was no clear definition of the purpose of technology adoption, many small businesses fail due to this management fad. Therefore, technology adoption must be clearly defined before proceeding with technology adoption (Ghobakhloo & Tang, 2014; G. Singh et al., 2021). It is necessary that small business leaders have the skills and strategies to handle new technology adoption and that management recognizes the need for new technology adoption to avoid failure (Kabongo & McCaskey, 2011; G. Singh et al., 2021).

Small Businesses Prime Economic Generators: Document Analysis

An analysis of 25 articles to understand various technology adoption methods and processes, contrasting with my research, was completed to further understand the relationship between technology adoption and small business formation, operation, and technology in general. Not all small business entrepreneurs face the same issues or have similar market impactors. However, several respondents suggested behavior change, education, training, and technology adoption as a major tool. Other respondents indicated the importance of collaboration between small businesses, like corporations, credit unions, and other financial institutions. Investment in technology adoption is one of the

many ways to improve productivity, improve services, and foster relationships between small business organizations.

An analysis of 25 articles to understand various technology adoption methods and processes, contrasting with my research, was completed to further understand the relationship between technology adoption and small business formation, operation, and technology in general. The articles were cross referenced by label and author(s) to Table 3 in Chapter 4. Torres et al. (2019) provided a concise discussion focused on small business resilience, capital problems for small businesses, and social capital payoff with an example about economic resilience, adaptation, and response to disruptions due to Hurricane Katrina. Stiglitz (1996), Haynes et al. (2018), and Scuotto et al. (2020**)** focused on knowledge sharing in open innovation partnerships and technology transfer while confirming the importance of information quality, performance expectancy, customer habits, food delivery apps, and small businesses benefiting from technology adoption. Avelino et al. (2020) provided insight into technology adoption and psychological dimensions of empowerment as the process through which actors gain the capacity to mobilize resources to achieve a goal with a focus on the psychological mechanisms underlying this process, building on self-determination theory and other intrinsic motivations research.

AlHogail (2018) discussed the internet of things, technologies, and services, and the level of trust which is composed of three dimensions of factors that were assumed will influence the level of trust which are: 1) product related factors; 2) social influence related factors; and 3) security related factors. Pergelova et al. (2019) examined digital

technologies and the potential to democratize entrepreneurship and how digital technologies affect the international expansion of female-led small and medium-sized enterprises. Gregurec et al. (2021) shed light on entrepreneurship and small business as well as technology adoption and its role in economic recovery such as the effects of the Covid-19 pandemic by looking at the macroeconomic and microeconomic effects on entrepreneurship and small businesses, in general, and the financial support received during the virus crisis.

Wiedenhöft et al. (2020) elaborated on technology adoption, information technology governance institutionalization, and the behavior of individuals in the context of public organizations aiming to verify the effects of IT governance on civil servants' behavior as it relates to technology adoption. Sahut et al. (2021) addressed digital entrepreneurship and digital innovation which is part of the new information system research agenda defined by the authors, then the impact on entrepreneurial outcomes and processes is one of the issues of digital technologies that manifest in the realm of entrepreneurship.

Dong et al. (2021) elaborated on information technology investment, digital innovation, and business value of IT which showed direct links from IT investment to innovation and performance respectively, the authors integrated separate research streams by showing the mediating role of innovation in the performance impact of IT investment. Singh et al. (2021) focused on small business technological forecasting and the role of social change as well as the attitude of family-owned businesses and extended the theory of planned behavior adding religiosity and ethical judgment constructs, also their study

aimed to explore the environmental sustainability intentions of family-owned businesses in Fiji.

Khodakovsky et al. (2020) elaborated on social psychological aspects of technology adoption and managerial decision making by business leaders on an innovation and investment basis and this research study was conducted among small and medium-sized businesses in the northern, central, and southern regions of Ukraine that were surveyed to identify factors of their socio-economic development using cluster sampling method that was used to select the settlement. Nnaji et al. (2019) discussed emerging technologies and technology adoption strategy as well as technology adoption knowledge by identifying and quantifying the influential predictors of safety technologies in different organizational contexts.

Marolt et al. (2020) elaborated on entrepreneurs and innovation technology adoption along with social media platforms for digital marketing while highlighting Indian small business entrepreneurs' role in rapidly adopting different social media platforms for digital marketing and factors such as compatibility, cost, and impact the adoption of social media by small business entrepreneurs and the adoption of social media has on improving the performance of small businesses. Villacé-Molinero et al. (2021) explored travel risk perception as it relates to small business traveler's decision-making process which was studied to learn why travelers chose to maintain or cancel travel plans and what variables influenced their travel risk perception.

Foltean et al. (2019) analyzed the process of adopting new technologies and social media technology as well as small business technology adoption despite the importance of institutional factors in adopting new technologies, the role of these drivers in the use of social media technology (SMT) to strengthen customer relationship management (CRM) capabilities and improve company performance has not been fully investigated. Chatterjee and Kar (2020) provided as discussion of social media, customer relationship management, and technology adoption along with the social adoption construct and the research findings also showed that the influence of the proposed antecedents on the intensity of social customer relationship management adoption varies significantly at the process level within the three contexts of the technology adoption.

Weersink and Fulton (2020) elaborated on technology adoption by small businesses and decision-making as it relates to technology with a note that economists have long had an interest in decision-making by farmers as it relates to technology adopting new technologies and the search shows a link between modeling decision making requires modeling behavior with the key behavioral assumption being profitable to technology adoption to maximize profit.

Lee et al. (2019) examined small business entrepreneur's technology adoption along with sensing, seizing, and investing in technology noting that three dimensions of dynamic capabilities which include: (a) sensing (business assessment and information acquisition), (b) seizing product portfolio decisions, and (c) investment in technologies and human capital resources development. Tamilmani et al. (2018) focused on technology adoption predictors by small businesses and technology adoption by

examining influential safety technology adoption predictors in construction and further explored construction worker safety optimization by using emerging technologies. Block et al. (2021) focused on entrepreneurial finance markets of the future and the small business's adoption process as they relate to financing with a comparison of crowdfunding and initial coin offerings. The Jumpstart Our Business Startups (JOB) Act, which was signed into law on April 5th, 2012, introduced CF as a means for entrepreneurs to raise equity financing in the USA, these markets were ultimately regulated by the SEC starting in 2015 and became effective on May 16. Kremer et al. (2019) provided a discussion of development economics and behavioral development economics theories that help explain some key facts in each literature examined and described the existing empirical evidence. The authors argue that firms in developing countries are more likely to deviate from profit maximization.

Ritz et al. (2019) focused on digital market adoption and success for business along with small business digital marketing behavior with findings that support the idea that the technological benefits may not be the only motivators for small business owners/ managers who undertake digital marketing. Akpan et al. (2021) evaluated cutting-edge technologies for small business for small business and innovation as well as author identified technologies including disruptive software platforms, and strategies needed for creating and managing small business innovation and highlighting the complexity of that process and the context within which this process takes place.

Belitski et al. (2022) examined the economic effects of the Covid-19 pandemic on entrepreneurship and small businesses along with a special issue of a small business

economics journal that aimed to shed light on the economic effects of the Covid-19 pandemic by looking at the microeconomic effects on entrepreneurship and small businesses as well as the role of financial support policies and well-being in both developed and developing countries. Weaven et al. (2021) focused on entrepreneurial survival and growth and surviving economic downturn which requires demonstrating flexibility and context-dependence in the deployment of dynamic capabilities among small business entrepreneurs.

An analysis of 25 articles to understand various technology adoption methods and processes, contrasting with my research, was completed to understand further the relationship between technology adoption and small business formation, operation, and technology in general. Not all small business entrepreneurs face the same issues or have similar market impactors. However, several respondents suggested behavior change, education, training, and technology adoption as a major tool. Other respondents indicated collaboration between small businesses, like corporations, credit unions, and other financial institutions. Investment in technology adoption is one of the many ways to improve productivity, improve services, and foster relationships between small business organizations.

In conclusion, technology adoption involves specifying the objectives, choices, and constraints facing the decision maker. The most basic way of determining the viability of new technology is to determine the net returns with and without the technology using a partial budget. For example, in the case of precision agriculture technologies, estimating the change in revenues and costs from adoption requires

economic information on prices, including variable and fixed costs of the new technology, and agronomic information on input efficiencies and yield enhancements associated with adoption.

To illustrate the approaches, each of the 25 articles made references to the adoption of technology, the digital revolution, allowing the rate of fertilizer to vary spatially across the field in contrast to the traditional approach of a single uniform rate, which has the potential to increase net returns while concurrently reducing the sector's environmental impact (Weersink & Fulton, 2020). Other benefits from technology adoption include increased profitability, better production capability, improved services, and cost-efficient operation.

Summary

The findings from the study provided new knowledge to influence small business start-ups that could help increase profitability through technology adoption, i.e., afford a better understanding of technology adoption resources needed to stay competitive and improve services, products, and profitability. In chapter five, I will present the conclusion, interpretation of the findings, limitations of the study, recommendations, implications for social change, and a study conclusion.

Chapter 5: Discussion, Conclusions, and Recommendations

Interpretation of the Findings

The purpose of this qualitative study was to understand how internal and sociopsychological aspects of small-business owners' decision-making models were related to technology adoption in the greater Houston, Texas, area of the United States. Technology adoption is an investment that results in a need for further exploratory research when a lack of understanding exists. I used a qualitative research approach through questionnaires collected from a selected group to obtain answers to the research questions. The qualitative method is the only form of research useful in gathering a depth of information about thoughts or perceptions, which are integral to understanding the psychological aspects of decision making.

Research results revealed that the characteristics of the organization's leadership relate directly to technology adoption and the decisions associated with technology adoption. Technological context, such as relative advantage, compatibility, complexity, perceived benefits, and perceived barriers, significantly differs between technology adopters and nonadopters in small businesses.

The research participants' responses and Houston Small Business Association records were significant for my study because they described primary technology adoption strategies needed to spur economic growth. Notwithstanding the limitations of this research, findings were deemed applicable to small businesses because they offer a lens for examining technology adoption. Such adoptions as finance programs, software scheduling, communication/announcement, data organization software programs, updated

hardware (computer), and others could provide workable advantages for small businesses.

Technology adoption software, such as financial programs and scheduling software, can improve the costs associated with small business operations (Verreynne et al., 2014). Finance programs, scheduling software, communication/announcement, data organization software programs, updated hardware (computer), and others provide relative advantage, compatibility, and complexity projected to provide a viable framework for gauging small businesses' use propensity to adopt the technology.

The findings could inform small business owners on the formulation of any technology adoption depending on the business needs. Small business deployment strategies also could leverage its novel business technology adoption paradigm. Small businesses in Houston, Texas, and surrounding areas could apply the findings to promote the deployment of software programs as competitive small business strategies. Technology adoption by small businesses has the potential to benefit and increase the capabilities that could be attributed directly to the technology adoption and decision-making strategies that support cost-efficient and profitable operations (Verreynne et al., 2014).

In this study, technological learning can promote cost efficient operations and improve profitability. My analysis of the study of small businesses and participants' responses showed that strategy is vital in influencing technology adoption to increase profitability (see Gomez et al., 2019; Verreynne et al., 2014). The thematic analysis method and triangulation of the data were conducted by comparing details of each of the

three data sources (questionnaires, 25 articles, and codified mapping) based on the study's conceptual framework.

I was able to examine the technology adoption decision-making model from the organizational leadership, traditional, and individual perspectives to get a better understanding. All internal and social-psychological aspects of small-business owners' decision-making models influence technology adoption in Greater Houston, Texas, and surrounding areas. Technology adoption was determined to spur an understanding of leadership's role in small business technology innovation, which may promote economic growth and create jobs and profitability. The research revealed that a technology adoption strategy can lead to positive social changes designed specifically to promote community stability; and improve products, services, and economic growth.

I explored research participants' views about technology adoption strategies, awareness, and decision-making processes. The results are relative to thematic analysis theory and indicate that small businesses could develop effective technology adoption strategies to improve profits and remain competitive. Building on the conceptual framework of this study, the thematic analysis theory indicated that technology adoption cost, training, and implementation present a problem for most small businesses' technology adoption goals due to financing and technology adoption cost. Given this, technology adoption could improve products, services, and profitability for small businesses.

Another side of a small business employee's hard work was presented through this reserach: their determination and ability to adopt technology can positively relate to

their business's survival. Developing strategies for using technology can prove paramount for successful adoption and technology training and implementation (Gomez et al., 2019; Lonial & Carter, 2015; Purkayastha & Sharma, 2016). Effective strategies from effective leadership have the potential to increase a small business's profitability and improve its products, services, product quality, and community engagement. My study's findings revealed further evidence for these plausible outcomes. The results fill a gap in knowledge regarding small business technology adoption, investment strategies, leader development, and preparations for the future, along with some of the factors responsible for the lack of technology adoption among small businesses.

With this study, I present an opportunity for positive social changes from increased technology adoption to technology training, improved products, services, and profit adoption (see Anderson & Ullah, 2014; Ghobakhloo & Tang, 2015; Gomez et al., 2019). I present a practical consideration for best practices in the field. If small businesses in Houston, Texas, become profitable, they could contribute meaningfully to community engagement and their improved products, services, and profitability. I can provide research participants with a summary of the findings as a resource for business owners to develop effective business strategies for improving services, product quality, profit, social benefits, and community engagement.

Bergiel et al. (2008) and Gomez et al. (2019) stated that small businesses must embrace technology and virtual teams to expand and become competitive. Small businesses can incorporate virtual teams only by adopting technology and innovations. Currently, no model is adequate to provide a strategic management process within most

small businesses for technology adoption, strategic leadership teams, and financial resources. This lack of strategy can lead to increased organizational costs, high turnover, and minor business employee performance deficiencies related to technology adoption by small businesses. Small business owners must think of ways to promote economic regeneration when they wish to provide successful implementation plans.

Woldesenbet et al. (2012) and Dubey et al. (2020) posited that small businesses should not engage in practices of feeling small in the strategic section; this behavior is responsible for the lack of technology adoption among small businesses. Technology promotes economic regeneration; small businesses must be more willing to accept technology adoption and innovations (Woldesenbet et al., 2012). Lippert and Davis (2006) also supported the need for proper adoption approval. They explained the steps that lead to organizational changes involving building trust, changing the individual perception of complexity, and having an attitude toward technology adoption.

Lee et al. (2014) and Dubey et al. (2020) noted that trust must be built among small business operators and provide actionable support that shows the need for technology adoption and design to change individual perceptions toward technology through training. Small business owners and operators must first create a positive relationship that supports the need for technology adoption. New technology adoption is an interactive process that involves both formal and informal relationships, which exist among diverse factors that interact through social networks today on a large scale.

Technology adoption may help small businesses in community events, building community involvement, and support for small retail and manufacturing business owners,

helping to increase profitability and improve products, services, and community engagement. Small businesses that want to remain relevant and progressive in the 21st century must deal with the ever-changing diversity occurring in the world and the need for technology adoption to stay competitive.

The questionnaires were developed to address small businesses' need for technology adoption and relevance in the 21st century. The research findings could be a foundation to help bridge the gap and provide a lens into the future for small businesses' survival. This qualitative approach centered on technology adoption among small businesses in Houston, Texas, and surrounding areas.

After the questionnaires' data was coded, triangulation was applied to the findings, and alternative data sources were identified. The research data triangulation integrated four data sources: (a) my thoughts and reflections on participants' comments and behavior (facilitated by questionnaire responses), (b) any written materials made available by questionnaires, (c) review and codified mapping of effective leadership competencies identified in the literature, and (d) recurring themes of effective leadership competencies identified through questionnaires (Halcomb & Andrew, 2005; Perry et al., 2018). Maxwell (2005) and Dubey et al. (2020) posited that with triangulation, research findings could reduce biases or limitations that would otherwise arise from the sole use of any source method.

The research results revealed that the characteristics of the organization's leadership are related directly to technology adoption. The decisions associated with technology adoption and technological context, such as relative advantage, compatibility,

complexity, perceived benefits, and perceived barriers, are significantly different between adopters and non-adopters of technology. Notwithstanding the acknowledged limitations of this research, the findings were deemed applicable to the market by offering a lens for examining technology adoption by small businesses for the intended use.

The research participants' responses and Houston Small Business Association records were significant for my study because they described primary technology adoption strategies needed to spur economic growth. In this study, technological learning was seen to promote cost efficient operations and improve profitability. My analysis of the study of small businesses and participants' responses showed that strategy is vital in influencing technology adoption to increase profitability (Gomez et al., 2019; Verreynne et al., 2014).

Based on the conceptual framework of this study, the thematic analysis and data triangulation compared and confirmed key details of each of the three data sources. I examined the technology adoption decision-making model from the organizational leadership, traditional, and individual perspectives. All internal and social-psychological aspects of small-business owners' decision-making models influence technology adoption in Greater Houston, Texas, and surrounding areas. Research has proven that these factors must align to achieve a company's goal. Technology adoption was determined to spur an understanding of leadership's role in small business technology innovation, which may promote economic growth and create jobs and profitability.

Comparison of Houston Small Business Association Archival Topics and Questionnaire Responses

The data triangulation, derived from analyzing 25 articles regarding small business practices, and reviewing public documents from the Houston Small Business Association, as well as the questionnaire responses, was as follows: According to the Houston Small Business Association, the following has to be followed; (a) getting proper registration and ID numbers, (b) meeting size standards, (c) registering with SAM (, (d) maintaining compliance, and (e) cybersecurity requirements.

Questionnaire responses that linked directly to the previously listed items indicated that for Subcomponent 1,: Question 14, (4/8) or 50% registered with the Small Business Association; Question 16, (7/8) or 87.5% indicated that they were the owner; Question 19, (4/8) or 50% noted that their company was in business for more than 10 years; Question 20, (7/8) or 87.5% indicated that they were more than 35 years old; and Question 21, (5/7) or 71.4% responded that they were a female business owner.

For Subcomponent 2, Question 13, (7/8), or 87.5% responded that they either owned, were employed by, or invested in a small business that earned less than 250,000; Question 17, (5/8), or 62.5% noted that the small business employs from one to five persons; and Question 18, (4/8) or 50% noted that the annual business income was between $200,000 – 250,000.

For Subcomponent 3, Question 2, (9/9) or 100% of the respondents indicated that they were using technology now, and the examples provided include the internet, iCloud,

artificial technology, computers, and smartphones; Question 7, however, only (2/6) or 33.3% agreed that they have technology investment capital for their business.

For Subcomponent 4, Question 22, (5/8), or 62.5% indicated that they had a college (firstdegree) education; Question 23, (4/7), or 57.1%, responded that their business training was specifically online training; and Question 24, (3/7) or 42.9% indicated that they had completed formal technology training (online training).

For Subcomponent 5, Question 23, (3/7), or 42.9% of the respondents noted that their form of business training was either seminars or workshops and college courses; and Question 24, (4/7), or 57.1% responded that seminars or workshops covered their formal technology training (2) and college courses (2).

Limitations of the Study

The geographical location of this study, Houston, Texas, and surrounding areas, limited the ability to generalize the study results. However, since Houston is an international port city, it has a diverse range of small businesses that could have a greater chance of being representative of a national or global scale than a less diverse set of businesses. The research aimed to include diverse participants of small businesses across different industries in the Houston area. These industries are representative of the entire population of small businesses in the United States. To include Houston’s entire small business community would require infeasible degrees of time, money, and resources. The research study relied on small business operators' willingness to participate truthfully. Results were based on respondents’ voluntary participation and relied on small

businesses' willingness and truthfulness in disclosing information about their decision-making processes.

The sample size of the participants could suggest a study limitation. I would recommend a larger sample size of participants in future research, which could then enhance the application of the study findings with greater confidence from the entire population of small business operators. A larger sample size could include women-owned and minority-owned small businesses in greater Houston and surrounding areas. The number of small businesses in Houston, Texas, with $250,000 or less in revenue, was restricted. A third limitation was that I received only nine returns from over 150 email study notices sent to small business operators.

Recommendations

Key recommendations that have resulted from the study include dissemination of the study results to small business audiences;

1. Collaborations to formulate a small business technology development framework;
2. Future research that embarks on studies in other small business contexts (e.g., different locations and revenues of $250,000 or more);
3. Training opportunity for small businesses technology adoption;
4. Education program about federal government small businesses financing available;
5. The city of Houston small business funds for financing;

6. Membership with Houston Small Business Association is encouraged, because they have more resources to offer;
7. Membership with the Houston city small business help line;
8. Directly targeted minority- and women-owned businesses;
9. Small businesses with adequate financial capital;
10. Ability to attract investment capital, and summons for further small technology strategy and implementation plans that include technology adoption capital for small businesses only;
11. Meet small businesses owners' need for microloans and improving opportunity for easy financing;
12. Preparedness for financing such as but not limited to ensuring small business owners' have the business and financial planning tools and the necessary skills required to access financing and enter new markets;
13. Understanding the important role of personal credit and offer credit building services to small business owners;
14. Understanding alternative and innovative Capital Solutions available such as: creating incentives for partnerships between lenders and other sources (e.g., non-profit lenders such as Community Development Financial Institutions, City governments, philanthropy) ; and
15. Personal networks by connecting businesses owners with potential customers and investors.

The factors in this research must align to achieve a company's goal(s). Training is a vital component of small business preparedness as it helps all those involved in response to preparing for available resources. More research will be needed on the technology adoption in small businesses to better understand its impacts on their bottom line and daily life in terms of cost-efficient operations. The research findings provided the potential for small business operators to minimize some adverse effects of technology adoption. Technology adoption can improve small businesses' daily operations and develop trust that technology adoption will not exploit but improve promoting products, services, and other business needs.

As more businesses become aware of the potential benefits of technology adoption, there will be a corresponding need for faster and higher performing telecommunication networks that allow businesses to communicate and perform at an increasingly cost-efficient and satisfying pace. Technology adoption among small businesses has become an everyday concern for small businesses in Houston, Texas, and surrounding areas.

Implications for Social Change

The research presents an opportunity for positive social change, from technology adoption strategies among small business operators potentially leading to improved products, services, and profits. This research suggests an option related to best practices and knowledge for small business start-ups and potential profitability. The research has the potential to improve quality, change traditional practices, promote investment in technology adoption, and bring about positive social changes. The potential impact for

positive social change and influence of technology adoption trends among small companies in Houston, Texas, and surrounding areas could contribute to improved products on the individual level, organizational levels which could lead to the understanding such as advance staff preparedness, management and template for producing quality products cost efficiently, quality products designed to ensure effective ways to produce cost efficiently using technology, improved services made available due to technology adoption, and profitability for small businesses who adopt technology and invest in the way of the future.

Technology adoption leads to minority and women fully participating in wealth-building through small business ownership. Women and minority are starting businesses at significantly higher rates than their white and/or male counterparts, yet they face disproportional barriers to starting and sustaining businesses. Technology adoption leads to removing the barriers, advances in wealth creation and improved economic mobility for women and minorities and experiencing faster earnings growth than wage and salary workers.

Positive social change opportunity taps the city's existing assets and momentum to faster equity through improved access to capital, customers, and services for Houston's diverse landscape of small businesses and surrounding areas. This research shows the positive social change aspect such as improved products with direct benefits for the community, individuals, and the small business community, improved services such as improved technology for scheduling services, faster services, better quality services and increase profitability. The potential positive change implications are that when

individuals and local communities gain improvement in employment opportunities, untapped skills and gain economic stability, enhancing their ability to contribute to society and their communities at large.

The implications for positive social change that could occur because of my study include a reduction of small business owner's failure due to lack of technology adoption, training for employees, and an improvement in small business owners' success rate. The implications for social change include the potential to increase the rate of small business owners' technology adoption, which can result in more small business owners striving to be early technology adaptors and innovative, resulting in a more profitable, increase marketplace, well-served consumers, improved financial security for owners, employees retentions, and additional employment opportunities for the local community they served. Technology adoption will improve small business owners with new approaches and strategies, it is my hope that more small businesses take advantage of the opportunity to grow and expand to new market.

The findings of this current study showed that these small business leaders were able to identify and break down barriers to gaining leadership roles by implementing key strategies. Identifying effective leadership competencies and skills they needed to be successful. The potential positive social change roadmap to breaking down barriers and the strategies to accomplish their goals start with technology adoption. Embracing these strategies, these individuals can gain power to overcome obstacles and inform the new belief in the future success because of technology adoption. Develop resources to help business owners understand and navigate the landscape of business services. Technology

adoption is the key to improved products, services, increase markets and profitability. Technology adoption strategies actions affirm the theories by demonstrating the leader's ability to find the motivation to face this important potential positive social change opportunity front and center.

Conclusions

The study's research findings identified the factors that allow small businesses to minimize the risks intrinsic to technology adoption. This qualitative research study presented a different lens and framework for gauging how business decision-making strategies are incorporated relative to technology adoption. The research findings signal the potential for small businesses to be competitive by adopting technology to improve products, services, and social change opportunities.

Technology adoption promotes community engagement and helps small businesses to remain profitable. Technology adoption is the key to good leadership; improved products, services, profit, social benefits, community engagement; and preparations for economic growth. Also, it is important to improve organizational performance concerning the success factors of small businesses. Many small businesses referred to the difficulty of accessing financing, technology adoption training, and keeping reliable employees. This research study did not establish categories of businesses concerning number of workers employed and annual revenue, but only small businesses with annual income of $250,000 or less. Businesses that fall under the small business threshold, either in number of workers employed or annual revenue, were treated the same.

In conclusion, the most important points gathered from this study include:

- Small business owners and employees realized the key to improving performance.
- Small businesses should emphasize technology adoption, training, embracing technology, and innovations, and adopting strategic behaviors toward investing in technology.
- Technology adoption is the key to improving products, and services, positive social change, remaining competitive; and
- Technology adoption is important because technology is the medium that most businesses use to participate in a rapidly changing global economy.

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Appendix A: Analysis of 25 Articles Related to Small Businesses

as Economic Generators

Label	Initial Codes	Primary Theme	Secondary Theme
D1	**Small Business Resilience Capital Problems for Small Businesses**	**Social Capital Payoff** - Explanation of small business resilience. - Type of social capital and greatest impact for building small business resilience.	**Small Business Resilience** after Hurricane Katrina - Economic resilience (Stiglitz, 1996) adaptation and response to disruptions. - Attitudinal resilience - Social networks are key to building resilience. - Community leaders may be able to pool resources across sectors and organizations to keep small businesses alive.
D2	**Knowledge Sharing in Open Innovation Partnerships Technology transfer**	**Knowledge Sharing in Open Innovation Partnerships** - Behavioral foundations - The pandemic exposed various economic challenges and collective responses impacted resilience. - Confirms the importance of information quality, performance expectancy,	**Technology Transfer** - Technology adoption by small businesses has played a key role in adapting to this changing economic disaster as it relates to the pandemic. - Technology adoption has been the key driver in small businesses' attempts to make a comeback or transformation during this pandemic crisis or to reinvent themselves to meet the present challenge and readiness to apply digital technologies.

		customer habits, food delivery apps, and small businesses benefiting from technology adoption.	
D3	**Technology Adoption Psychological Dimensions of Empowerment**	**Small Business Technology Adoption** -Trans-local empowerment in transformative innovation networks as it relates to small business technology adoption.	**Psychological Dimensions of Empowerment** Conceptualized empowerment as the process through which actors gain the capacity to mobilize resources to achieve a goal with a focus on the psychological mechanisms underlying this process, building on self-determination theory and other intrinsic motivations research.
D4	**Internet of Things Technologies Level of Trust**	**Internet Of Things Technologies and Services** Elaborated on the role that trust plays in consumers' decisions to adopt internet of things technologies and services since it helps small businesses to overcome perceptions of risk and uncertainty related to consumers and enhances the consumers' level of acceptance and adoption intention.	**Level of Trust** Composed of three dimensions of factors that were assumed will influence the level of trust which are: 1) product related factors; 2) social influence related factors; and 3) security related factors.
D5	**Digital Technologies Potential to Democratize Entrepreneurship**	**Digital Technologies** Examined the impact of democratizing entrepreneurship and how digital technologies affect the international	**Potential to Democratize Entrepreneurship** Focused on the role that digital technologies have played in the potential to democratize

		expansion of female-led small and medium-sized enterprises.	entrepreneurship by providing access to international market knowledge and facilitating interactions with customers and partners.
D6	**Entrepreneurship And Small Businesses Technology Adoption Role in Economic Recovery**	**Entrepreneurship and Small Businesses** Focused on 1) a systematic review of the literature on the effect on entrepreneurship and small businesses; 2) a discussion of four literature strands based on this review; 3) an overview of the contributions in this special issue; and 4) some ideas for post-pandemic economic research.	**Technology Adoption Role in Economic Recovery** Shed light on the economic effects of the Covid-19 pandemic by looking at the macroeconomic and microeconomic effects on entrepreneurship and small businesses, in general, and the financial support received during the virus crisis.
D7	**Technology Adoption Information Technology Governance and Technology Adoption**	**Information Technology Governance and Technology Adoption** Elaborated on information technology governance institutionalization and the behavior of individuals in the context of public organizations aims to verify the effects of IT governance on civil servants' behavior as it relates to technology adoption.	**Technology Adoption** Plays an important role in connections between government and citizens which are changing, and this process generates new demands for data, information, and fast and reliable services whose operationalization depends on, evolves with, or is enhanced by IT solutions.
D8	**Digital Entrepreneurship Digital Innovation**	**Digital Entrepreneurship** Addressed the age of digital entrepreneurship providing a better	**Digital Innovation** The effect on digital innovation is part of the new information system research agenda defined

		understanding of the circumstances and reasons that facilitate digital entrepreneurship (DE) is of interest to academic research, small businesses, and guides business practices, as well as public policies aiming at supporting this phenomenon given its positive impacts in terms of job creation and economic growth.	by the authors, then the impact on entrepreneurial outcomes and processes is one of the issues of digital technologies that manifest in the realm of entrepreneurship.
D9	**Information Technology Investment Digital Innovation and Business Value of IT**	**Information Technology Investment** Elaborated on how firms make information technology investment decisions toward a behavioral agency theory. In doing so, the authors developed a behavioral agency theory to examine key drivers and outcomes of information technology (IT) investment decisions.	**Digital Innovation and the Business Value of IT** Show direct links from IT investment to innovation and performance respectively, the authors integrated separate research streams by showing the mediating role of innovation in the performance impact of IT investment.
D10	**Small Business Technological Forecasting and the Role of Social Change Attitude of Family-owned Businesses**	**Technological Forecasting and Social Change** Focused on technological forecasting and social change, elaborated, and extended the theory of planned behavior adding religiosity and ethical judgment constructs, and their study aimed to explore the environmental	**Attitude of Family-owned Businesses** Intrinsic and extrinsic religiosity positively influenced the attitude of family-owned businesses toward environmental sustainability and there was further evidence that showed attitude and subjective norms were found to positively influence environmental sustainability intention.

		sustainability intentions of family-owned businesses in Fiji.	
D11	**Social Psychological Aspects of Technology Adoption** **Managerial Decision Making by Business Leaders**	**Social Psychological Aspects of Technology Adoption** Elaborated on the basic mechanisms of activation of the internal potential of their revival in a way that reviewed the social-psychological aspects of technology adoption. The great flexibility of the method allows one to obtain comprehensive information about the socio-psychological causes of behavior (for example, methods of management and motivation).	**Managerial Decision Making by Business Leaders** Process of managerial decision making by business leaders on an innovation and investment basis and this research study was conducted among small and medium-sized businesses in the northern, central, and southern regions of Ukraine that were surveyed to identify factors of their socio-economic development using cluster sampling method that was used to select the settlement.
D12	**Emerging Technologies and Technology Adoption Strategy** **Technology Adoption Knowledge**	**Emerging Technologies and Technology Adoption Strategy** Influential safety technology adoption predictors in construction as it relates to construction workers' safety could be optimized using emerging technologies.	**Technology Adoption Knowledge** Successfully contributes to technology adoption knowledge by identifying and quantifying the influential predictors of safety technologies in different organizational contexts.
D13	**Entrepreneurs and Innovation Technology Adoption** **Social Media Platforms for Digital Marketing**	**Entrepreneurs and Innovation Technology Adoption** Elaborated on entrepreneurs and innovation with the contingent role of institutional factors as it relates to technology adoption. Their research	**Social Media Platforms for Digital Marketing** Highlights Indian small business entrepreneur's role in rapidly adopting different social media platforms for digital marketing and factors such as compatibility, cost, and impact the adoption of

		highlights Indian small business entrepreneurs' role in rapidly adopting different social media platforms for digital marketing and factors such as compatibility, cost, and impact of the adoption of social media by small business entrepreneurs and the adoption of social media is improving the performance of small businesses.	social media by small business entrepreneurs and the adoption of social media has on improving the performance of small businesses.
D14	**Travel Risk Perception as it Relates to Small Businesses Travelers' Decision-making Process**	**Travel Risk Perception** Explored the new travel risk scenario by analyzing travel risk perception during the pandemic and proposed measures to improve traveler confidence based on the issue-attention cycle.	**Travelers' Decision-making Process** Focused on travelers' decision-making process which was studied to learn why travelers chose to maintain or cancel travel plans and what variables influenced their travel risk perception.
D15	**Adopting New Technologies and Social Media Technology Small Business Technology Adoption**	**Adopting New Technologies and Social Media Technology** Despite the importance of institutional factors in adopting new technologies, the role of these drivers in the use of social media technology (SMT) to strengthen customer relationship management (CRM) capabilities and improve company performance has not been fully investigated.	**Small Business Technology Adoption** Analyzed the influence of customer coercive pressure and competitor memetic pressure on small business technology adoption use secondly, they investigated the mediator role of customer relationship management (CRM) capabilities in the relationship between (social media technology) SMT use and firm performance as it relates to technology adoption by all

			kinds of small businesses around the world.
D16	**Social Media as it Relates to Customer Relationship Management and Technology Adoption** **Social Adoption Construct**	**Social Media, Customer Relationship Management, and Technology Adoption** The emergence of social media, customer relationship management, and technology adoption has undergone noticeable changes and gains from technology adoption have played a great deal of attention from researchers and practitioners in recent years and, in so doing, their research revelations provided additional insights into how intensively business-to-customer micro-, small-, and medium-sized enterprises adopt to social customer relationship management.	**Social Adoption Construct** Provided support for the conceptualization of the intensity of the social adoption construct, secondly, the research findings also showed that the influence of the proposed antecedents on the intensity of social customer relationship management adoption varies significantly at the process level within the three contexts of the technology adoption.
D17	**Technology Adoption by Small Businesses Decision-Making as it Relates to Technology**	**Technology Adoption by Small Businesses** Elaborated on the role that limits profit maximization, as a guide to behavior change, has on technology adoption by small businesses in general.	**Decision-making, as it Relates to Technology** **Economists,** have long had an interest in decision-making by farmers as it relates to technology adopting new technologies and the search shows a link between modeling decision making requiring modeling behavior with the key behavioral assumption being profitable to technology

			adoption to maximize profit.
D18	**Small Business Entrepreneurs' Technology Adoption Sensing, Seizing, and Investing in Technology**	**Small Business Entrepreneurs' Technology Adoption** Examined some of the capabilities of small business entrepreneurs' technology adoption ability contributing to survival and growth during an economic downturn.	**Sensing, Seizing, and Investing in Technology** Indicated three dimensions of dynamic capabilities which include: 1) sensing (business assessment and information acquisition); 2) seizing product portfolio decisions; and 3) investment in technologies and human capital resources development.
D19	**Technology Adoption Predictors Technology Adoption**	**Technology Adoption by Small Businesses** Examined Influential Safety technology adoption predictors in construction and further explored construction worker safety optimization by using emerging technologies.	**Technology Adoption** Application of safety technologies in the construction industry is limited: constrained adoption of safety technologies is the lack of empirical information for migrating the risk of a failed adoption.
D20	**Entrepreneurial Finance Markets of The Future Small Businesses Adoption Process as it Relates to Financing**	**The Entrepreneurial Finance Markets of The Future:** A comparison of crowdfunding and initial coin offerings. The Jumpstart Our Business Startups (JOB) Act, which was signed into law on April 5th, 2012, introduced CF as a means for entrepreneurs to raise equity financing in the USA, these markets were ultimately regulated by the SEC starting in 2015 and became effective on May 16.	**Small Businesses Adoption Process as it Relates to Financing** Crowdfunding effects on the entrepreneurial finance market. Crowdfunding in its various forms has developed into a standard tool for raising seed capital in some industries, while new funding instruments include initial coin offerings (IOC).

D21	**Development Economics**	**Development Economics** Behavioral development economics applies theories and ideas from psychology and behavioral economics to the study of questions in development economics and examines a central puzzle in development economics.	**Behavior Development Economics** Behavioral development economics theories help explain some key facts in each literature examined and describe the existing empirical evidence. The authors argue that firms in developing countries are more likely to deviate from profit maximization.
D22	**Digital Market Adoption and Success for Businesses**	**Digital Market Adoption and Success for Businesses:** The application of the do-it-yourself and technology acceptance models examines small businesses' participation in digital marketing and integrates the do-it-yourself behavior model and technology acceptance model (TAM).	**Small Business Digital Marketing Behavior** Focused on finding support for the idea that the technological benefits may not be the only motivators for small business owners/ managers who undertake digital marketing. The authors found that the behavior model applies to small business owners/managers who must perform tasks that require specialized knowledge.
D23	**Cutting-Edge Technologies for Small Business and Innovation Author Identified Technologies**	Cutting-Edge Technologies for Small Businesses and Innovation In the era of Covid-19, the global health pandemic explores the role technologies play in providing competitive advantages but also provides a means for survival, by improvising existing business models.	**Author Identified Technologies** Evaluated disruptive software platforms, and strategies needed for creating and managing small business innovation and highlighting the complexity of that process and the context within which this process takes place.

D24	**Economic Effects of The Covid-19 Pandemic on Entrepreneurship Special Issue of Small Business Economics Journal**	**Economic Effects of The Covid-19 Pandemic on Entrepreneurship and Small Businesses** examines the existential threat to small businesses, based on their crucial role in the economy, creating productive entrepreneurship and resilient location-specific entrepreneurial ecosystems.	**The special issue of Small Business Economics Journal** aims to shed light on the economic effects of the COVID-19 pandemic by looking at the microeconomic effects on entrepreneurship and small businesses as well as the role of financial support policies and well-being in both developed and developing countries.
D25	**Entrepreneurial Survival and Growth Surviving Economic Downturn**	**Entrepreneurial Survival and Growth** The authors examined the capabilities contributing to small business entrepreneurial survival and growth during an economic downturn adopting a qualitative approach using the collective, instrumental case-based method, by conducting forty interviews with both successful and unsuccessful franchisees and independent small business entrepreneurs. Three dimensions of dynamic capabilities are sensing (business assessment and information acquisition), seizing (product portfolio decisions, and investment in technologies and human resources), and reconfiguring	**Surviving an economic downturn** requires demonstrating flexibility and context-dependence in the deployment of dynamic capabilities among small business entrepreneurs.

		(innovation, decentralization, and knowledge management.	

Appendix B: Questionnaire Questions

A questionnaire from the Walden School of Leadership & Management
Ph.D. Candidate: Lawrence N. Paye, Sr.

1. You agree that you have received an email of the consent form and have read it. You also agree to all the terms in the consent form by clicking yes you consent that you are willing to answer the questions in this questionnaire. You also consent to your personal data being processed as described in the consent form. You must click yes to take this questionnaire.
   Single choice
   - ○ Yes
   - ○ No
2. What kind of technology are you using now?
   Multi Line Text
   
3. Are you using cloud technology?
   Single choice
   - ○ Yes
   - ○ No
4. If not, why or why not?
   Multi Line Text
   
5. . What is your concern about using cloud technology?
   Multi Line Text
   
6. Do you have technology research ongoing?
   Single choice
   - ○ Yes
   - ○ No

7. Do you have technology investment capital for your business?
Single choice
   - Yes
   - No
8. How do you feel about new technology?
Single choice
   - Very satisfied
   - Satisfied
   - Neither satisfied nor dissatisfied
   - Dissatisfied
   - Very dissatisfied
9. Are you open to learning new technology?
Single choice
   - Yes
   - No
10. Why or why not?
Multi Line Text

11. What kind of technology adoption would help your business the most? Select all that apply:
Multiple choice
   - Finance Programs
   - Schedule Programs
   - Communication/announcement Programs
   - Data Organization Programs
   - Updated Hardware (computers, printers, scanners)
   - None
   - Other
12. What is an acceptable cost or expense for implementing technology into your business?
Multi Line Text

13. Do you own, are employed by, or invested in a small business that earned $250,000 or less a year?
Single choice
- ○ Yes
- ○ No

14. Are you registered with the Small Business Association?
Single choice
- ○ Yes
- ○ No

15. If not, why not?
Multi Line Text

16. Are you the business owner?
Single choice
- ○ Yes
- ○ No

17. How many employees does the small business employ?
Single choice
- ○ 1 to 5 employees
- ◉ 6 to 10 employees
- ○ 10 or more employees

18. What is the business' annual income?
Single choice
- ○ $10,000 - $19,999
- ○ $20,000 -$49,999
- ○ $50,000 - $99,999
- ○ $100,000 - $149,999
- ○ $150,000 - $199,999
- ○ $200,000 - $250,000

19. How long has this company been in business?
Single choice
- Less than 1 year
- 1 to 3 years
- 3 to 5 years
- 5 to 10 years
- At least 10 years

20. What is your age range?
Single choice
- 18 to 25 years
- 25 to 35 years
- At least 35 years

21. What is your gender?
Single choice
- Male
- Female

22. What is your education level?
Single choice
- High School Diploma or Vocational Training Only
- College (1st Degree)
- Master's Degree
- Ph D

23. Have you had any other form of business training?
Single choice
- Seminars or Workshops
- Online Training
- College course(s)

24. Have you had any formal technology training?
Single choice
- Seminars or workshops
- Online training
- Some college

Submit

Appendix C: Questionnaire Questions, Responses, and Graphs

1. You agree that you have received an email of the consent form and have read it. You also agree to all the terms in the consent form by clicking yes you consent that you are willing to answer the questions in this survey. You also consent to your personal data being processed as described in the consent form. You must click yes in order to take this survey.

More Details

Yes	9
No	0

2. What kind of technology are you using now?

More Details

9
Responses

Latest Responses

"internet,icloud ,artificial technology"

"computers"

"Internet, computers, smart phone"

3. Are you using cloud technology?

More Details

Yes	8
No	1

4. If not, why or why not?

More Details

3
Responses

Latest Responses

5. What is your concern about using cloud technology?

More Details

8
Responses

Latest Responses

"future flaws,and it can affect your privacy ,the more info they have o..."

"people using info"

"Privacy, in regard to compromising personal information"

6. Do you have technology research ongoing?

More Details

Yes	0
No	8

7. Do you have technology investment capital for your business?

More Details

Yes	2
No	6

8. How do you feel about new technology?

More Details

Very satisfied	2
Satisfied	5
Neither satisfied or dissatisfied	1
Dissatisfied	0
Very dissatisfied	0

9. Are you open to learning new technology

More Details

Yes	8
No	0

10. Why or why not?

More Details

7

Responses

Latest Responses

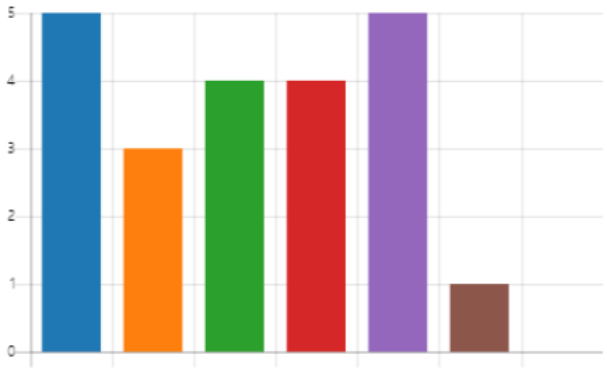
"if it make life easier "

"I am open to anything that will grow my business "

11. What kind of technology adoption would help your business the most? Select all that apply

More Details

Finance Programs	5
Schedule Programs	3
Communication/announceme...	4
Data Organization Programs	4
Updated Hardware (computer...	5
None	1
Other	0



12. What is an acceptable cost or expense for implementing technology into your business?

More Details

7

Responses

Latest Responses

"no idea yet"

"zero"

"2500.00"

13. Do you own, are employed by, or an invested in a small business that earned $250,000 or less a year?

More Details

Yes	7
No	1

14. Are you registered with the Small Business Association?

More Details

Yes	4
No	4

15. If not, why not?

More Details

5

Responses

Latest Responses

"???"

"dont want to be"

16. Are you the business owner?

More Details

Yes	7
No	1

17. How many employees does the small business employ?

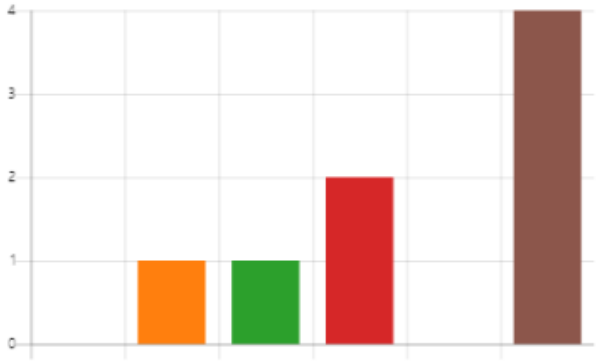
More Details

1 to 5 employees	5
6 to 10 employees	1
10 or more employees	2

18. What is the business' annual income

More Details

$10,000 - $19,999	0
$20,000 -$49,999	1
$50,000 - $99,999	1
$100,000 - $149,999	2
$150,000 - $199,999	0
$200,000 - $250,000	4



19. How long has this company being in business?

More Details

Less than 1 year	0
1 to 3 years	1
3 to 5 years	0
5 to 10 years	3
At least 10 years	4

20. What is your age range?

More Details

18 to 25 years	1
25 to 35 years	0
At least 35 years	7

21. What is your gender?

More Details

Male	2
Female	5

22. What is your education level

More Details

High School Diploma or Vocat...	0
College (1st Degree)	5
Masters Degree	3
Ph D	0

23. Have you had any other form of business training?

More Details

Seminars or Workshops	1
Online Training	4
College course(s)	2

24. Have you had any formal technology training?

More Details

Seminars or workshops	2
Online training	3
Some college	2

https://forms.office.com/Pages/ResponsePage.aspx?id=xs8gcjmxU0yXe8EF3gBxVdgW2oIrr0lGkYAl1oxcgLFUQTNSTkpSSUI0SU5MS01BWUwxRUVQRFlUNC4u

Appendix D: Spreadsheet From Research Questionnaires

ID	1	2	3	4	5	6	7	8	9
Start time	1/13/2018 27:09	2/6/2015:30:00	2/6/2017:38:35	2/7/2020:31:17	2/12/2015:33:32	2/12/2020:24:52	2/12/2023:25:23	2/13/2011:26:35	2/14/2011:45:29
Completion time	1/13/2018 27:41	2/6/2015:49:14	2/6/2017:41:56	2/7/2020:34:52	2/12/2015:38:51	2/12/2020:31:26	2/12/2023:33:22	2/13/2011:31:34	2/14/2012:00:09
Email	anonymous	anonymous	anonymous	anonymous	anonymous	anonymous	anonymous	anonymous	anonymous
Name									
You agree that you have received an email of the consent form and have read it. You also agree to all the terms in the consent form by clicking yes you consent that you are willing to answer the q...	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
What kind of technology are you using now?	hhavsg	cloud technology	Social Media platforms	iPhone	Cloud	Internet	Internet, computers, smart	computers	internet,icloud ,artificial
Are you using cloud technology?	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
If not, why or why not?		I am using cloud technology for storage	Not needed			Yes I store files in the cloud on my mac			
What is your concern about using cloud technology?		Security and over exposure	Loosing information and not being able to retrieve it	No concern. It's the new way of data transfer	It's actually working well for our business	That the files will be lost or I won't be able to access when needed	Privacy, in regard to compromising personal information	people using info	future flaws,and it can affect your privacy ,the more info they have on you the more they can target you ,i believe that they will be in the near future enough info about you that they can create a virtual you in the icloud and probably predict up to 100%what you will be your next step before you even know it, like they can put you in jail before you commit the crime .
Do you have technology research ongoing?		No	No	No	No	No	No	No	No
Do you have technology investment capital for your business?		No	No	No	No	No	Yes	No	Yes
How do you feel about new technology?		Satisfied	Satisfied	Satisfied	Very satisfied	Very satisfied	Satisfied	Neither satisfied or dissatisfied	Satisfied
Are you open to learning new technology		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Why or why not?		Do not know enough to be comfortable	Yes . My business is dependent upon the understanding and use of technology	Because it's the way the world is moving towards	It helps improve the day to day business	Definitely for my business to grow in the manner in which I would like to see it, I must stay abreast of technology	I am open to anything that will grow my business		if it make life easier

What kind of technology adoption would help your business the most? Select all that apply		Finance Programs;Schedule Programs;Data Organization Programs;Updated Hardware (computers, printers, scanners);	Communication/announcement Programs;	Finance Programs;Schedule Programs;Communication/announcement Programs;Data Organization Programs;Updated Hardware (computers, printers, scanners);	Finance Programs;	Communication/announcement Programs;Data Organization Programs;Updated Hardware (computers, printers, scanners);	Finance Programs;Updated Hardware (computers, printers, scanners);	None;	Finance Programs;Schedule Programs;Communication/announcement Programs;Data Organization Programs;Updated Hardware (computers, printers, scanners);
What is an acceptable cost or expense for implementing technology into your business?		$1,000.00-$2,000	$360/month	Not sure off back but would be a percentage		Dependent upon the urgency of the need; I would pay for social media platform	2500.00	zero	no idea yet
Do you own, are employed by, or an invested in a small business that earned $250,000 or less a year?		Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Are you registered with the Small Business Association?		Yes	Yes	No	Yes	No	Yes	No	No
If not, why not?		I am registered with Houston Small Business Association	I am			I had a previous business that was registered with SBA, however it never proved beneficial to my business. Mostly if I needed a low interest loan was		dont want to be	???
Are you the business owner?		Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
How many employees does the small business employ?		10 or more employees	1 to 5 employees	1 to 5 employees	1 to 5 employees	1 to 5 employees	10 or more employees	1 to 5 employees	6 to 10 employees
What is the business' annual income		$200,000-$250,000	$20,000-$49,999	$200,000-$250,000	$100,000-$149,999	$50,000-$99,999	$200,000-$250,000	$200,000-$250,000	$100,000-$149,999
How long has this company being in business?		At least 10 years	5 to 10 years	1 to 3 years	At least 10 years	5 to 10 years	5 to 10 years	At least 10 years	At least 10 years
What is your age range?		At least 35 years	At least 35 years	18 to 25 years	At least 35 years	At least 35 years	At least 35 years	At least 35 years	At least 35 years
What is your gender?		Male	Female	Female	Female	Female	Male	Female	
What is your education level		College (1st Degree)	Masters Degree	Masters Degree	College (1st Degree)	Masters Degree	College (1st Degree)	College (1st Degree)	College (1st Degree)
Have you had any other form of business training?		Online Training	Seminars or Workshops	College course(s)	Online Training	Online Training	College course(s)		Online Training
Have you had any formal technology training?		Online training	Seminars or workshops	Some college	Online training	Seminars or workshops	Some college		Online training

Appendix E: Questionnaire Questions and Classifications

	Construct	**Reference**
1. What is your overall opinion of using technology in businesses?	Individual Characteristics	
2. What kind of technology does this business currently use?	Organizational Characteristics	
3. Is technology easy to use? Do you use it to get your work done? If so, can you elaborate and tell me how?	Individual Characteristics	(Kamal, 2009)
4. Can you tell me whether you feel confident in using technology in your business? Why or why not?	Individual Characteristics	(Kamal, 2009)
5. Do you use or know of IT hardware or software that is designed for your business's field of industry?	Individual Characteristics	
6. Have you learned how to use technology to support your business needs? If so, can you explain how you acquired the skills?	Individual Characteristics	(Kamal, 2009)
7. Would you be able to complete a business task using IT if there was no one around to tell you what to do as you go? If not, can you elaborate on your answer?	Individual Characteristics	(Kamal, 2009)
8. Do you believe that using IT will increase this business's competitiveness? How so?	Individual Characteristics	(Kamal, 2009)
9. In general, are you hesitant to adopt new technologies?	Individual Characteristics	(Kamal, 2009)
10. Do you have access to multiple channels/ sources to help you with your IT questions?	Individual Characteristics	(Kamal, 2009)
11. Do you believe that you will be able to have access to new markets and more customers for the products or services that your business provides? Please elaborate how and why?	(Individual Characteristics)	(Kamal, 2009)
12. Would using IT make your day-to-day business operations more efficient? Can you tell me why and how?	(Individual and Organizational Characteristics)	(Kamal, 2009)

13. Would technology in general provide you more options or ways (e.g., online courses, distance learning technologies, etc.) to enable you to learn new skills and techniques to apply in your business? If so, in what ways?	Individual Characteristics	
14. Is using or not using IT in your business up to you?	Organizational and Traditional Characteristics	(Kamal, 2009)
15. Are there any factors that are beyond your control that determine your use/adoption of IT for your business? If so, can you tell me what they are?	Traditional and Organizational Characteristics	(Kamal, 2009)
16. In what ways do you believe that if you use IT, you will be able to improve your business?		
17. Do you think that improving your business in the ways you just mentioned is desirable or undesirable? Can you give me your reasons for your answer?	(Organizational Characteristics)	(Kamal, 2009)
18. Would you say that this small business depends on modern technology? Why or why not?	(Organizational Characteristics)	(Kamal, 2009)
19. Do you believe that you can use the technology to help improve the performance of your business?	(Organizational Characteristics)	
20. If you hear about a new information technology, do you look for ways to experiment with it? If so, can you elaborate on how you do this? If not, what prevents you from doing so?	Organizational Characteristics	(Kamal, 2009)
21. How often does this business update, adopt, or otherwise use new technology?	Organizational Characteristics	(Kamal, 2009)
22. When was the last time this business adopted new technology, and what was it? (Hardware, software, etc.)	Traditional Characteristics	
23. Who decides on technology adoption processes in this business? Is there a board committee or other	Traditional Characteristics	

democratic methods used? Please describe the process in detail.		