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Telehealth Implementation Strategies for Healthcare Providers

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Abstract

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MA, Webster University, 2016

BEng, Ahmadu Bello University, Nigeria, 1998

Doctoral Study Submitted in Partial Fulfillment

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Abstract

The shift in the landscape of healthcare services from inpatient care to outpatient care prompts healthcare leaders to re-evaluate their strategies to boost declining revenue. Telehealth offers potential for increasing efficiency and access to care, and the acceptance of its modal quality is essential for its diffusion and adoption. The purpose of this single case study was to explore strategies that healthcare providers used to implement telehealth to increase profitability. The conceptual framework was the technology acceptance model. Data were collected through semistructured interviews and review of organizational documents. The research population comprised 4 healthcare leaders in 1 organization in the midwestern region of the United States who had successfully implemented telehealth. Three main themes emerged from coding of phrases, word frequency searches, and data analysis: implementation strategies, obstacles in implementation, and user acceptance of telehealth. The findings from this study may contribute to the implementation of telehealth business practices by providing healthcare leaders with strategies to successfully implement telehealth to improve profitability. These strategies could help to provide suitable healthcare at lower costs and improve quality of life for patients.

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Dedication

I dedicate this research study to my family. Without you, this study would not have been possible. Thank you for all your support and for believing in me.

Acknowledgments

First and foremost, I thank God for guiding me through this DBA journey. I am grateful for His help and mercy. I want to thank my committee chair, Dr. Diane Dusick, for her immense support, guidance, and constructive feedback during this research. I would also thank my second committee member, Dr. Jaime Klein, for her valuable role and support during the study. I acknowledge the support of the Univerisity Research Review member, Dr. Debbie Nattress, for her crucial role in reviewing this study. I appreciate the sharing of your knowledge and communicating the requirements. I thank all of my committee members for the efforts and expertise that they contributed to reviewing this study. It would have been almost impossible to maintain the high standards without all your efforts. I would also like to thank Dr. Latifat Oyekola and all my colleagues for their support. You each played a remarkable role in keeping me focused and motivated.

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Section 1: Foundation of the Study

The rising cost of healthcare services has prompted healthcare providers to look for cost-effective ways of delivering healthcare services (Dinesen et al., 2016). Healthcare leaders are constantly seeking ways to boost profitability by reducing their operating costs and improving the quality of care for patients. Telehealth has the potential to enhance the value of healthcare services, facilitate care access, and reduce costs for both providers and patients (Adler-Milstein, Kvedar, & Bates, 2014). Hospitals in the United States are gradually adopting telehealth to provide healthcare services, and it is critical to understand the factors facilitating or hindering the adoption process (Kruse et al., 2016). The rapid advancement in technologies has created unprecedented opportunities and incentives for the growth of telehealth (Rossos et al., 2015). By understanding the strategies for implementing telehealth, healthcare providers may address the rising cost of care and improve access to quality care.

Background of the Problem

The use of information and communication technologies to provide healthcare services has occurred since the 1960s (Rossos et al., 2015; Saigí-Rubió et al., 2016). In the 21st century, the challenges posed by socioeconomic changes in healthcare systems have made telehealth a viable option for providing solutions to the problems emanating from care delivery methods (Saigí-Rubió et al., 2016). From cultural and social perspectives, healthcare providers have regarded telehealth as a major innovation. This is partly due to the role of telehealth in providing access to healthcare services, advancing the quality of care, and improving organizational efficiency (Adler-Milstein et al., 2014;

Saigí-Rubió et al., 2016). Barriers including technological, financial, and legal issues have hindered the adoption of telehealth for years (LeRouge & Garfield, 2013). Even with developments in technologies, telehealth has not seen considerable growth (Kahn, La Marca, & Mazzola, 2016). To accelerate the adoption of telehealth, healthcare providers need to advance research on telehealth standards and implementation procedures (Standing, Standing, McDermott, Gururajan, & Kiani Mavi, 2016). It is only through advancement in research on telehealth that healthcare providers will be able to increase profitability and improve care access.

Problem Statement

Despite widespread telehealth initiatives, healthcare providers lack the motivation to drive efficiency and lower operating costs through telehealth adoption (L'Esperance & Perry, 2015; Rossos et al., 2015). In the United States, chronic health issues account for approximately 75% of annual healthcare expenses (Dinesen et al., 2016). Telehealth models of care have the potential to lower operating costs through remote monitoring of patients with chronic diseases (Dinesen et al., 2016). The general business problem was that healthcare providers have decreased profits and lack efficiency without the use of telehealth. The specific business problem was that some healthcare providers lack strategies to implement telehealth to increase profitability.

Purpose Statement

The purpose of this qualitative single case study was to explore strategies that healthcare providers use to implement telehealth to increase profitability. The targeted population consisted of four healthcare leaders in one organization in the Midwestern

United States who had successfully implemented telehealth. The implications for positive social change include the potential to provide healthcare leaders with strategies to deliver outstanding healthcare at lower costs while increasing healthcare access and thereby improving health outcomes.

Nature of the Study

Qualitative research was appropriate for the study. Qualitative researchers study people or things in their natural settings and try to understand why they engage in particular actions or behaviors (Rosenthal, 2017). The qualitative method was appropriate because I explored strategies that healthcare leaders used to implement telehealth to increase profitability. Researchers employ the quantitative research method to examine relationships between variables and test hypotheses using a range of statistical and graphical techniques (Park & Park, 2016). The quantitative research method was not suitable for this study because I did not examine the relationship between variables. The mixed method researcher combines both qualitative and quantitative methodologies to improve understanding of research questions in ways not achievable with only qualitative or quantitative methods (Choudhary & Jesiek, 2016). I did not use a mixed method for this study because there was no quantitative element appropriate to this study.

For the purpose of this study, I selected a single case study design. The single case study design is appropriate when researchers explore a phenomenon in depth and within a specific contemporary context (Yin, 2017). Researchers use the phenomenological design to explore real-life experiences and concepts relating to a phenomenon (Marshall & Rossman, 2016). The phenomenological design was not

appropriate because the aim of this study was not to explore real-life experiences or concepts. The ethnographic design is another qualitative design that researchers use to explore culture through extended examination (Cavallerio, Wadey, & Wagstaff, 2016). The ethnographic design was not appropriate because the intent of this study was not to explore culture. Other qualitative design researchers use the narrative research design to interpret the lives of individuals and attribute meaning to their experiences through stories (Yin, 2014). In this study, I did not select the narrative research design because the goal of the study was not to explore the lives of individuals through their stories. Therefore, the case study design was suitable to investigate strategies that healthcare leaders used to implement telehealth to improve profitability.

Research Question

What strategies do healthcare leaders use to implement telehealth to increase profitability?

Interview Questions

Using an interview protocol, I asked each participant the following interview questions (see Appendix A).

1. What strategies have you used to implement telehealth to increase profitability?
2. What were the most important success factors in your telehealth strategies to increase profitability?
3. What obstacles did you face during the implementation of telehealth?
4. How did you overcome those obstacles?

5. What elements facilitated the adoption of telehealth?
6. What else can you add to help healthcare leaders implement telehealth to increase profitability?

Conceptual Framework

In 1989, Davis developed the technology acceptance model (TAM) to describe computer usage behavior (Bailey, Pentina, Mishra, & Ben Mimoun, 2017). The TAM conceptual framework is an adaptation of the theory of reasoned action (TRA) by Fishbein and Ajzen (1975) designed specifically to model user acceptance of information systems (Davis, Bagozzi, & Warshaw, 1989). Davis (1989) proposed that users' motivation centers around three factors: (a) perceived ease of use (PEOU), (b) perceived usefulness (PU), and (c) attitude toward using the system. I applied the TAM conceptual framework to explore the implementation of telehealth in the healthcare industry.

Operational Definitions

Health care provider: A health care provider refers to a health care professional or institution who is authorized to practice medicine and provide medical services to health care consumers (Li et al., 2103).

Telehealth: Telehealth is the use of telecommunications technology to offer healthcare services that include direct patient care and patient education (Olson &Thomas, 2017).

Telemedicine: Telemedicine refers to the use of electronic communications to improve healthcare services (Brous, 2016).

Assumptions, Limitations, and Delimitations

Assumptions, limitations, and delimitations are vital components in a standard doctoral dissertation. While they describe and establish the structure of the research, they also irradiate the potential weaknesses inherent in the study. Certain assumptions, limitations, and delimitations formed the basis of this study.

Assumptions

Assumptions in research are matters that are beyond the control of the researcher (Kirwood & Price, 2013). The beliefs and assumptions of researchers influence the research they conduct (Kirkwood & Price, 2013). One assumption was that research participants living in rural locations lack appropriate access to quality care. Another assumption was that with an effective adoption strategy, the use of telehealth would facilitate the delivery of adequate health services to remote patients. Another crucial assumption in this study was that the use of telehealth would provide timely access to healthcare for patients with chronic diseases that require regular monitoring and quick access to healthcare services.

Limitations

Limitations of a study refer to the weaknesses in the study (Brutus, Aguinis, & Wassmer, 2013). One area of limitation was in the sources of evidence used in conducting the case study. When using interviews as sources of evidence, it is possible to introduce bias due to poorly expressed responses and subtle influence between the interviewer and the interviewee (Yin, 2017). Another limitation of the study was the scope of a single case study of one healthcare provider in Indiana. Data saturation occurs

when additional interviews do not yield new information in case study research (Fusch & Ness, 2015)

Delimitations

Delimitations define the boundaries of research, and they are the situations that the researcher can control (Yin, 2017). I focused solely on healthcare providers who offered telehealth services to patients in the Midwestern United States. The scope of this qualitative case study encompassed the exploration of telehealth implementation strategies used by healthcare providers in Indiana. Healthcare providers in Indiana who used telehealth technology as part of their healthcare delivery services were the focus of this study. I specifically selected the case study design to enable in-depth analysis of the participants' accounts.

Significance of the Study

The findings from this study may contribute to telehealth business practices by providing healthcare leaders with the strategies to use to successfully implement telehealth. These strategies could lead to increased profitability and reduced operational costs for healthcare organizational leaders. The result of this study could facilitate the development of telehealth implementation standards to improve profitability and reduce operational costs.

Improved healthcare access positively affects society, acting as a stimulant for social change. The use of telehealth to monitor remote patients could lead to better decisions in healthcare delivery and positively influence the experience of patients (Kasckow et al., 2016). The outcome of this study could be a better understanding of how

to improve healthcare access for remote patients and provide better quality care at a lower cost. The findings could also provide organizational leaders and healthcare providers with the knowledge and skills they need to implement telehealth as a strategy to provide suitable healthcare at lower costs and improve quality of life for patients.

A Review of the Professional and Academic Literature

Healthcare providers use *telehealth* as an umbrella term that includes telemedicine and other healthcare services such as telenursing and telepharmacy (Weinstein et al., 2014). Notwithstanding the potential of telehealth to reduce healthcare costs and increase access, healthcare providers struggle with telehealth implementation (Adler-Milstein et al., 2014; Van Dyk, 2014). Using the extant literature, I examined the conceptual framework for this study and explored the challenges and benefits of implementing telehealth, particularly by healthcare providers. The following topics were presented in the review of literature: (a) trends in telehealth, (b) the technology acceptance model, (c) the telehealth adoption framework, (d) telehealth implementation challenges, (e) telehealth implementation benefits, (f) the role of telehealth in enhancing healthcare services in rural areas, (g) cost and technology issues with telehealth, (h) reimbursement and licensure issues with telehealth, and (i) improving patient satisfaction through telehealth.

The Walden University Library was the main source of the content used in this study. To gain access to research materials, I queried (a) Business Source Complete, (b) EBSCOhost, (c) ProQuest, (d) Sage Publications, (e) Science Direct, and (f) Google Scholar. The keywords and phrases used in querying the databases were (a) *telehealth,*

(b) *telemedicine,* (c) *technology adoption in healthcare,* (d) *technology adoption model,* and (e) *teleconferencing in healthcare.* The literature reviewed included acceptable peer-reviewed scholarly journals and academic journals. I referenced 91 articles in my review of the literature. Of these, 88 articles, or 96.7%, were published within the past 5 years, and 85 of the articles, or 93.4%, were peer reviewed.

Professional and academic researchers have used the terms *telemedicine* and *telehealth* interchangeably to describe the exchange of medical information using electronic communications (e.g., De la Torre-Díez, López-Coronado, Vaca, Aguado, & de Castro, 2015; Siddiqui et al., 2017). Olson and Thomas (2017) defined telehealth as the use of telecommunications technology to offer healthcare services that include direct patient care and patient education. The American Telemedicine Association defined telemedicine as using electronic communications to improve healthcare services (Brous, 2016). Despite advancement in technologies and the ample availability of resources, telehealth adoption lags behind other technology adoption initiatives in the healthcare industry (Adenuga, Lahad, & Miskon, 2017; Kahn et al., 2016).

The Trend in Telehealth

With advancements in telehealth research, healthcare providers are looking for better ways to improve quality of care. Kahn et al. (2016) assessed the general and peer-reviewed literature relating to telehealth and neurosurgery focusing on best practices, policies, economic and business evaluations, and prospective clinical studies. Kahn et al. argued that telehealth utilization continues to lag, even with advancements in technology, increasing reimbursement opportunities, and growing interest in the approach. Kahn et al.

stressed that limitations were due to concerns about the absence of the need for telehealth services, lack of appropriate reimbursement policies, lack of access to suitable technology, concerns about securing patient information, and limited knowledge on liability issues. Kahn et al. contended that the benefits of telehealth would likely come from reduced travel times, convenience, and remote consultation. They noted that telehealth would be effective in delivering healthcare in many scenarios. According to Kahn et al., creating supportive legislation would help to facilitate the growth of telehealth.

In examining trends in telehealth, its limitations, and its potential for future adoption, Dorsey and Topol (2016) argued that the primary aim of telehealth is to increase access to healthcare for conditions and populations for which care is otherwise not available. Dorsey and Topol identified some of the factors that are currently shaping telehealth adoption and implementation. The first element is the transformation of the goal of telehealth application from increasing access to health care to providing convenience and eventually reducing cost. Second, Dorsey and Topol discussed the importance of advancements in telehealth for overseeing patients with chronic disease and the focus of telehealth on remote users. The limitations of telehealth stem from reimbursement policies, clinical issues, legal issues, and social factors (Dorsey & Topol, 2016; LeRouge & Garfield, 2013).

In conducting a study on telehealth adoption in Nigeria, Adenuga et al. (2017) noted that developing countries fall short in medical specialists needed to provide care for a growing population. Adenuga et al. delineated the role of telehealth in alleviating the

shortage of skilled physicians in developing countries. Developed countries face similar and other challenges with telehealth adoption (Frank et al., 2015). In the United States, the federal health insurance program reimburses only for telehealth services in locations with a shortage of health physicians (Dorsey & Topol, 2016). Dorsey and Topol noted that some health insurance providers assumed that an increase in telehealth adoption would lead to excessive use of telehealth services. Adenuga et al. emphasized that one of the challenges in developing countries has been determining whether medical specialists are willing to adopt telehealth for care delivery or not. Adenuga et al. emphasized the importance of developing a reward system to motivate medical specialists. O'Shea, Berger, Samra, and Van Durme (2015) noted the advantage of telehealth in increasing access to quality care and reducing geographic barriers.

Some researchers believe that credentialing and state licensure stipulations limit the use and adoption of telehealth (Siddiqui et al., 2017). Dorsey and Topol (2016) noted that an element of the requirements for telehealth is physician licensing in the state in which the patient is located. Patients are deprived of access to their physicians through telehealth if they reside in a different state (Dorsey & Topol, 2016). In a similar approach, Siddiqui et al. (2017) explored the influence of telehealth in clinical care delivery, medical research, and improving access to physicians. Siddiqui et al. argued that advancement in telehealth would require the examination of local licensure requirements, ways to secure patients' information as specified in the Health Insurance Portability and Accountability Act (HIPAA), credentialing and privileging, scope of care, quality of care, and liability in relation to telehealth adoption.

Social factors also account for some of the limitations of telehealth. Dorsey and Topol (2016) noted that older rural dwellers with low incomes and little education are less likely to have access to the technology needed for telehealth. Conversely, younger people who live in a city and have higher incomes may be able to afford the technology needed for telehealth. Correspondingly, Kruse et al. (2016) conducted a systematic review of the literature to evaluate barriers to telehealth adoption. While studies on telehealth have revealed positive results in lowering geographic and time obstacles, Kruse et al. noted that there were still several barriers impeding the spread of the technology. In their study, Kruse et al. identified (a) technology-specific issues, (b) resistance to change, (c) reimbursement, (d) age of patients, and (e) level of education of patients as the key barriers hindering telehealth adoption. Kruse et al. posited that of all barriers, technology-related issues appeared to be the most common issues affecting telehealth adoption. Along similar lines, Dorsey and Topol contended that changes in reimbursement policies, technological advances, investment in telehealth, and social factors would drive the future adoption of telehealth.

Standing et al. (2016) asserted that some other factors were responsible for slowness in telehealth adoption. Analyzing telehealth literature prior to 2015, Standing et al. noted lack of an operating model as the major hindrance to telehealth adoption. They posited that other issues relating to (a) institutional reluctance, (b) patients' resistance, (c) technology and interoperability problems, and (d) poor knowledge management affected telehealth adoption. Standing et al. noted further that (a) lack of a coproduction of health

approach, (b) lack of supportive frameworks and policies, and (c) lack of funding all hindered telehealth adoption.

Current research appears to validate the cost-effectiveness and quality of telehealth services. Acharya and Rai (2016) conducted a cross-sectional study of 71 patients and 51 doctors on problems experienced with telehealth, quality of the service received, and cost-effectiveness. The results indicated that about 90% of the participants attested to the cost-effectiveness of telehealth, while 80% of the patients and all of the doctors revealed satisfaction with the service quality. Acharya and Rai held views similar to Dorsey and Topol's (2016) on the importance of telehealth in providing increased access to healthcare for remote patients. Russo, McCool, and Davies (2016) also maintained that telehealth adoption could reduce healthcare costs. Organizations such as the Infectious Diseases Society of America (IDSA) have endorsed the use of telehealth for providing cost-effective care to populations with limited resources (Siddiqui et al., 2017).

Other researchers have examined the role of telehealth in providing quality of care (e.g., Powell, Henstenburg, Cooper, Hollander, & Rising, 2017; Saigí-Rubió et al., 2016). While the patients surveyed by Powell et al. (2017) expressed overall satisfaction with the telehealth video visits program, they also expressed concerns about privacy and the effectiveness of the telehealth program. Standing et al. (2016) suggested that progress in telehealth adoption would require key stakeholders to address fundamental issues in both research and practice. Standing et al. contended that the use of integrated models for telehealth and efforts to overcome persistent problems and pursue new lines of research

could all create a major positive impact on telehealth implementation and adoption. To address technology-specific barriers, Kruse et al. (2016) proposed developing training programs and educating users on change management. Kruse et al. also suggested that the implementation of a focused policy could help to eliminate some of the barriers hindering telehealth adoption. Telehealth offers great potential for increasing efficiency and access to care, and the acceptance of its modal quality is crucial for its diffusion and adoption.

The Technology Acceptance Model

In a doctoral study, the review of the existing literature is vital for creating a solid foundation and advancing knowledge in the field (Marangunić & Granić, 2015). For the study, I selected the TAM as the conceptual framework. The TAM emerged from the psychological theory of reasoned action (Marangunić & Granić, 2014). Ajzen and Fishbein developed the theory of reasoned action (TRA) in 1975 to demonstrate how individuals' attitudes and subjective norms influence behavior intentions (Alomary & Woollard, 2015). The TRA establishes the connection between the intentions of a person and perceptions, norms, and attitudes (Alomary & Woollard, 2015).

History and advancement of the TAM. In 1986, Davis proposed the TAM as an adaptation of the TRA model (Alomary & Woollard, 2015; Davis, 1989; Marangunić & Granić, 2014; Silva, 2015). Davis later refined the TAM (see Figure 1) to predict and describe technology usage behavior. According to Davis, perceived usefulness and

perceived ease of use are two important factors that lead to users' acceptance or rejection of a technology (Alomary & Woollard, 2015).

Davis (1989) stressed that perceived usefulness involves the level to which a user believes that using a particular technology or system will boost his or her job performance. Perceived ease of use is the level to which a user believes that using a system or technology will be effortless (Alomary & Woollard, 2015). Davis hypothesized that system design characteristics directly influence perceived usefulness and perceived ease of use (Marangunić & Granić, 2015). In Figure 1, X1, X2, and X3 represent system design characteristics.

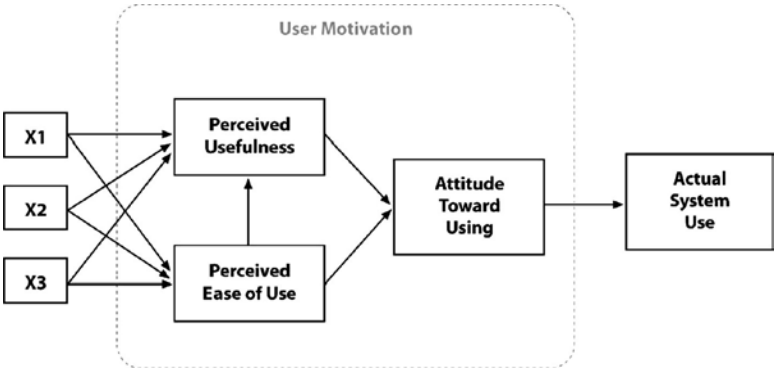

Figure 1. Technology acceptance model. Adapted from "Technology Acceptance Model: A Literature Review From 1986 to 2013," by N. Marangunić & A. Granić, 2014, *Universal Access in the Information Society, 14*, p. 86. Copyright 2014 by Springer Berlin Heidelberg. Adapted with permission.

In 1991, Ajzen developed the theory of planned behavior (TPB) to improve upon the drawbacks of TRA and to identify behavior intention (Alomary & Woollard, 2015; Lai, 2017). Ajzen investigated the elements of attitude, subjective norms, perceived behavioral control and intentions on the actual behavior (Alomary & Woollard, 2015). Taylor and Todd introduced the decomposed theory of planned behavior (decomposed

TPB) in 1995 by connecting the predictors of TPB with the constructs of perceived ease of use and perceived usefulness (Lai, 2017). According to decomposed TPB theory, perceived usefulness (relative advantage), perceived ease of use (complexity), and compatibility affect attitude (Alomary & Woollard, 2015). Peer influence and superior influence affect normative belief, while self-efficacy and facilitating conditions affect the control belief structure (Alomary & Woollard, 2015).

Rogers in 1995 introduced innovation diffusion theory (IDT) by establishing the five determinants of the rate of innovation that impact adoption and acceptance behavior (Alomary & Woollard, 2015; Scott & McGuire, 2017). The five determinants established by Rogers were (a) relative advantage, (b) complexity, (c) trialability, (d) compatibility, and (e) observability. Venkatesh and Davis developed TAM 2 in 2000 to explain why users find a system useful (Lai, 2017). Venkatesh and Davis added social influences and cognitive instrumental processes to the original TAM (Alomary & Woollard, 2015). Venkatesh and Davis created TAM 2 (see Figure 2) to determine the variables that affect the perceived usefulness of a system or technology. These variables are (a) subjective norm, (b) image, (c) job relevance, (d) output quality, and (e) result demonstrability (Alomary & Woollard, 2015). Venkatesh and Davis added experience and voluntariness as controlling factors of the subjective norm (Marangunić & Granić, 2014).

Venkatesh, Morris, Davis, and Davis (2003) later developed the unified theory of acceptance and use of technology (UTAUT). Venkatesh et al. theorized that (a) performance expectancy, (b) effort expectancy, (c) social influence, and (d) facilitating conditions are four predictors of users' behavioral intention. The UTAUT theory

combined the elements of (a) TRA, (b) TAM, (c) the motivational model, (d) TPB, (e) combined TAM-TPB, (f) the model of PC utilization, (g) innovation diffusion theory, and (h) social cognitive theory (Alomary & Woollard, 2015; Venkatesh, 2015). In 2008, Venkatesh and Bala created TAM 3 (see Figure 3) by adding a greater level of importance to perceived ease of use (Alomary & Woollard, 2015). Venkatesh and Bala classified TAM 3 according to individual differences, system characteristics, social influence, and facilitating conditions (Lai, 2017). According to Venkatesh and Bala, TAM 3 has many variables and relationships. Some researchers have criticized TAM 3 due to its large number of variables and relationships (Alomary & Woollard, 2015).

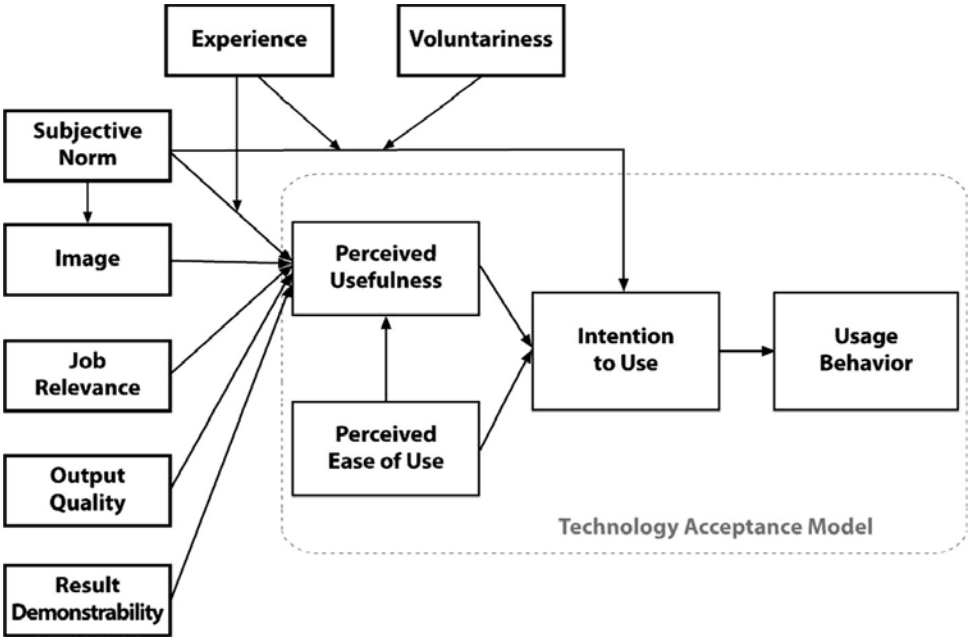

Figure 2. TAM 2. Adapted from "Technology Acceptance Model: A Literature Review From 1986 to 2013," by N. Marangunić & A. Granić, 2014, *Universal Access in the Information Society, 14*, p. 86. Copyright 2014 by Springer Berlin Heidelberg. Adapted with permission.

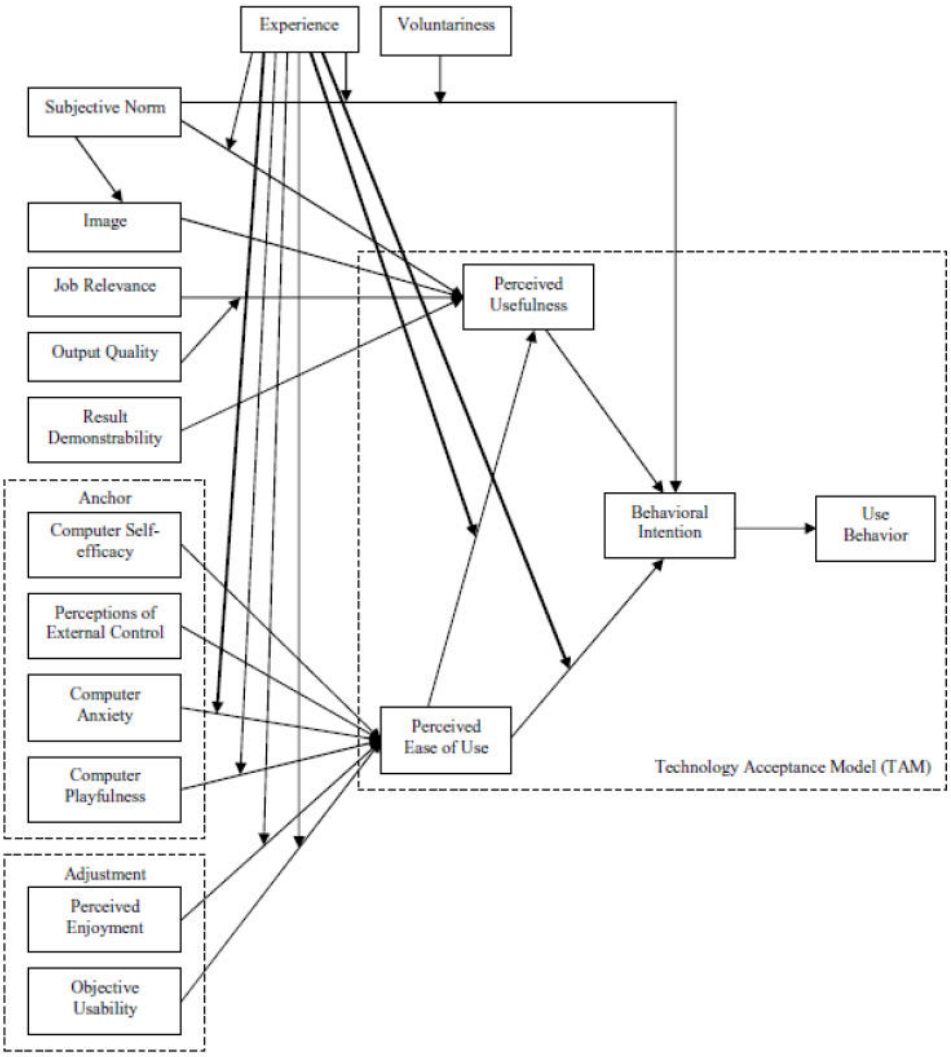

Figure 3. TAM 3. Adapted from "The Literature Review of Technology Adoption Models and Theories for the Novelty Technology," by P. C. Lai, 2017, *Journal of Information Systems and Technology Management*, *14*(1), p. 29.

Application of TAM. According to Ducey and Coovert (2016), TAM is the most widely utilized adoption model in the information technology world. Davis explained that one's belief about the perceived usefulness (PU) and perceived ease of use (PEOU) of technology has great influence on the attitude toward the technology and ultimate adoption (Ducey & Coovert, 2016). Perceived usefulness (PU) refers to the extent to which an individual believes that using a particular technology will boost job performance (Marangunić & Granić, 2014). The perceived ease of use (PEOU) defines the degree to which an individual believes that utilizing a particular technology will be effortless (Marangunić & Granić, 2014). Marangunić and Granić pointed out that factors such as organizational training, device characteristics and support have great influence on PU and PEOU.

Using the health education technology adoption model (HEDTAM), Grover (2015) conducted a study to predict the adoption of video podcast in online health education. Grover found out that perceived ease of use and compatibility had a positive impact on the use of podcast in online Health Education courses. Technology advancement instills information technology quality in business processes. Some researchers have explored TAM from a cultural perspective. In a study by Lee (2016), the researcher examined the effect of culture on technology adoption in the hospitality industry. Lee highlighted the effect of culture on technology adoption and suggested that more research would be ideal to understand the impact of culture on technology adoption.

The vast amount of studies in the TAM accentuate the popularity of the model (Marangunić & Granić, 2014). The original TAM constructs are appropriate for

interpreting the usability of a broad range of applications and technologies (Alomary & Woollard, 2015). The role of the TAM in understanding the predictors of human behavior toward the use of technology would be key to deciphering the acceptance or rejection of telehealth.

Jokonya (2015) examined TAM's two variables (perceived usefulness and perceived ease of use) when adopting IT in organizations. Jokonya suggested that TAM might be beneficial during IT adoption in organizations. In a study of mobile payments adoption by U.S. consumers, Bailey et al. (2017) contended that TAM has a known reputation and that researchers have used TAM to describe innovative technology adoption. In the research, Bailey et al. noted that PU and PEOU influenced attitudinal and intentional outcomes of consumers toward mobile payments in the United States. The findings suggested the robustness of TAM in describing consumer adoption of various technological advancements.

Researchers like Park and Kim (2014) have used the TAM framework to explore user acceptance of mobile technologies. Park and Kim used TAM to examine the factors contributing to user perceptions of mobile technologies and the attitude of users toward mobile computing. Telehealth services include a variety of mobile devices for providing healthcare services to remote users. While there is a rapid growth in the use of mobile devices, only a few researchers have evaluated users' perceptions regarding mobile cloud computing. The results from Park and Kim's study indicated that perceived mobility, security, quality of service, connectedness, and satisfaction influenced user acceptance of

mobile cloud services. Park and Kim argued that perceived connectedness and perceived security were influential precursors of attitude toward mobile cloud computing services.

In a study of the pediatric intensive care unit nurses' perceptions, acceptance, and use of health IT, Holden, Asan, Wozniak, Flynn, and Scanlon (2016) argued that the value of health information technology (IT) depends on end users accepting and appropriately using it for patient care. Holden et al. (2016) used the expanded technology acceptance model (TAM) to survey 167 nurses on the use of health information technology. Holden et al. (2016) tested the adaptive TAM approach by adding new constructs specifically for the healthcare environment. Holden et al. (2016) added (a) learnability and navigability to the traditional measures of perceived ease of use, (b) perceived usefulness for the patient, (c) perceived usefulness for care delivery, (d) social influence, and (e) perceived training on the system. In their findings, Holden et al. (2016) demonstrated that the overall system satisfaction largely depended on the perceived ease of use, the usefulness for patient/family involvement, and the usefulness for care delivery. Holden et al. (2016) also noted that the intention to use the system influenced the perceived usefulness for care delivery.

The use of smart technology products for care delivery could help improve the quality of life for older people (Dorsey & Topol, 2016; Golant, 2017; Solaimani, Keijzer-Broers, & Bouwman, 2015; Totten et al., 2016). Some researchers have used the constructs of the technology acceptance model to investigate the factors influencing the acceptance of smart technologies (Golant, 2017). In an effort to examine the smart technology adoption behaviors of older adults, Golant developed a theoretical model to

describe the factors influencing smart technology adoption by older people. Golant established the constructs and relationships from extensive literature reviews on factors affecting the acceptance of smart technologies. One of Golant's primary goals was to investigate whether older adults would adopt new technologies in place of the traditional solutions that depended on low technology related products for care assistance. Golant theorized that older people tend to have positive views of smart technologies when they experienced stress because of unmet needs with their traditional solutions or approaches. Golant proposed that perceived efficaciousness, perceived usability, and perceived collateral damages were attributes that would influence the way older people adopt smart technology products.

The ultimate success of telehealth depends on its acceptance by users. Chun-Hua and Kai-Yu (2015) conducted a study on the use of mobile healthcare devices by older adults in Taiwan. Emerging technologies play a crucial role in care delivery (Cjaza, 2016). Chun-Hua and Kai-Yu proposed the mobile healthcare technology acceptance model (MHTAM) and developed a theoretical and empirical evaluation of the use of mobile healthcare devices that encompassed sociological, technological, and individual variables. The result from Chun-Hua and Kai-Yu's study validated the need to include perceived ubiquity, personal health knowledge, and perceived need for healthcare in the technology acceptance model.

Chun-Hua and Kai-Yu (2015) emphasized that the MHTAM furnished researchers and practitioners with a framework to incorporate the use of new mobile healthcare technology devices in the TAM model. The model captured the influence of

individual and the society in the adoption of mobile healthcare technologies. By using the model, Chun-Hua and Kai-Yu also demonstrated how factors like radio-frequency identification (RFID) healthcare watches or GPS wristwatches influence the elderly's adoption of mobile healthcare devices.

Organizational leaders often use teleconferencing as one of the technologies to reduce operating costs and time (Berkhof, van den Berg, Uil, & Kerstjens, 2015). Using the technology acceptance model as the framework, Park, Rhoads, Hou, and Lee (2014) examined the factors influencing employee's acceptance and the use of teleconferencing applications for work-related communication. By surveying 155 working professionals, Park et al. confirmed the main concepts of the TAM framework. Park et al. established the relationship between the perceived ease of use (PEOU), perceived usefulness (PU), and actual use of the systems on some individual and institutional factors like anxiety, self-efficacy, and institutional support.

Telehealth Adoption Framework

Healthcare organizations lag behind other industries in technology adoption (Adenuga et al., 2017; Kahn et al., 2016). Telehealth leaders like other technology leaders in healthcare, face implementation and adoption challenges. De Almeida, Silva Farias, and Sampaio Carvalho (2017) proposed a framework for examining the adoption and diffusion of information and communication technology (ICT) in the healthcare industry. De Almeida et al. developed their framework from the innovation-decision process, explaining the drivers of the diffusion of ICT from the organizational and individual points of view.

While telehealth offers great opportunities to increase healthcare quality and access, healthcare leaders would need to review the implementation process to achieve a high success rate (Van Dyk, 2014). By comparing existing telehealth frameworks, Van Dyk (2014) noted that a holistic implementation strategy could help reduce the failure rate of telehealth implementation. According to Van Dyk, the intimately interconnected components of telehealth includes (a) organizational structure, (b) perceptions, (c) change management, (d) economic feasibility, (e) technology, (f) legislation, (g) impact on the society, (h) user-friendliness, (i) policy, and (j) governance. Van Dyk suggested that by developing best practices on implementation strategies, researchers would be able to understand the role of telehealth in addressing diverse problems in modern healthcare.

Dinesen et al. (2016) proposed the development of a broad multinational approach that would help create a uniform framework for establishing and reinforcing best practices within telehealth for personalized care, treatment, and prevention of diseases. Dinesen et al. posited that items that support system transformation, such as ensuring accuracy, efficiency, and timely monitoring of health parameters, would be necessary for integrating telehealth into global health systems. According to Dinesen et al., a crucial part of telehealth is the patient-generated data. Dinesen et al. pointed out that extensive changes would be necessary to safeguard accurate, efficient, and timely monitoring of health parameters that are crucial for guiding clinical decision-making.

The healthcare industry continues to evolve in the use of technology (Dicianno et al., 2015). De Almeida et al. (2017) argued that organizational and individual perspectives are important factors to consider when investigating the drivers of

technology adoption in the healthcare industry. De Almeida et al. interviewed 13 managers of a Brazilian hospital that was in the process of adopting a new prescription module. De Almeida et al. theorized that eight organizational drivers have great influence on technology adoption. The eight organizational drivers suggested by de Almeida et al. are (a) the available drivers of resources, (b) the need to solve a problem, (c) innovative technologies, (d) IT resources available within the system, (e) level of demand of the patient, (f) norms of the social systems, (g) organizational leadership and (h) previous practices influencing the module adoption process.

Other researchers (e.g., Colicchio et al., 2016) have examined other variables or constructs affecting technology adoption in the healthcare industry. Colicchio et al. conducted a study to understand and classify the constructs commonly employed in the healthcare industry to measure the impact of information technology on care delivery. Colicchio et al.'s classification of commonly used outcome constructs centered on quality of care, productivity, and patient safety. Colicchio et al. noted that the goal of researchers evaluating the quality of care varied with respect to the examined settings.

Although Colicchio et al.'s (2016) study focused on electronic health record (EHR) adoption, the approach used by Colicchio et al. applies to any health information technology (HIT) adoption. Colicchio et al., like other researchers (Acharya & Rai, 2016; Dorsey & Topol, 2016; Powell et al., 2017), noted the benefits of health IT applications in decreasing the cost of healthcare. According to Colicchio et al., HIT applications possess the capabilities to enhance healthcare outcomes and decrease the cost of healthcare. Colicchio et al. also stressed that by providing financial incentives to

participants, the U.S. government has been able to increase IT adoption in the healthcare industry. Colicchio et al.'s study provided a classification of commonly used constructs that could help researchers in selecting appropriate constructs for future studies. Colicchio et al. argued that a more vigorous and standardized measurement system would be essential to understanding the impact of IT adoption in healthcare settings.

Understanding the drivers of technology in healthcare would allow healthcare leaders to develop the appropriate strategies to enhance the implementation and adoption processes of telehealth. Creating a standard telehealth framework would facilitate the implementation and adoption of telehealth. Effective implementation of telehealth strategies would allow healthcare providers to increase efficiency, reduce healthcare operation costs, and expand healthcare quality through improved processes. It would also provide remote patients with timely access to the much-desired healthcare services.

Telehealth Implementation Challenges

While telehealth has offered hopes in bringing care closer to those who may have difficulty accessing it, there are still some challenges with its implementation and adoption. The early work in telehealth focused primarily on the quality of the technology or organizational issues leading to the assessment of other areas in preference to the more important health impact (Maeder & Poultney, 2016). Previous telehealth evaluations also centered on (a) costs and resources, (b) organizational and social areas, and (c) clinical benefits rather than detailed coverage (Maeder & Poultney, 2016). A holistic view of telehealth is necessary to address the implementation challenges.

By surveying contributions in the literature, Maeder and Poultney (2016) appraised the generic approach to evaluating telehealth by healthcare leaders. Maeder and Poultney identified the limitations of existing approaches by noting that typical telehealth evaluations focused on costs, resources, organizational aspects, social aspects, and clinical benefits. Due to the lack of comprehensive coverage, Maeder and Poultney suggested the adoption of a framework-based strategy that would combine evaluation procedures for different areas of implementation in a hybrid structure. Maeder and Poultney also proposed developing a holistic approach that integrates the various elements of evaluation to create a good understanding of the overall system of interest.

Dinesen et al. (2016) described the challenges of advancing telehealth implementation and adoption. By using evidence from the United States and the European Union, Dinesen et al. delineated the global overview of the current state of telehealth. Dinesen et al. suggested a global research program for personalized telehealth when managing patients with chronic diseases. Dinesen et al. proposed reviewing the fundamental principles relating to (a) reimbursement policies, (b) telehealth definition, (c) cost-benefit analysis to advance telehealth, (d) and licensing and jurisdiction. Dinesen et al. (2016) suggested that standardizing on a common nomenclature for the definition of telehealth would be of great advantage to advance the use of telehealth and address the emerging demands for health services. In addition, the potential to provide health care and remotely monitor patients by using telehealth have expanded access to quality care for the less privileged. However, most of the policies governing the practice of medicine,

licensing, and jurisdictional issues are determined at the state level, causing significant limitations in the geographic coverage of patients.

Dorsey and Topol (2016), Kahn et al. (2016), and Kruse et al. (2016) accentuated the importance of establishing good reimbursement policies when driving telehealth adoption in developed countries. In a study of telehealth implementation in Nigeria, Adenuga et al. (2017) established that a large percentage of the physicians in Nigeria perceived telehealth as an added responsibility. This notion triggered the development of resistance towards its adoption. Dinesen et al. (2016) highlighted the inconsistencies in the reimbursement of telehealth services as one of the main challenges of telehealth implementation. Defining health care policies at the state level prompted the development of wide varieties of reimbursement terms and policies, with no two states offering the same policies. Dinesen et al. suggested that refining the policies governing the practice of medicine, licensing, and jurisdictional issues would facilitate (a) the creation of parity for telehealth, (b) promote the use of telehealth as a tool to advance healthcare delivery, and (c) encourage the use of telehealth in new models of care and systems improvements.

Dinesen et al. (2016) noted that the rapid growth of telehealth would force the traditional state licensing bodies to review their laws and policies to allow telehealth practices across borderlines. Consistent reimbursement policies would help identify the telehealth services that qualify for reimbursement by public and private payers and the requirements for the reimbursement. Dinesen et al. stressed the need for flexibility and fewer restrictions in the policies to promote the use of telehealth. Dinesen et al. also highlighted the inadequate research in the cost-benefit analysis of previous telehealth

initiatives and suggested that an in-depth analysis of cost savings, efficiency, and effectiveness of telehealth implementation would have a positive impact on the adoption and growth of telehealth. Perdew, Erickson, and Litke (2017) discussed the challenges and complexity in scheduling video appointments for initial visits and the demand for more documentation for video visits. Perdew et al. argued that clinical video telehealth is an innovative approach that offers new opportunities to enhance patient, provider, and clinical access to clinical pharmacy services in remote areas.

While telehealth offers great opportunities to improve healthcare services, it is crucial to develop a comprehensive approach to address the implementation of the technology and bring together the different components, such as health domains, healthcare services, delivery strategies, communication infrastructure, socioeconomic analysis, and environment setting. By developing telehealth standards and creating a common framework for the implementation of the service, healthcare leaders would be able to accelerate and promote the adoption process and help advance the use of telehealth. To promote telehealth initiatives, healthcare leaders would need to address the challenges relating to the technological environment, organizational environment, human environment, and economic environment.

Telehealth Implementation Benefits

Recent studies have provided ample support on the benefits of telehealth. By conducting in-depth qualitative interviews, Powell et al. (2017) explored patients' experiences with telehealth video visits performed by primary care physicians. Powell et al. noted that all the patients expressed overall satisfaction with the telehealth video visits

program. The patients pinpointed convenience, cost savings, efficiency, comfort, and privacy as the most critical factors that affected their evaluation of telehealth video visits. Powell et al.'s conclusions aligned with the view of Kahn et al. (2016) and Siddiqui et al. (2017) that decreased cost and improved efficiency were two important factors driving telehealth adoption. Powell et al. suggested that primary care video visits were ideal for a variety of scenarios where the patients valued convenience, privacy, comfort, and efficiency.

Russo et al. (2016) reported that the Veterans Affairs (VA) healthcare system in Vermont saved 3.5% of the total travel pay disbursement by implementing telehealth. The VA reimbursed qualifying patients for traveling to medical appointments (Russo et al., 2016). Russo et al. analyzed 5,695 visits relating to telehealth and calculated the travel distance and time saved by the patients and the physicians. Russo et al. asserted that the telehealth initiatives resulted in an average travel savings of 145 miles and 142 minutes per visit.

Using a framework-based evaluation of telehealth provides an extensive holistic approach to integrate the different elements and understand the components of overall telehealth system (Maeder & Poultney, 2016). Maeder and Poultney's telehealth framework provided an organized collection of evaluation variables associated with different evaluation objectives and flexibility of options for an evaluator to select. Dinesen et al. (2016) noted that telehealth provides the advantage of delivering care that is accessible, convenient, and patient-centered, addressing many of the impediments inherent in traditional health care delivery systems. Perdew et al. (2017) and Russo et al.

(2016) also identified telehealth technology as a cost-effective approach by elaborating on how the Veteran Affairs (VA) healthcare system was able to minimize travel costs for both the veterans and the system. Perdew et al. stressed further that telehealth provides timely access to quality healthcare at a lower cost. Perdew et al. also posited that the telehealth program allowed clinical pharmacy specialists to manage chronic disease states and offer real-time support from a remote location.

Telehealth promotes access to quality healthcare services irrespective of the geographical location. By using telehealth, healthcare providers can monitor remote patients that are at risk thereby preventing complications. The cost-effectiveness of the approach has opened new opportunities in the industry for healthcare leaders looking to increase productivity, interoperability, performance and at the same time save costs.

The Role of Telehealth in Enhancing Healthcare Services in Rural Areas

The shortage of skilled caregiver teams in rural areas has made providing quality care for patients in rural areas challenging. Healthcare organizations often do not have the resources needed to have a team of healthcare professionals at rural sites (Nye, 2017). Healthcare providers are bridging these gaps by implementing Telehealth systems. Telehealth has made it possible for physicians and other healthcare professionals to attend to remote patients in rural health care practices by utilizing remote electronic communications (Nye, 2017).

Bradford, Caffery, and Smith (2015) conducted semistructured interviews to describe the awareness, experiences, and perceptions of telehealth in an Australian rural community. Bradford et al. noted that while telehealth offers alternative approaches for

improving healthcare outcomes in rural areas, a greater level of awareness and understanding of the potential advantages of telehealth is crucial to realize the full potential. Bradford et al. also highlighted the significance of community awareness and perceptions in driving change across the healthcare system. Nelson (2017) echoed the importance of awareness in the adoption of telehealth. Nelson also noted that the use of telehealth systems was not widespread, even at healthcare systems that offered them. According to Nelson, Telehealth has the potential to increase healthcare access and lessen the disparities that exist between rural and urban health systems.

Early researchers have examined the use of telecommunication technologies to improve the quality of healthcare services and increase access to rural areas (Kruse, Bouffard, Dougherty, & Parro, 2016). In a review of the use of telemedicine in Native American communities living in rural areas, Kruse et al. noted the challenges they face when accessing healthcare services. Kruse et al. emphasized that telehealth has the potential to expand access to healthcare services for Native Americans without incurring high costs. Kruse et al. pointed out the importance of innovative solutions like telehealth in improving the quality of healthcare services for disparate groups. Kruse et al. noted further that the innovative approach should encompass changes in reimbursement, portable systems, education services for patients and providers, technological infrastructure, and a model of care that is culturally competent.

Ishfaq and Raja (2015) delineated the importance of balancing healthcare access and sustaining operational efficiency in rural healthcare systems. Ishfaq and Raja proposed a strategic planning model that would include different operational and service

components applicable to the rural telehealth healthcare system. In their findings, Ishfaq and Raja noted that telehealth could effectively improve the delivery of healthcare services in rural areas. Ishfaq and Raja also noted the economic importance of operating more small-service telehealth units as opposed to large units. Ishfaq and Raja highlighted that federal guidelines and policies on health center location affect each area differently.

Healthcare providers struggle with providing quality mental health treatment for rural populations (Naslund et al., 2017). This is largely due to issues stemming from (a) high poverty rate, (b) insurance coverage, (c) poor health, and (d) funding for mental health programs (Gonzalez & Brossart, 2015). Gonzalez and Brossart noted the effectiveness of telehealth as a treatment modality for rural patients with complicated mental health issues. By using single-case and group research methods, Gonzalez and Brossart theorized that telehealth videoconferencing psychotherapy produced significant positive results on all mental health outcomes. Gonzalez and Brossart's study illustrated the impact of telehealth on improving mental health care access to rural populations and highlighted the importance of developing a partnership to facilitate healthcare delivery.

Cost and Technology Issues with Telehealth

While telehealth offers great potential to provide cost-effective and quality healthcare solutions, some researchers believe that the implementation cost associated with telehealth is one of the main barriers affecting its adoption (Mohr, Burns, Schueller, Clarke, & Klinkman, 2013; Molfenter, Boyle, Holloway, & Zwick, 2015; Murray, Ross, Stevenson, Lau, & Murray, 2015; Reid, Levine, Reid, Richardson, & Granieri, 2014; Sinclair, Holloway, Riley, & Auret, 2013). In a study of the barriers affecting the

adoption of telehealth, Kruse et al. (2016) observed that the impediment caused by cost and reimbursement of telehealth accounted for about 13% of the barriers studied. States, counties, and health care providers often face tremendous challenges with financing telehealth implementation (Molfenter et al., 2015). Creating strategic alignment between stakeholders in the telehealth projects and developing the financial resources to pay for start-up costs of telehealth could facilitate the implementation process (Molfenter et al., 2015; Saigí-Rubió et al., 2016).

Due to the unpredictable nature of costs associated with some innovative technologies, risk-averse healthcare organizations are often reluctant to embrace innovations like telehealth. Murray et al. (2015) noted that the costs associated with electronic health implementation often soar due to unforeseen expenses. The perceived barriers to telehealth implementation include cost, liability issues, and lack of experience with using the technologies among patients and clinicians (Reid et al., 2014). Saigí-Rubió et al. (2016) emphasized the high initial costs in technology and training associated with the implementation of telehealth services. Saigí-Rubió et al. advised that policymakers need to take the costs into account during the initial development stages of the telehealth service. Saigí-Rubió et al. stressed further that it would be pertinent to document actual evidence for the efficiency of the telehealth service. This would enable policymakers to make informed decisions regarding resource use and allocation.

Issues relating to technological infrastructure and skills impact the implementation and adoption of telehealth. (Molfenter et al., 2015; Petersen, & DeMuro, 2015; Reid et al., 2014; Saigí-Rubió et al., 2016; Scharwz, Willcock, & Ward, 2014).

Saigí-Rubió et al. (2016) elaborated that (a) the lack of technological infrastructure and skills, (b) poor technological coverage, (c) data security, (d) compatibility issues, and (e) complexity in the use of existing technologies, are obstacles to telehealth adoption. Interoperability issues between systems and structural boundaries are some other factors impeding the use of systems designed for telehealth (Robinson et al., 2011; Scharwz et al., 2014).

Reimbursement and Licensure Issues With Telehealth

The effective implementation of telehealth could help decrease healthcare costs, increase access and improve the quality of care (Kim & Falcone, 2017). As telehealth continues to evolve, healthcare policymakers would need to address issues relating to reimbursement policies and licensing in order to deliver sustainable quality care (Adler-Milstein et al., 2014). According to a national survey conducted by the American Academy of Family Physicians (AAFP), 15% of the responding family physicians reported using telehealth (Moore, Coffman, Petterson, Jetty, & Bazemore, 2016). About 78% of the physicians agreed on the benefits of telehealth in improving access to care, while 68% noted the role of telehealth in the continuity of care (Moore et al., 2016). About 54% of the respondents specified the lack of training is a barrier to telehealth implementation, while 53% believed the lack of reimbursement is a factor hindering telehealth implementation. About 45% of the respondent attributed the cost of equipment is a barrier to telehealth; 41% noted the potential liability issues is a barrier.

Care providers use technological innovations such as telehealth to provide healthcare services to remote patients and patients in need of constants monitoring.

Knowing the states' policies and licensure requirements governing telehealth is important for caregivers and insurance coverage (Polinski et al., 2016). In 2015, statistics indicated that 47 states were allowing Medicaid insurance to offer financial reimbursement for telehealth services (Duncan, 2013; Fatehi, Martin-Khan, Smith, Russell, & Gray, 2015). The laws and policies governing telehealth are different in each state (Okoroh, Kroelinger, Smith, Goodman, & Barfield, 2016). In some states, clinical services are the only services categorized as telehealth and services such as phone, email, and fax are not considered as part of telehealth (Okoroh et al., 2016).

Dorsey and Topol (2016), Kahn et al. (2016), and Kruse et al. (2016) stressed the importance of developing good reimbursement policies when implementing telehealth. According to Dinesen et al. (2016), one of the main challenges of telehealth implementation is the inconsistencies in the reimbursement of telehealth service. Moore et al., (2016) highlighted the role of telehealth in improving patient access, facilitating continuity of care, and improving health outcomes through remote monitoring of patients. Moore et al. emphasized that many of the obstacles hindering the wider adoption of telehealth could be addressed by policy changes. To improve the adoption of telehealth, Moore et al. stressed the importance of offering training opportunities in the use of telehealth services. Other adoption strategies noted by Moore et al. include increasing awareness of the reimbursement policies for services offered through telehealth and developing new approaches to reimburse telehealth services.

Antoniotti, Drude, and Rowe (2014) studied telehealth reimbursement policies in the United States. Antoniotti et al. noted that there is little information available about the

experience of telehealth providers with reimbursement from private insurance payers. Antoniotti et al. argued that government payers and other key players in the industry have a substantial impact on the payment guidelines for private payers. Antoniotti et al. expressed further that the reimbursement policies and procedures practiced by the private insurance payers were barriers to services and reimbursement of telehealth. Antoniotti et al. suggested that increasing awareness and providing accurate information about billing and coding policies for telehealth services would promote the use of telehealth. The federal health insurance policies relating to telehealth remain crucial in the reimbursement of private payers. While there is considerable progress, telehealth reimbursement is still not ubiquitous (Cason, 2014).

Problems developing from the lack of effective reimbursement policies are some of the main issues affecting telehealth adoption. The absence of structured incentive programs for care providers has a negative effect on the development and progress of telehealth. To realize the desired profitability, increase healthcare access and improve the quality of care, healthcare providers would need to design and implement reimbursement policies that would enhance telehealth advancement.

Improving Patient Satisfaction Through Telehealth

Customer satisfaction plays an important role in the profitability of an organization. The introduction of value-based care highlights the importance of a patient-centered approach to health care. According to the Centers for Medicare and Medicaid Services (2017), the value-based approach offers (a) better care for individuals, (b) better health for populations, and (c) lower cost. More importantly, leaders in the healthcare

sector often use patient satisfaction as a crucial indicator of the acceptance of a new system or technology and how well it meets patients' expectations.

In a study of telehealth and patient satisfaction, Kruse et al. (2017) noted that (a) improved outcomes, (b) preferred modality, (c) ease of use, (d) low cost, (e) improved communication, and (f) decreased travel time were the main factors relating to the effectiveness and efficiency of telehealth. The use of videoconferencing technologies for clinical yoga by the United States Veterans Affairs population provided comparable satisfaction and health improvement for the participants (Schulz-Heik et al., 2017). In a multicenter feasibility study by Bradbury et al. (2016), the researchers noted the significance of the use of videoconferencing in improving access to cancer genetic services. The participants reported in the study expressed satisfaction and acknowledged that their knowledge increased significantly with the use of video conferencing.

Researchers have investigated the benefits of video technologies in care delivery (Bradbury et al., 2016; Dias, Limongi, Barbosa, & Hsing, 2016; Mortazavi et al., 2015; Müller, Alstadhaug, & Bekkelund, 2016). In a comparative study of video and traditional consultations, the patients surveyed indicated a high level of satisfaction in the use of video for the treatment of non-acute headaches (Müller et al., 2016). Dias et al. (2016) established the effectiveness of telehealth and voice telerehabilitation in the treatment of Parkinson's disease. The patients studied demonstrated satisfaction and preference for telehealth intervention (Dias et al., 2016). In a study of the effect of physical therapy delivery via home video telerehabilitation on functional and health-related quality of life

outcomes, Hoaas, Andreassen, Lien, Hjalmarsen, and Zanaboni (2016) noted the effectiveness of telehealth in increasing health benefits, emotional safety, and motivation.

Patients and physicians have reported the effectiveness of telehealth and related technologies in various applications and settings (AlAzab & Khader, 2016; Iqbal et al., 2016; Jacobs, Ekkelboom, Jacobs, Van Der Molen, & Sanderman, 2016; Langabeer et al., 2016). AlAzab and Khader (2016) highlighted the use of telenephrology application for monitoring remote patients and the significant positive impact it had on the quality of life of the patients. Iqbal et al. (2016) indicated the cost-effectiveness of telehealth technologies in reducing readmission after ileostomy creation. In the teleradiology service, Jacobs et al. (2016) noted that patients with no history of trauma and the elderly patients asserted a great level of satisfaction with teleconsultation. Langabeer et al. (2016) demonstrated the efficacy of telehealth in reducing ambulance transport and decreasing response time for the intervention group.

Patients see improvement in treatment options and medical outcomes with the use of telehealth (Levy et al., 2015; Polinski et al., 2016). Polinski et al. (2016) conducted a study on patients' satisfaction with and preference for telehealth visits. The researchers noted that about 33% of the patients favored telehealth visits over the traditional approach because of the ease of access to care. Levy et al. (2015) assessed the effect of physical therapy deliver using telehealth technologies. Levy et al. stressed that most of the patients studied asserted improved outcomes with telehealth technologies.

Previous research indicated that patients value the convenience provided by telehealth technologies (Moin et al., 2015; Tabak, Brusse-Keizer, Van Der Valk,

Hermens, & Vollenbroek-Hutten, 2014). Moin et al. (2015) conducted a qualitative study to examine the experience of some veteran women with a web-based diabetes prevention program. The researchers revealed that the participants acknowledged the convenience and sense of empowerment they enjoyed with telehealth. In a pilot study of a telehealth program for self-management of chronic obstructive pulmonary disease, Tabak et al. (2014) revealed that the participants in the control group were more satisfied than the participant in the telehealth group.

Kim et al. (2014) and Cancela et al. (2014) analyzed the effectiveness of telehealth in multidisciplinary patient care. The patients surveyed by Kim et al. acknowledged the ease of use and convenience provided through telehealth. In an evaluation of the patients and professional user experiences of simple telehealth for hypertension, medication reminders, and smoking cessation, Cottrell, Cox, O'Connell, and Chambers (2015) elaborated that the patients felt empowered by the telehealth applications. Cancela et al. highlighted the effectiveness of the wearable system for remote monitoring of patients with Parkinson’s disease.

In a review of the telehealth programs for older Taiwanese people, Tsai, Kuo, and Uei (2014) noted that the participants were highly satisfied with the effectiveness of telehealth. In a study conducted by Oliveira, Bayer, Gonçalves, and Barlow (2014), the researchers emphasized the positive impact of telehealth on patient experience. The researcher noted a significant improvement in the average time for telehealth consultation and the cost-effectiveness of the program. Minatodani, Chao, and Berman (2013) reviewed the facilitators and barriers to home telehealth. According to the researchers, the

patients were satisfied with the self-efficacy and motivation to make behavioral adjustments through telehealth. Kruse et al. (2017) conducted a systematic review of telehealth and patient satisfaction. In their conclusions, Kruse et al. stated that telehealth provides (a) improved outcomes, (b) ease of use, (c) low cost, (d) improved quality, (e) increased self-awareness, (f) improved communication, (g) reduced travel time, (h) decrease wait time, (i) fewer missed appointments, and (j) decreased readmissions.

The primary goal of this study is to explore the telehealth implementation strategies used by healthcare leaders in Indiana to improve profitability. I will examine the result of the study through the lens of the technology acceptance model with the aim of understanding the factors that could lead to the successful implementation of telehealth. Issues relating to (a) legal, (b) financial, (c) technology, (d) regulatory, (e) human resources, and (f) security have hindered the implementation and growth of telehealth (LeRouge & Garfield, 2013; Saigí-Rubió et al., 2016). Using the technology acceptance model would enable the researcher to understand the factors influencing the perceived usefulness and the perceived ease of use of telehealth.

Transition

In this study, my aim was to explore the strategies healthcare providers use to implement telehealth to increase profitability. In Section 1, I discussed (a) the background of the problem, (b) the problem statement, (c) the purpose of the study, (d) the nature of the study, (e) the research question, and (f) the interview questions. Additionally, I discussed the (a) assumptions, (b) limitations, (c) delimitations, (d) conceptual framework, (e) operational definitions, and (f) significance of the study.

Section 1 also included the review of professional and academic literature consisting of (a) the trend in telehealth, (b) telehealth implementation challenges, (c) telehealth implementation benefits, (d) the role of telehealth in enhancing healthcare services in rural areas, (e) telehealth adoption framework, (f) the technology acceptance model, (g) cost and technology issues with telehealth, (h) reimbursement and licensure issues with telehealth, and (i) improving patient satisfaction through telehealth.

One of the approaches that healthcare providers use to increase profitability is by increasing the quality and accessibility of healthcare services. My review of the relevant literature included peer-reviewed journal articles relating to the topic of the strategies that healthcare providers have used to implement telehealth to increase profit. Understanding telehealth implementation through the lens of the technology acceptance model could provide answers to questions relating to telehealth implementation and adoption challenges discussed in this study.

In Section 2, I discuss the purpose of the study, my role as the researcher, the methodology and design, and the population and sampling strategy used. The research method discussion include an explanation for selecting the research and design methods. Section 2 also includes the data collection techniques, ethical considerations in research, and validity and reliability in research. Section 3 of this study contains (a) presentation of the findings, (b) professional applications, (c) implications for social change, (d) recommendations and further studies, and (e) my reflections, and (f) conclusion.

Section 2: The Project

Section 1 included a review of the professional and academic literature that provided the background and the rationale behind the selection of the business problem. The purpose of this study was to explore the strategies that healthcare leaders in the Midwestern United States used to implement telehealth to boost profit and improve performance. In this section, I reiterate the purpose statement, discuss my role as the researcher, and state the requirements for selecting the participants. This section also contains descriptions of techniques for collecting and analyzing research data and the process for ensuring reliability and validity in the study.

Purpose Statement

The purpose of this qualitative single case study was to explore strategies that healthcare providers use to implement telehealth to increase profitability. The targeted population consisted of four healthcare leaders in one organization in the Midwestern United States who had successfully implemented telehealth. The implications for positive social change include the potential to provide healthcare leaders with strategies to deliver outstanding healthcare at lower costs while increasing healthcare access and thereby improving health outcomes.

Role of the Researcher

In a qualitative research study, the primary role of the researcher is to collect, analyze, and organize data (Leedy & Ormrod, 2013). As a video architect with over 10 years of experience in the healthcare industry, I have a solid understanding of the role of information technology in healthcare and progress in the implementation of telemedicine

and telehealth. A researcher with knowledge about the research topic is able to enrich the content of a study. Through observations, interviews, and review of documents, a researcher strives to establish the construct validity, internal validity, external validity, and reliability of the research data (Yin, 2017). I used an exploratory single case study approach to glean and obtain information through semistructured interviews. The single case design is desirable when dealing with critical, unusual, common, revelatory, or longitudinal cases (Yin, 2017).

When conducting research, a researcher needs to maintain ethical standards. As the researcher, I abided by the ethics of research as discussed in the Belmont Report (1979). The Belmont Report outlines basic ethical principles relevant to research involving human subjects. These principles include (a) respect for persons, (b) beneficence, and (c) justice. The principle of respect for persons involves the moral requirement to recognize autonomy and the moral requirement to secure those with reduced autonomy. Beneficence relates to the act of treating people in an ethical manner by striving to secure their well-being and respecting their decisions. Justice relates to treating others equally and being fair in distribution of burdens and benefits. In all situations, a researcher must respect the values and decisions of participants and must avoid causing harm to participants (Flick, 2014; Murphy & Dingwall, 2007). I used the 2015-2016 Baldrige performance excellence framework for developing the interview questions and as a standard for questioning the research participants. For maintaining consistency during the interview process, researchers employ interview protocols (Castillo-Montoya, 2016). The use of an interview protocol also serves as a way to avoid

bias and to guarantee that the same interview process is observed for all participants (Fredricks et al., 2016).

Researchers must recognize personal views and avoid research bias in data analysis. Using research to promote a preconceived idea will negate the value of a study (Yin, 2014). A test of possible bias is the degree to which the researcher is open to contrary evidence (Marshall & Rossman, 2016; Yin, 2017). Member checking is one of the methods often employed in research to strengthen the credibility and transferability of a study (Harvey, 2015). The approach allows a researcher to validate responses by sharing the findings with participants. I maintained the credibility and transferability of the information collected from the participants through member checking. By listening attentively to the participants and abiding by the basic ethical principles relevant to the ethics of research involving human subjects, I was able to gain a better understanding of the issue being studied.

Participants

For the purpose of this study, the eligibility criteria were first that the participants needed to be healthcare leaders from an organization in the Midwestern United States who had successfully implemented telehealth. The targeted population consisted of four healthcare managers and directors with knowledge and experience in telehealth implementation and adoption. I used purposeful sampling to extract data for analysis in this study. In a qualitative study, the size or amount of the data collected does not represent the quality of the study (Bagnasco, Ghirotto, & Sasso, 2014). A qualitative researcher strives to improve the reliability and validity of a study by sampling

participants based on their knowledge and experience relating to the phenomenon of interest (Bagnasco et al., 2014). Palinkas et al. (2015) noted that qualitative researchers use purposeful sampling for identifying and selecting information-rich instances relating to the phenomenon.

To gain access to the participants, I searched online portals such as organizations' websites, social media portals, and other healthcare directories to get information on telehealth providers in Indiana. I contacted the American Telemedicine Association to identify current telehealth services providers in Indiana. The Walden University Institutional Review Board (IRB) requires each participant to sign a consent form prior to commencing a study. I provided a consent form to the participants to state the voluntary nature of the study, confidentiality information, and risks and benefits of participating. I informed each study participant in a consent e-mail that there were no financial incentives available for participating in the study. Anney (2014) suggested that to maintain clarity and avoid bias in a study, it is vital to notify study participants of the unavailability of incentives prior to the commencement of a study.

In purposeful sampling, the researcher selects study participants from organizations or systems involved in an implementation process based on the assumption that they have great understanding of and experience with the phenomenon of interest (Palinkas et al., 2015). I accessed a purposeful sample of healthcare leaders from the identified organization in the Midwestern United States who had successfully implemented telehealth. I conducted a small number of interviews with the aim of getting in-depth and detailed responses from the participants. A researcher is responsible for

conducting research with special care and sensitivity (Yin, 2014). To achieve this, I (a) obtained informed consent from the participants, (b) ensured that the participants were protected from any form of harm emanating from the research, (c) protected the privacy and confidentiality of the participants, (d) protected vulnerable groups, and (e) fairly and equitably selected the participants.

Research Method and Design

The object of this single case qualitative study was to examine the strategies that healthcare leaders use to implement telehealth to increase profitability. By using a single case study approach, a researcher can explore a phenomenon in depth and within a specific contemporary context (Yin, 2017). This section focuses on the research method and design employed in this research study.

Research Method

The research methods available are the quantitative, qualitative, and mixed methods. A researcher uses a research problem as a guide to select the research method and design to use for a study (Yin, 2014). It is crucial for a researcher to select the appropriate methodology and ensure that the research question is appropriate to produce the desired outcome (Gelling, 2015; Grossoehme, 2014). The quantitative research method is ideal if the researcher's aim is to test hypotheses or investigate the cause and effect of a relationship (Park & Park, 2016). The qualitative research method is appropriate when gathering information relating to individual and personal experiences about a phenomenon (Levy, 2015; Marshall & Rossman, 2016; Runfola, Perna, Baraldi, & Gregori, 2016). The mixed method is appropriate when the qualitative research or the

quantitative research method alone does not provide a substantial understanding of the research problem (Yin, 2014). The primary objective of this study was to explore the strategies used by healthcare leaders to implement telehealth by conducting in-depth interviews and reviewing documents.

While no research method alone is adequate to solve all research questions and address all problems, each method has its benefits. I selected the qualitative research method because it is the appropriate approach when describing or explaining the strategies that healthcare providers use to implement telehealth to increase profitability. Researchers use the qualitative research method to gain a better understanding of a phenomenon by gathering information from one-to-one interviews (Kaczynski, Salmona, & Smith, 2014).

Another reason for selecting the qualitative method was that the primary methods that I used for data collection were interviewing and document review. Interviewing is a mode of data collection involving verbal information that allows the researcher to explore the experiences of a target population (Marshall & Rossman, 2016; Yin, 2014). Lee et al. (2015) expressed that researchers reinforce the reliability and validity of data through document review, observation, and interviews. I employed the qualitative research method to explore the lived experience of some healthcare leaders, through the use of in-depth interviews, to understand the phenomenon of strategies that they used to implement telehealth to increase profitability.

Research Design

Prior to selecting a research design, I reviewed three qualitative research design options: phenomenology, ethnography, and case study. I selected the single case study approach as the research design for this study to provide answers to the research question. Researchers use the case study design as an empirical inquiry to explore a phenomenon in depth and in its real-world situation or environment (Yin, 2014). The case study design depends on multiple sources of evidence that must converge to determine the consistency of the findings (Yin, 2014). Yin (2014) described the convergence of the data as triangulation. I explored the strategies used by some healthcare leaders to implement telehealth to increase profitability. The case study design allows a researcher to identify operational connections among particular events of interest (Starman, 2013; Yin, 2014).

Researchers use phenomenology when exploring individuals' lived experience through qualitative interviews (Gelling, 2015; Giorgi, 2015). I decided not to select the phenomenological design because the content analysis approach is not included in the phenomenology research design (Yazan, 2015). Researchers use ethnography when providing a detailed understanding of entire cultures or describing people in their native environments (Almagor & Skinner, 2013). Ethnography was not a viable option for this study because of the length of time required in the field and the detailed observational requirements for conducting ethnography (Yin, 2014). Other qualitative design researchers use the narrative research design to interpret the lives of individuals and attribute meaning to their experiences through their stories (Yin, 2014). In this study, I

did not select the narrative research design because my goal was to explore the strategies used by leaders of an organization, not individual experiences.

Middlemass, Siriwardena, and Vos (2017) used the case study design to understand factors affecting the use and acceptance of health information technology by patients with a long-term condition. Jarvis and Williams (2017) used a single case study approach to explore the strategies used by retail supermarket managers to boost first-line supervisors' problem-solving abilities. Using the TAM as the base theory, Dastjerdi (2016) conducted a case study to understand the factors influencing information and communication technology adoption among distance education systems. The case study design was the most suitable research design for uncovering new information and beliefs of the target population using in-depth interviews (Yin, 2014).

In qualitative studies, researchers use a small sample size to gain an in-depth understanding of a phenomenon within its real-world context (Fusch & Ness, 2015; Yin, 2014). Eisenbeib and Brodbeck (2014) expressed that researchers achieve data saturation by obtaining detailed information through semistructured interviews with participants about their understanding of phenomena of interest. To ensure data saturation and meet the requirements of this single-case study, I used a purposeful sample of the healthcare leaders in the identified organization in Indiana until I achieved data saturation. Data saturation occurs when additional interviews do not yield new information (Fusch & Ness, 2015). I used a small group of four healthcare leaders as participants to explore the strategies used by healthcare leaders to implement telehealth to increase profitability.

Population and Sampling

The population for the study included healthcare leaders in one organization in the Midwestern United States who had experience in the adoption and implementation of telehealth. The primary purpose of this study was to explore the strategies employed by healthcare leaders to implement telehealth to increase profitability. I collected information through interviews with members of the target population who had experience with telehealth implementation and adoption. In this single qualitative case study, I selected the participants using purposeful sampling from a healthcare organization in Indiana. The selected healthcare organization needed to be using telehealth technologies to provide healthcare services to patients.

Qualitative researchers use purposeful sampling to identify and select cases rich in information that represent the phenomenon of interest (Palinkas et al., 2015). Poulis, Poulis, and Plakoyiannaki (2013) noted that researchers often use purposeful sampling to select participants who are knowledgeable about the research problem and are likely to produce the information necessary to understand the phenomenon of interest. In purposeful sampling, the willingness and ability of the selected participants to participate and communicate their experiences and viewpoint in an expressive manner are crucial (Palinkas et al., 2015).

For the study, I selected four healthcare leaders from a healthcare organization in Indiana. The healthcare leaders had between 3 and 5 years of experience with telehealth implementation and adoption. In qualitative research, the richness and quality of the sample in relation to the research problem are more important than the size of the sample

(Rubin & Rubin, 2012). Sousa (2014) suggested that obtaining vital evidence relating to the research is more important than the number of participants. Robinson (2014) emphasized that in a qualitative study, the research question and the feasibility of gathering information are important factors to consider when determining the sample size. Robinson identified a four-point strategy to use when selecting participants in a single case study design. The four-point strategy I used was (a) defining the size of the sample, (b) selecting an appropriate sample size, (c) developing a strategy to conduct the sampling, and (d) identifying participants who had knowledge and experience pertaining to the research questions.

Examples of purposeful sampling strategies in implementation research are (a) criterion-I, (b) criterion-e, (c) typical case, (d) homogeneity, (e) snowball, (f) and (g) outlier cases (Palinkas et al., 2015). Researchers often use a combination of the sampling strategies to describe the target population in depth (Palinkas et al., 2015). The similarity of characteristics among group members allows the researcher to explore a multiplicity of perspectives relating to the phenomenon of interest (Marshall & Rossman, 2016). Purposeful sampling strategies allow a researcher to identify cases of interest by interviewing participants with similar characteristics (Palinkas et al., 2015). In this single case study, I selected the participants using purposeful sampling to identify and select cases rich in information that represent the phenomenon of interest.

Ethical Research

Adherence to ethical principles during data collection, analysis, and presentation is an indispensable component of research (Taylor & Thomas-Gregory, 2015). According

to Yin (2014), a good case study researcher will strive to ensure the greatest adherence to ethical standards when conducting research. I completed the training program developed by the National Institutes of Health Office of Extramural Research and received certification to conduct research involving human subjects (see Appendix B). Ethical standards include (a) not falsifying information, (b) avoiding plagiarizing, (c) ensuring accuracy and credibility of data, (d) maintaining honesty, and (e) avoiding deception (Yin, 2014). A researcher negates the primary purpose of research if he or she only seeks to use a study to expand a preconceived viewpoint (Yin, 2014). Barker (2013) explained that research ethics protocols include (a) privacy and confidentiality, (b) informed consent, (c) protection of vulnerable groups, and (d) avoidance of harm. The Belmont Report (1979) emphasized that (a) respect for persons, (b) beneficence, and (c) justice are the backbone of ethical principles in research. Avoiding bias and conducting research ethically are important in case study research because the researcher needs a better understanding of the research problem beforehand (Yin, 2014). Before conducting the research, I obtained approval from Walden University's IRB. My Walden University IRB approval number is 12-05-18-0664158.

When interviewing the participants, it is important to pay close attention to all ethical practices (Bromley, Mikesell, Jones, & Khodyakov, 2015). It is also crucial for the researcher to ensure ethical practices when obtaining, storing, and analyzing research data (Bromley et al., 2015). Each participant in this research study received a participant consent form and a copy of the letter of cooperation form. The participant consent form included the purpose of the study, sample questions, and information stating that

participation in the study was completely voluntary and participants may withdraw at any time without penalty.

I also informed the participants that there would be no form of remuneration for taking part in the research study. The researcher needs to ensure the protection and preservation of the information obtained from the participants (Yin, 2014). To ensure privacy and to protect the names of individuals or organizations and the participants and organizations confidential, I used a designated number and alphabet to refer to each of the participants and organizations. I will store the information obtained from the participants for 5 years on a secured storage drive in a safe location. I will destroy the storage drive and the information at the end of the 5-year period.

Data Collection Instruments

According to Yin (2014), the main components of a case study are (a) case study's questions, (b) case study proposition, (c) units of analysis, (d) the logical connection between the data and the proposition, and (e) the criteria for elucidating the findings. I used the research question, proposition, and the units of analysis to identify the data necessary for the study. I used the logical connection between the data and the proposition to develop the case study analysis. One of the main instruments for data collection in a qualitative case study is by conducting interviews (Yin, 2017). By interviewing the participants, I served as the primary data-collection instrument in this case study design. I used semistructured interviews and will review and analyze data from public and internal documents provided by the healthcare leaders. The semistructured interviews were multilevel with open-ended questions. Researchers use

the semistructured interview approach to unravel detailed information from study participants and to achieve data saturation (Fusch & Ness, 2015; Marshall, Cardon, Poddar, & Fontenot, 2013). Black, Palombaro, and Dole (2013) suggested that by providing the interview questions prior to the actual interview, the participant is able to ponder on the topic and provide better response to the interview questions.

To establish methodological triangulation, I also used document reviews as another means of data collection. Researchers use methodological triangulation to increase the depth of the data analysis and establish consistency (Denzin & Lincoln, 2011; Fusch & Ness, 2015; Patton, 2015; Yin, 2017). By using triangulation, I was able to demonstrate the consistency of my findings from the convergence of the data collected. When conducting a case study, researchers often employ multiple data collection strategies, such as interviews and document reviews (Yin, 2014).

I used the 2015-2016 Baldrige performance excellence framework for developing six interview questions from the research question and the conceptual framework that I posed to each research participant. For maintaining consistency during the interview process, researchers often use the 2015-2016 Baldrige performance excellence framework to facilitate the interview protocols (Castillo-Montoya, 2016). With the permission of the participants, I used a recording device to capture information exchange during the interview. By using a recording device, the researcher is able to memorialize the information gleaned during the interview (Bernard, 2013).

Data Collection Technique

In this qualitative single-case study, I used semistructured interviews and conducted document reviews by examining data from public and internal documents to explore the organization under study. Researchers use interviews to gain open-ended responses from participants as compared to a one-word response (Castillo-Montoya, 2016). While using interviews allows the researcher to gain first-hand knowledge from the participants and help the researcher identify other pertinent sources of evidence, bias and miscommunication could also occur during the process (Yin, 2014). I used member checking and methodological triangulation to strengthen the reliability and validity of the study. Using member checking also allows the study participants to evaluate and validate their responses (Kornbluh, 2015). By using methodological triangulation, I was able to achieve data saturation and determine the consistency of the information.

Data Organization Technique

In research, the primary responsibility of the researcher is to collect data, analyze it, and present the findings (Chen, Mao, & Liu, 2014). The researcher must ensure that all information relating to the identity of the research participants remain confidential (Grossoehme, 2014). In qualitative research, the common methods for analyzing and organizing data include generalizations, pattern identification, categorizing concepts, and descriptions (Patichol, Wongsurawat, & Johri, 2014). In this study, I used an alphanumeric code to identify the participants. Yin (2014) noted the importance of organizing a database for easy compilation and retrieval of the research data. To keep track of research logs, reflective journals, and cataloging/labeling systems and to analyze

and develop themes from the research data, I used the NVivo software. NVivo is a Computer Assisted Qualitative Data Analysis (CAQDAS) for analyzing research data. Yin also emphasized the inclusion of information from interviews, organizational documents, and other sources in the research database.

Using secure data storage methods, I kept all the information obtained for this research in password-protected files. To protect research participants, I removed all the identifier components and used pseudonyms for individuals, places, and organizations. I will maintain the files in a secure and protected environment and in a safe format for a period of 5 years. All data and organization documentation will be destroyed after the 5-year period.

Data Analysis

After the data collection phase of research, the next critical stage is the data analysis phase. According to Yin (2014), one of the most crucial steps during the data analysis stage is developing the appropriate strategy to analyze the research data. Parkinson, Eatough, Holmes, Stapley, and Midgley (2016) described data analysis as the organization of data to produce codes and themes that could eventually provide answers to the researcher question. Yin argued that success in analyzing the research data depends on the researcher's approach to empirical thinking, adequate presentation of evidence, and careful examination of alternative explanations. Whether using descriptive frameworks or a theoretical proposition, creating a systematic sense of what to analyze is critical (Yin, 2014). Yin also noted that selecting specific analytic techniques could be effective in building the groundwork for an outstanding case study. Relevant analytic

techniques in a qualitative study include (a) pattern matching, (b) time-series analysis, (c) explanation building, (d) logic models, and (e) cross-syntheses (Yin, 2017).

The primary aim of data analysis in a qualitative study is to reveal themes that could provide overarching answers to the research question (Marshall & Rossman, 2016). In this case study, I used the data analysis section as a framework to understand the strategies used by healthcare leaders in Indiana to implement telehealth. According to Yin (2014), data analysis involves (a) compiling the data, (b) disassembling the data, (c) reassembling the data, (d) interpreting the data, and (e) presenting the findings. Qualitative researchers often use Computer Assisted Qualitative Data Analysis (CAQDAS) software to analyze, explore, categorize, and describe data from a study (Talanquer, 2014).

In addition to the face-to-face interviews, I used other data sources such as reviewing documents and archival records from the organization to achieve methodological triangulation. Triangulation is the combinations of multiple data collection methods to further elucidate a phenomenon (Carter, Bryant-Lukosius, DiCenso, Blyth, & Neville, 2014; Marshall & Rossman, 2016). According to Cope (2014), methodological triangulation provides new ways for researchers to comprehend and present data relating to the phenomenon of interest. By using open-ended questions, document reviews, and archival records, qualitative researchers can achieve methodological triangulation (Yin, 2014).

I used the NVivo software to analyze and develop themes from the transcribed data. Bazeley and Jackson (2013) noted that in qualitative research, CAQDAS tools such

as NVivo help increase the rigor and alignment in the study. The NVivo software provides a visual representation of the data through categorization and segmentation of the transcribed data from the participants. I used Yin's data analysis approach to analyze the research data from interviews and document reviews. To produce the analytic results, researchers often use tools such as the computer-assisted applications. I used the NVivo software application to code and categorize data from interviews, and document reviews. The NVivo software is a computer-assisted application with prepackaged solutions for performing qualitative data analysis (Edward-Jones, 2014; Sleney et al., 2014; Yin, 2017). The NVivo software assists the researcher with the creation and analysis of codes and themes. By using the NVivo computer-assisted application, I was able to develop a rich description of the phenomenon surrounding the strategies that healthcare leaders use when implementing telehealth for profitability.

Reliability and Validity

The credibility and trustworthiness of a study depend on the validity and reliability of the information presented by the researcher (Brink, 1993). Brink described the validity of research as the accuracy and truthfulness of the findings. The reliability of research is the consistency and repeatability of the findings (Brink, 1993). Morse (2015) argued that researchers maintain the quality of a study by ensuring the reliability and validity of the sources. Noble and Smith (2015) expressed that researchers evaluate the reliability of a study by examining the accuracy of the study in relation to the application and fitness of the approach used. According to Brink, one of the main elements influencing the validity and reliability of a study is error. Error is inversely proportional

to the validity and reliability of a study, and the greater the level of error, the lower the validity and reliability of the study (Brink, 1993). Error in research could arise from (a) the researcher, (b) the subject, (c) the social context, and (d) the data collection and analysis methods (Brink, 1993).

Reliability

Reliability and validity are important aspects of all research (Brink, 1993). Noble and Smith (2015) described the reliability of a study as the consistency of the analytical procedures employed in the study. Morse (2015) defined reliability as the repeatability, dependability, and consistency of the method used for data collection, and analysis. In a qualitative study, it is crucial for other researchers to be able to replicate the study and establish dependability (Noble & Smith, 2015). Researchers use scalable and repeatable procedures to establish the soundness of a study. According to Elo et al. (2014), the dependability of a study is the degree to which the data presented in the study will withstand testing and generate similar result under different situations. The dependability of a study ensures the trustworthiness of the data presented in the study.

To establish the reliability of a study, a researcher employing a similar approach should be able to obtain the same or similar results when the approach is applied to the same or similar subjects (Brink, 1993). To ensure reliability and enhance the dependability of the study, I used member checking and triangulation to validate the interview process (Harvey, 2015). Morse (2015) noted that member checking is a process whereby the researcher presents the transcribed interview to the participant to gather additional information or make corrections. Researchers use triangulation to ensure the

dependability of the study by using two or more sets of methods to answer one question (Morse, 2015). By presenting my findings and recommendations to each of the participants, I was able to establish dependability and ensure the accuracy of the information.

Validity

Quantitative researchers use statistical analysis to establish the validity and reliability of research findings (Noble & Smith, 2015). Qualitative researchers develop methodological approaches to enhance the trustworthiness of research findings (Yin, 2014). In research, validity describes the integrity and execution of the methods used and the degree of correctness in which the results accurately represents the data used (Noble & Smith, 2015). To ensure the accuracy of the data in a study, it is important to establish the validity of the sources (Noble & Smith, 2015). Confirmability, credibility, and transferability are some of the terms researchers use to reference the validity of a qualitative study (Heale & Twycross, 2015).

A qualitative researcher employs the relationship between the data and the research outcomes to establish confirmability (Cope, 2014). According to Noble and Smith (2015), researchers achieve confirmability in qualitative research through truth-value, consistency, and applicability. Harvey (2015) echoed that researchers use member checking to enhance confirmability. Credibility is the trustworthiness or the fundamental truth in the data used in a study (Anney, 2014). Yin (2014) emphasized that to demonstrate the credibility of a study, researchers build accuracy and trustworthiness in the data collection, analysis, presentation processes. Member checking is an approach

that researchers use to establish the credibility of a study (Anney, 2014). Cope (2014) noted that by verifying the research findings with the participants, the credibility of research increases. I used member checking as one of the methods to establish and confirm the validity and credibility of the research data.

Bengtsson (2016) described transferability as the applicability of the research findings to other settings or in other contexts. Noble and Smith (2015) emphasized that the rich detail of context promotes transferability. Yin (2014) expressed that transferability is the ability to utilize research findings in other similar settings. In this study, I used triangulation as one of the methods to achieve transferability. Healthcare leaders and researchers who are interested in the telehealth implementation and adoption will be able to use the findings as a guide for future telehealth implementation. Lloh (2016) emphasized that researchers achieve transferability by keeping accurate records of interviews, transcripts, journals, and all other information collected for the purpose of the research.

Transition and Summary

The primary purpose of this qualitative single case study was to explore the strategies used by some healthcare providers in Indiana to implement telehealth to increase profitability. In Section 2, I discussed (a) the purpose of the study, (b) the role of the researcher, (c) the criteria for selecting the participants, (d) the research methodology and design, and (e) the reasons for selecting the methodology and design. I also discussed (a) the population sampling strategy, (b) the ethical approach I used to conduct the research, (c) the data collection methods and techniques, (d) the rationale for selecting

them, and (e) reliability and validity in qualitative research. I conducted semistructured interviews with four leaders of a healthcare organization in Indiana to explore the strategies used by those leaders when implementing telehealth to increase profitability. Section 3 of this study contains (a) presentation of the findings, (b) professional applications, (c) implications for social change, (d) recommendations and further studies, and (e) my reflections, and (f) conclusion.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative single case study was to explore the strategies used by some healthcare providers in Indiana to implement telehealth to increase profitability. The participants selected for the study were leaders in a healthcare organization in Indiana who had successfully implemented telehealth. Although telehealth has the potential to increase access to quality care and reduce healthcare costs, its adoption rate has remained low (Adenuga et al., 2017; Kahn et al., 2016).

In this study, I explored the strategies that some healthcare leaders in Indiana used to implement telehealth to improve profitability. The main themes that emerged during this study were implementation strategies, obstacles to telehealth adoption, and user acceptance of telehealth. Most of the leaders interviewed in this study linked the success or failure of telehealth to the implementation strategies employed, obstacles to implementation and adoption, and user acceptance of telehealth. Other subthemes that emerged were (a) the importance of leadership involvement, (b) the importance of physicians' buy-in, (c) the role of physician champions, (d) consumerism in healthcare, (e) reimbursement policies, (f) the effect of change on adoption, (g) awareness, (h) and telehealth marketing strategies.

In this section, I provide a detailed analysis of the study findings with reference to the overarching research question, the conceptual framework, and existing literature on telehealth adoption and implementation. I discuss the application of the findings to

professional practice and the implications of the study for social change, and I present recommendations for action and future research in telehealth.

Presentation of the Findings

The overarching research question was the following: What strategies do healthcare leaders use to implement telehealth to increase profitability? The primary goal of this study was to help leaders in the healthcare industry develop more viable strategies when implementing telehealth. By doing so, healthcare leaders could reduce operational costs and increase profitability. I used a purposeful sampling of four healthcare leaders in one organization in the Midwestern United States who had successfully implemented telehealth.

The participating organization selected for the study has more than 200 locations in Indiana and uses telehealth to improve patient access, improve quality of care, and deliver care to patients. The organization started telemedicine with a hub-and-spoke model more than 10 years ago. According to the documents that the organization provided, the hub denoted each physician's location, while the spoke represented the location of the patient. The organization's leaders attributed the success of the hub-and-spoke approach to the full control they had in the environment. The organization developed many use cases of telehealth that were supported under Indiana laws and backed by Indiana telehealth regulations. The current telehealth strategies practiced in the organization are (a) a hub-based approach for promoting care and improving quality, (b) a virtual clinic for patients at distant locations, (c) a virtual complex care approach for patients at risk, and (d) video consults for scheduled appointments.

This case study is a reflection of what healthcare leaders could achieve if they manage to overcome the innumerable obstacles hindering telehealth implementation and adoption. Although various organizations had attempted the implementation of telehealth, a percentage of them deserted implementation due to challenges relating to (a) legal, (b) financial, (c) technological, (d) and regulatory issues (LeRouge & Garfield, 2013; Molfenter et al., 2015). Saigí-Rubió et al. (2016) attributed telehealth implementation challenges to the organizational, human, and economic environment in the organization.

By conducting semistructured interviews with open-ended questions, I ascertained that each participant covered the main issues of interest relating to telehealth implementation. By using the single case study approach, I was able to request more detailed information, and the participants were able to present more information relevant to the study. I asked questions focused on understanding (a) the strategies that the healthcare leaders used to implement telehealth and (b) the strategies that contributed most to the successful implementation of their telehealth program. I completed four interviews and conducted follow-up telephone calls with the participants. According to the participants, the interview questions were straightforward and understandable. The alignment of the study and research approach with the experiences of the participants provided rich descriptions of the phenomenon surrounding the strategies that the healthcare leaders used when implementing telehealth.

After the data collection phase, I transcribed the recorded interviews and uploaded the data into the NVivo application for coding and analysis. I developed the initial coding schema by using the main points from the interview protocol. I created nodes from the

transcribed interviews. The final dataset included all of the data from the interviews, arranged according to the key themes and subthemes. Table 1 reveals the initial coding schema derived from the interview questions. Table 2 is a list of the major themes and subthemes derived from the data analysis in NVivo. In the following sections, I present the research findings extracted from the themes and excerpts from the participants as deemed necessary.

Table 1

Initial Coding Schema Based on Interview Questions

Theme name (node)	Sources	Frequency of occurrence
Employ clear implementation strategies with specific goals	4	106
Elements influencing user acceptance of telehealth	4	71
Obstacles in the implementation and adoption of telehealth	4	68

In all of the interviews, the participants acknowledged that (a) the implementation strategies employed, (b) adoption obstacles, and (c) user acceptance of telehealth were the main factors that influenced their implementation of telehealth. Previous researchers have noted the impact of implementation strategies, adoption barriers, and user acceptance on technology implementation success (De Almeida et al., 2017; LeRouge & Garfield, 2013; Park & Kim, 2014; Van Dyk, 2014). De Almeida et al. (2017) and Van Dyk (2014) emphasized the need for developing a telehealth framework and implementation strategy for the success of telehealth. LeRouge and Garfield (2013) discussed the impact of technological, financial, and legal barriers on telehealth

implementation. Park and Kim (2014) stressed the importance of user acceptance when implementing new technology. Based on the outcome of the interviews, I identified the following as the major themes emanating from the study.

Table 2

Major Themes and Subthemes

Major themes	Subthemes
Employ clear implementation strategies with specific goals	Leadership involvement Physicians' buy-in Direct-to-consumer model Funding Technology
Obstacles in the implementation and adoption of telehealth	Skepticism and willingness to change Infrastructural challenges Technology Integration issues Reimbursement model Laws and regulations governing telehealth Funding Awareness
Elements influencing user acceptance of telehealth	Involvement of the leaders and physicians Perceived usefulness/value of telehealth Perceived ease of use of telehealth system Training

Theme 1: Employ Clear Implementation Strategies With Specific Goals

Employing clear implementation strategies with specific goals emerged as the most powerful theme from the responses to the interview questions. From the review of organizational documents, the business leaders acknowledged that involving stakeholders, creating funding plans, and assessing technology options were discussed in their initial telehealth implementation strategies. For the successful rollout of telehealth,

it is important to understand the factors influencing its implementation, the business needs driving telehealth, target stakeholders, and anticipated outcomes (Saigí-Rubió et al., 2016). Arkwright, Jones, Osborne, Glorioso, and Russo (2017) underscored the importance of strong governance in developing telehealth strategies. The four participants in the study emphasized the importance of developing clear implementation strategies with specific goals (see Table 3).

Table 3

Employ Clear Implementation Strategies With Specific Goals

Response	Number of respondents	Frequency of occurrence
Leadership involvement	4	26
Physicians' buy-in	4	24
Funding	4	22
Technology	4	19
Direct-to-consumer model	4	15

Table 3 highlights the various strategies considered by the healthcare leaders when implementing telehealth. All of the participants (n = 4) emphasized the importance of the role of the business leaders and physicians during the implementation of telehealth. All of the participants also noted that developing the direct-to-consumer model was beneficial to the organization and that it provided a good foundation for the adoption of telehealth. While most of their telehealth initiatives started with grant funding, all of the participants noted the importance of securing adequate funding sources to sustain the growth of telehealth. The participants also stressed the importance of ensuring the functionality of the technology by following the due diligence process during the vendor selection process.

Leadership involvement and physician buy-in. From the data analysis, leadership involvement and physicians' buy-in appeared to be the dominant subthemes. All of the participants emphasized the importance of having full support from business leaders and physicians for successful telehealth implementation. Arkwright et al. (2017) emphasized the indispensable role of leadership involvement and physician support in the implementation and adoption of telehealth. Strong telehealth leadership and support form the foundation for facilitating a telehealth strategy (Arkwright et al., 2017; Kim, Gellis, Bradway, & Kenaley, 2018). Participant 1 noted,

> Physician/leadership involvement is key to all of this. People saw the trends on a national level. They knew that this was something they needed to do. They knew that it was going to be completely different from how our physicians have trained, how they practiced, and it was going to be an uphill battle. So it really had to take strong leadership from the top, and we do have physician champions who were at the top of the system.

Correspondingly, Participant 2 remarked,

> Initially, we did not have a lot of leadership buy-in. So we had a lot of changes in leadership which didn't really promote telehealth. You need to have good leadership buy-in. You need to have good physician buy-in, and you need to have a budget.

Similarly, Participant 3 mentioned,

> Dr. S who was a cardiologist participated in a showcase with organizational leaders . . .. We were able to show them what we were doing. And you know, it

> was great to have those thought leaders there to demonstrate what we were doing so that they can help us and we can help them use this.

Participant 4 acknowledged,

> So executive leadership support was beyond critical because realistically our strategic funding went away after a year or two. We lost our funding, and so our president was the one that really stepped up and said no, we have to fund this.

From the review of the organization's telehealth implementation documents provided by Participant 4, it was apparent that the organizational leaders developed executive champions and steering committees to establish policies and procedures for the development of telehealth. The executive champions and steering committees provided guidance and awareness needed for the growth of telehealth in the organization.

Direct-to-consumer model. All of the participants agreed on the importance of building a direct-to-consumer telehealth strategy. The direct-to-consumer telehealth strategy provides increased access to care and potential cost savings for patients and providers (Ashwood, Mehrotra, Cowling, & Uscher-Pines, 2017). Participant 1 emphasized,

> There's a big shift in the industry towards consumerism. And as there have been changes in our insurance nationally, people are starting to become more aware of what healthcare costs. There's more transparency, and now patients are looking at where is the better price and convenience. So you go around Amazon, and you can buy anything from anywhere, anytime, and have it delivered to your door

> right. And so as consumers, we have become conditioned to that kind of convenience.

Participant 2 noted,

> The direct-to-consumer strategy has been successful. Because that allows the patient to just do it on their own. They can be at home, they can be at work, and it doesn't matter where they are at. That has been successful because they have a lot more flexibility.

Participant 3 added,

> The video visits platform which is the consumer facing arm of the business has been in existence for a while. One of the strategies we've used is the direct-to-consumer approach, which is really placing telehealth tools in the hands of the consumer and was largely already rolled out before I came on.

Similarly, Participant 4 concurred,

> So, I think we were early for the direct-to-consumer. Maybe a little bit but probably appropriate. The learning that we have had over the past three and half years have been very critical to I think over our long-term success.

The organization noted on its web portal that it developed the telehealth application as "a private, convenient way to connect" with their experts. Participant 2 highlighted that the business leaders in the organization pursued the direct-to-consumer telehealth strategy to provide faster and easier access to their health providers. The organization positioned the direct-to-consumer model as an alternative means of gaining convenient access to their physicians.

Funding. All of the participants acknowledged the significance of securing adequate funding for the growth of telehealth. Obtaining sufficient funds remains one of the main requirements for telehealth implementation (Naslund et al., 2017; Standing et al., 2016). Participant 1 noted,

> I think Medicare sees the benefit of it, but because the way the congressional budget cycles work, if they say, okay everyone can do it this year, they didn't plan for that 5 years ago. Right, so they have a certain amount of funds, and they are afraid that there is going to be a spike in utilization.

Participant 2 added,

> When telehealth initially started, a lot of it was started based on grants, which was good because you got a lot of money up front. But it wasn't really sustainable. From a business perspective, you would get a maybe a 3-year grant, you get a lot of money to get things started and then later on, you realize this is really expensive to maintain.

Participant 3 expressed,

> We have had great support from the behavioral health collaborative. That's been a very well-funded organization. And it was created with the express purpose of doing these different things for behavioral health which is a fundamental area of telehealth. So that's been a big deal for us because it is a grant-funded program so they have support and staff that can oversee the business side of the implementation.

Participant 4 highlighted,

> So executive leadership support was beyond critical because realistically our strategic funding went way after a year or two. So our president was the one that really stepped up and said no, we have to fund this. We have to find a way. Leadership buy-in is crucial, key to success.

The review of the organization's telehealth strategic plan provided by Participant 4 indicated that the business leaders established a strategy to provide initial and sustainable funding sources for telehealth. The organization noted, "To improve the health of individuals, communities and our state, we are focusing our philanthropy on people, progress and partnerships." The organization also established collaboration with other healthcare providers to reduce funding risks and increase access to telehealth services.

Technology. As described in the telehealth implementation framework retrieved from company's archival records, the organization's telehealth application is "a secure technology that allows you to connect to your provider from your smartphone, tablet or computer." One of the strategic goals of the organization was to leverage the telehealth technology to provide convenient access to quality care. The use of smart technology products for care delivery could help improve the quality of life for older people (Dorsey & Topol, 2016; Golant, 2017; Solaimani et al., 2015; Totten et al., 2016). Participant 3 stressed that getting the right telehealth technology offered the organization the opportunity to extend its reach rather than worrying about the logistics of getting people physically in a place. In a similar approach, Participant 4 added,

> As part of the initial strategy, my goal was just figuring out what company do we go with? Who do we use for the technology platform? What providers do we use? How do we use them and then how do we launch that? So I would say the initial strategy was really set by the task versus broader strategy across all telehealth and what should we do.

All the participants accentuated the importance of the choice of technology in telehealth implementation and adoption. As noted in a document presented by the business leaders, the organization developed a team that comprised the technology leaders to ensure the functionality of the technology selected for telehealth. While telehealth offers great opportunities, understanding the technological options available and making the right selection is crucial for its implementation and adoption.

Theme 2: Obstacles in the Implementation and Adoption of Telehealth

Telehealth implementation and adoption obstacles emerged from Interview Questions 3 and 4. All the participants noted that understanding the barriers to telehealth implementation and developing a way to address them were critical to the success of their telehealth program. Barriers stemming from (a) resistance to change, (b) reimbursement (c) the lack of technological infrastructure and skills, (d) poor technological coverage, (e) data security, (f) compatibility issues, (g) complexity in the use of existing technologies, (h) laws and regulations, and (g) funding have hindered the implementation of telehealth (Dinesen et al., 2016; Kruse et al., 2016; Saigí-Rubió et al., 2016; Standing et al., 2016). As illustrated in Table 4, the four participants noted that (a) technology, (b) skepticism and willingness to change, (c) infrastructural challenges, (c) funding, and (d) laws and

regulations were the main obstacles affecting telehealth implementation. Two of the participants observed that creating awareness of the benefits of telehealth influenced their implementation and adoption.

Table 4

Barriers to Telehealth Implementation

Response	Number of respondents	Frequency of occurrence
Technology	4	11
Skepticism and willingness to change	4	11
Infrastructural challenges	4	10
Funding	4	9
Laws and regulations	4	8
Reimbursement	4	8
Integration issues	4	6
Awareness	2	5

Skepticism and willingness to change. According to the participants, one of the obstacles encountered during telehealth implementation was skepticism and willingness to change. Participant 1 noted,

> It is skepticism. Users say I have not been trained this way. I do not feel comfortable training this way. For a thousand years, we have put hands on patients, and that was good medicine. How is it good medicine if I don't put my hand on patients?

Participant 2 added,

> The first time you talk to a lot of people about telehealth, they are like no way, I don't want to see some doctors on a computer. I want to see him face-to-face and

> talk to him. A lot of is perception. A lot of it is just a bad perception of what it might be because it seems very sci-fi.

Participant 3 explained,

> I would say that probably the biggest obstacle that we had is there is a lack of certainty on the part of the leadership. They are not sure if telehealth is like any new technology. Is that internet thing going to go away? That is the kind of question we get most of the time.

Participant 4 concurred,

> One of my favorite, which summarizes it and I still get this every day, there is not a week that goes by that I don't hear people say, that is really good, that is really important, it is absolutely the future, but is not for us. The obstacle is we have believers in what we are doing but not believers in action or support. They understand the benefit to the patient, but they have to keep their doors open as well. And it's asking them to change how they practice. When you are a practicing physician, this is what you have done for 30 years or for one year; it is how you have been trained, and what you have done.

All the participants acknowledge that skepticism and willingness to change influenced telehealth implementation. Saigí-Rubió et al. (2016) emphasized that developing the capacity to address cultural change should be part of telehealth implementation plans. While introducing new technology into an organization can boost productivity, getting users to adopt is often a challenge.

Infrastructural challenges, technology, and integration issues. All the participants

(*n* = 4) noted that challenges arising from technology, infrastructure, and system integration influenced their telehealth implementation. Previous studies (Molfenter et al., 2015; Petersen, & DeMuro, 2015; Reid et al., 2014; Saigí-Rubió et al., 2016; Scharwz et al., 2014; Standing et al., 2016) have shown that infrastructural challenges, technology, and integration issues affect telehealth implementation. Participant 2 stated,

> I would say the biggest benefits for the implementation of telehealth is having more systems that integrate easily. That is currently a big challenge. When you look at the providers or healthcare clinicians, they have to connect to so many different systems to care for patients. They might have to look at the radiology; they might have to look at the electronic medical records. They might have to go into the state directory to see what other hospitals the patient's record might be in. They have all different resources that are silos. When you add just another silo of telehealth, it becomes more difficult.

Participant 3 added,

> People just got tired of messing with the clunky technologies. With traditional videoconferencing, you have an expensive cart, videoconferencing cart in one location and the only way to connect to another one is to use another expensive video cart. So it was really it was expensive. It was clunky. It wasn't real a portable solution. So a lot of these parts were very expensive too.

Participant 4 stated,

> So I think integration would be huge for implementation. Now it is a little bit more work up front to do integrations because there are discrete data errors in the

> application programming interface. There are different ways to do integration, but if you do that upfront then it will make your process a lot easier, and it will really help adoption.

From the review of the organization's telehealth strategic plan provided by Participant 4, the leaders pointed out that the organization dedicated a substantial amount of resources to address issues relating to infrastructure, technology, and integration during telehealth implementation. The organization stated "The telehealth operations role, telehealth architecture role, telehealth program management role, IS business video operations role, and IS business video architecture role were created to manage the operations of telehealth." Identifying the necessary resources is crucial for the implementation and sustainability of telehealth.

Reimbursement, laws and regulations governing telehealth. All the participants (n = 4) emphasized the influence of reimbursement policies, laws, and regulations on telehealth implementation. Previous researchers (e.g., Dinesen et al., 2016; Dorsey & Topol, 2016; Duncan, 2013; Fatehi et al., 2015; Kahn et al., 2016; Kruse et al., 2016) attributed the challenges with telehealth implementation and adoption to poor reimbursement models and laws governing telehealth. Participant 1 explained,

> As the provider, if you are only licensed in Indiana, then the patient has to be in Indiana. Since we cannot guarantee that all of our physicians are licensed in every state, we require that patients are located in Indiana.

Participant 2 declared,

> Reimbursement is huge. It plays a huge role in the growth of telehealth. A lot of times the business case would not support the operations of telehealth. Because there were not very good reimbursement rates. Providers are busy, but they want to be paid no matter who they are seeing.

Participant 4 commented,

> You can be paid for most telehealth interactions. Is it enough? Does it disrupt the other areas where you're making money in a way that it makes it a loss to use the service? Now I would tell you most of our entities believe it is too much of a disruption of what they do which is why adoption is really just challenging.

According to the information provided by Participant 4, the business leaders collaborated with the state of Indiana and participated in a pilot program to develop the rules and regulations governing telehealth (Flyergroup, 2016). Saigí-Rubió et al. (2016) observed that the difficulties emanating from the lack of structured reimbursement programs for telehealth services are outstanding obstacles to its appropriate development.

Funding and awareness. All the participants *(n* = 4) highlighted the importance of securing adequate funding to nurture the growth of telehealth while two out of four of the participants (50%) indicated that building awareness is crucial to driving telehealth adoption. Healthcare leaders struggle with acquiring funds to implement telehealth (Gonzalez & Brossart, 2015; Naslund et al., 2017; Standing et al., 2016). Building awareness about the advantages of telehealth drives its adoption and implementation (Bradford et al., 2015; Nelson, 2017). Participant 4 stated, “After a year or two, we lost

our funding, and so our president was the one that really stepped up and said no, we have to fund this."

Participant 1 explained,

> It is really just understanding that you are going to open the doors and offer the services and then no one is going to come because there is no public awareness. So, how much money are you prepared to spend on advertising?

Participant 2 accentuated,

> When telehealth initially started, a lot of it was started based on grants, which was good because you got a lot of money up front. But it wasn't really sustainable. From a business perspective, you would get a maybe a three year grant, you get a lot of money to get things started and then later on, you realize this is really expensive to maintain.

Participant 3 noted,

> It is an expensive proposition to get started in a lot of areas because there's a considerable amount of equipment investing for the elected scheduled clinics and remote clinics. I am responsible for all the aspects of implementation from a technical standpoint of getting the devices, from assembling the devices to configuring devices for delivering and setting up the device. We need a greater degree of investment and resources before we can really get this thing to the next level. Again it is just a matter of that the continual challenge.

Standing et al. (2016) observed that securing adequate funding for telehealth remains a major issue facing telehealth implementers. Participant 4 presented the

organization's telehealth strategic plan that included a business plan covering telehealth funding and a complete assessment of costs of telehealth programs. In the company's telehealth strategic document presented by Participant 4, the organization noted, "We developed the telehealth landscape and utilization document to have a clear assessment of telehealth initiatives." Telehealth programs require high initial costs and healthcare leaders must consider this during the initial phase of telehealth development.

Theme 3: Elements Influencing User Acceptance of Telehealth

All the participants emphasized that leadership and physicians' involvement, perceived usefulness, and perceived ease of use were factors that influenced user acceptance of telehealth. Two out of four of the participants (50%) indicated the importance of training in driving user acceptance of telehealth. Davis (1989) theorized that users' motivation to use a technology centers around three factors: (a) perceived ease of use (PEOU), (b) perceived usefulness (PU), and (c) attitude toward using the system. Other researchers (Alomary & Woollard, 2015; Ducey & Coovert, 2016; Jokonya, 2015; Lee, 2016; Marangunić & Granić, 2014; Silva, 2015; Venkatesh et al., 2003) have noted that perceived ease of use and perceived usefulness are strong determinants of why users use a technology. Table 5 lists the factors that influenced user acceptance of telehealth in the organization.

Table 5

User Acceptance of Telehealth

Response	Number of respondents	Frequency of occurrence
Leaders' and physicians' involvement	4	26
Perceived usefulness of telehealth	4	20
Perceived ease of use of telehealth	4	15
Training	2	10

Involvement of the leaders and physicians. All the participants noted that the involvement of the leaders and physicians during the implementation phase largely influenced user acceptance of telehealth in the organization. The participants also indicated that securing buy-in from the leaders and physicians greatly reduced the resistance to change from the users of telehealth system. Kruse et al. (2016) highlighted the resistance to change as one of the main barriers affecting telehealth implementation and adoption.

Perceived usefulness of telehealth. All the participants (n = 4) emphasized the influence of perceived usefulness on the implementation and adoption of telehealth. Perceived usefulness (PU) refers to the extent to which an individual believes that using a particular technology will boost job performance (Marangunić & Granić, 2014). The perceived usefulness of a system or technology depends on (a) subjective norm, (b) image, (c) job relevance, (d) output quality, and (e) result demonstrability (Alomary & Woollard, 2015). Participant 1 stated,

> If you have to take three different bus connections to get to your provider, that is a burden. We should remove that for our patients. We work with the doctors over at R-Hospital because they really do have all these use cases. Every time this patient comes to see me because of her condition, she asked that they put her in an ambulance from Cloverdale to Indianapolis. What a burden? The cost of doing that, the trauma on the child, the trauma on the family of doing this. If we can just treat that patient in her own home, isn't that better?

Participant 2 added,

> With telestroke, time is brain! So it's important to get the specialist access to that patient to know what's going on as quick as possible. Because for every second after a stroke occurs, the patient is losing millions of brain cells.

Participant 3 added,

> When you call somebody you can't bill for that. When you see them, face-to-face you can. With telehealth, you are giving them better customer service because the physician can see the patient, can hear the patient and have a better judgment of what is going on. The physician can bill for that, and the patient can get the care they needed without having to come into the office. Another program we have running is the peer recovery coaching which is where we have developed a hub, which is the behavioral health collaborative hub. And there we have peer recovery coaches. These individuals have overcome addiction and are certified recovery coaches and will be able to speak to individuals who come into the hospital and in a state of distress. Typically, they know the situation, they have had some

> substance abuse issues, and they will be able to talk to this individual as a peer and help them get connected with programs that can assist them with that situation. And you know that Indiana is not alone in the Opioid crisis, so this is one of the ways we have been combating it.

Participant 4 explained,

> The buildings of the hospital, bricks and mortar hospitals as they stand today are not sustainable. We know the trajectory on what they are going to become. Ten years ago, they were the profit centers and your moneymakers. In 10 years from now, it is highly likely they will be your cost centers in all your outpatient centers. So where does the virtual care (telehealth) play in that? I do not know that we know that yet. What we do know is that if you do not have it, you fail.

According to a document provided by the business leaders, one of the reasons the organization adopted telehealth was due to its perceived usefulness in providing alternative access to care without the need to travel to a medical facility. Jokonya (2015) emphasized the robustness of TAM in describing consumer adoption of new technologies.

Perceived ease of use of telehealth. All the participants (n = 4) indicated that perceived ease of use of telehealth had a substantial impact on the implementation and adoption of their telehealth program. Perceived usefulness and perceived ease of use are two important factors that lead to user's acceptance or rejection of a technology (Alomary & Woollard, 2015). Perceived ease of use refers to the level to which a user believes that using a system or technology would be effortless (Alomary & Woollard,

2015). In a study of telehealth and patient satisfaction, Kruse et al. (2017) noted that (a) improved outcomes, (b) preferred modality, (c) ease of use, (d) low cost, (e) improved communication, and (f) decreased travel time were the main factors relating to the effectiveness and efficiency of telehealth. Participant 1 stated,

> Ease of use is important! A patient is not going to try this more than once or twice if it does not work. And the physicians, if it slows them down in any way in their normal operations. If the physician is going to see a patient by video, it has to be quick. The physicians will not use it if (a) there is anything in there that is going to artificially delay them, (b) they have to test their computer instead of having a medical assistant test the computer for them, and (c) they have to download a video plug-in. You know that is just not going to work. You just would not do that in other forms of healthcare.

Participant 2 linked ease of use to simplicity and efficiency,

> I think when implementing a telehealth system, one of the most important things to keep in mind is to keep it simple. So you do not have to jump from one solution to the next. By doing that, you are keeping the patient experience the same, you are keeping the provider experience as much the same as possible, and you are keeping your support experience the same. Because the more simplicity you have in your set up, the easier it will be to use and maintain.

Participant 3 indicated how ease of use affects patient satisfaction,

> Through telehealth, we developed a website where the public can go and very quickly get in the queue to see a physician for common ailments like cold, coughs

> things like that. They would essentially avoid going in to see a physician…. We have a strong group of specialists in Indianapolis. Where that reach is not as strong is in the outlying areas where you will not have the specialists. But people still need specialty care. So for some individuals, it's difficult to get down here or up here depending on where they're at geographically.

Participant 4 linked ease of use to telehealth adoption,

> Ease of use is so critical in adoption! We have made some really good gains with shifting our software into a new system that has built-in integration into the electronic medical records. We know that our physicians need to be able to login into the electronic medical records, click into a virtual visit, and one click to close. They cannot be logging into different systems. They cannot be logging into different platforms. It has to be one or two clicks. Because otherwise, they see it as a barrier.

In a research conducted by Holden et al. (2016), the researchers established that the overall satisfaction of a healthcare system largely depends on the perceived ease of use, the usefulness for patient/family involvement, and the usefulness for care delivery. All the participants in this study echoed the importance of perceived ease of use and perceived usefulness in the acceptance telehealth. The comments from the participants also provided insights into the perceptions of health information technology, acceptance, and use.

Training. Two out of four of the study participants (50%) indicated the importance of training in driving user acceptance of telehealth. Marangunić and Granić

(2014) pointed out that factors such as organizational training, device characteristics and support have great influence on perceived usefulness and perceived ease of use of technology. Participant 1 noted,

> We certainly have a program. We meet with providers, we meet their staffs, we get them familiar with how the technology works, with the resources that they have, and the clinical guidelines. Then, we step them through website manner instead of bedside manner.

Participant 2 added,

> We do a small training with three or four people. I pretend to be the remote doctor, I call into the device and show them how that how that process works, and then I leave the documentation with them on how to connect. I show them what that workflow looks like and if we need to make changes, we can do it right there and send them the updated changes.

Prior to the implementation of telehealth, the organization developed training and awareness programs to facilitate the adoption of the new technology. Saigí-Rubió et al. (2016) expressed that organizational leaders need to establish training options when rolling out telehealth. To maintain efficient workflow, training and education are essential during the implementation phase of telemedicine (Moore et al., 2016; Saigí-Rubió et al., 2016).

Linking to Conceptual Framework

For this study, I applied the technology acceptance model (TAM) as the conceptual framework to explore the implementation of telehealth in the healthcare

industry. The TAM conceptual framework is an adaptation of the theory of reasoned action (TRA) by Fishbein and Ajzen (1975) designed specifically to model user acceptance of information systems (Davis, Bagozzi, & Warshaw, 1989). The findings in this study echoed the importance of perceived ease of use and perceived usefulness of a technology as theorized by Davis (1989). Ducey and Coovert (2016) noted that the technology acceptance model (TAM) developed by Davis is the most widely utilized adoption model in the information technology world. Jokonya (2015) suggested that TAM might be beneficial during IT adoption in organizations. The findings from this study supported the view of some researchers (Chun-Hua & Kai-Yu, 2015; Ducey & Coovert, 2016; Holden et al., 2016; Jokonya, 2015) on the validity of TAM when investigating the factors influencing user adoption of a technology.

While perceived ease of use and perceived usefulness of a technology are useful for determining user adoption of a technology, the finding also suggests that there are some equally important determinants that influence user adoption of telehealth. In this study, other factors such as (a) leadership involvement, physicians' buy-in, direct-to-consumer model, laws and regulations, funding and implementation cost, technology, and reimbursement emerged as having a substantial impact on telehealth adoption and implementation. While the vast amount of studies in the TAM accentuate the popularity of the model (Marangunić & Granić, 2014), this study findings showed that using perceived ease of use and perceived usefulness are not adequate to determine the factor influencing telehealth implementation.

Applications to Professional Practice

The purpose of this qualitative single case study was to explore the strategies used by some healthcare providers in Indiana to implement telehealth to increase profitability. Healthcare leaders constantly look for ways to remain competitive, improve performance, and decrease operating costs. With the potential to reduce operating costs, telehealth offers healthcare business leaders a way to streamline operations and increase profit. The responses provided by the participants, the information gathered from the review of organizational documents, and the literature review provided a detailed understanding of the challenges leaders encounter during telehealth implementation.

Using telehealth to monitor remote patients could lead to better decisions in healthcare delivery and positively influence the patients' experience (Kasckow et al., 2016). The findings from this study provide a wealth of information on how some healthcare providers implemented telehealth and offer other healthcare leaders with strategies to consider when implementing telehealth. The result of this study could facilitate the development of telehealth implementation standards to drive efficiency and performance.

Implications for Social Change

The findings from this study reinforced the benefits of telehealth implementation as discussed in the review of the literature. The results offer healthcare leaders with the strategies to deliver outstanding healthcare at lower costs while increasing healthcare access and therefore improving health outcomes. With telehealth, patients' benefit might include, cost savings, improvement in the quality of care, convenience, comfort, and

quick access to healthcare services. In a study of telehealth and patient satisfaction, Kruse et al. (2017) noted that (a) improved outcomes, (b) preferred modality, (c) ease of use, (d) low cost, (e) improved communication, and (f) decreased travel time were the main factors relating to the effectiveness and efficiency of telehealth. It is possible to achieve positive social change through improved access to healthcare services. One of the participants noted the effectiveness of telehealth in fighting drug addition by allowing patients to attend virtual rehabilitation sessions and connect with peer recovery coaches. By properly implementing telehealth, healthcare leaders can enhance the value of healthcare services, facilitate care access, and reduce costs for both the care providers and patients.

Recommendations for Action

A careful analysis of the interview answers from the participants and a review of documents from the organization revealed themes relating to the strategies healthcare leaders used to implement telehealth. Recommendations from this study might provide healthcare leaders with key areas to consider when implementing telehealth. As discussed in the analysis, the participants interviewed noted that (a) leadership involvement, (b) physicians' buy-in, (c) direct-to-consumer approach, (d) understanding the laws and regulations affecting telehealth, (e) ease of use, (f) usefulness or perceived value, (g) funding (h) implementation cost, (i) reimbursement, (j) ease of integration with other systems, and (k) technology are important when considering telehealth. From a business perspective, in the early phase of telehealth implementation, leaders should focus on the need and demand assessment of telehealth. To secure leadership and physicians buy-in,

the organizational leaders would need to establish a communications plan to inform the stakeholders on how telehealth supports the strategic goals of the organization. The telehealth executive committee should provide ongoing reports on the successes and challenges of telehealth. The policies, procedures, and workflows affecting telehealth should be available for planning telehealth services.

Planning is crucial to be successful with telehealth implementation. The planning process should entail (a) a clear understanding of the need for telehealth, (b) target stakeholders, main goals, readiness assessments, technology platforms, telehealth delivery models, reimbursement, champions, technical plans, regulatory environment, financing, revenue model, return on investment, and evaluation. Good governance from the business leaders is vital for the success of telehealth. Arkwright et al. (2017) linked efficiency and effectiveness to good governance and highlighted the importance of the role of healthcare leaders in telehealth implementation. Leadership involvement would facilitate the developments of policies and procedures to meet compliance and legal requirements, licensing, credentialing, and financing needs for telehealth. Securing buy-in from the physicians would promote adoption and promote the use of telehealth.

In accordance with the technology acceptance model, perceived usefulness of telehealth is all-important to its acceptance. All the participants stressed the significance of perceived usefulness when adopting a new system. Healthcare leaders need to understand the value of telehealth and appropriately present those values to stakeholders. This concept is in agreement with the TAM constructs of perceived usefulness and perceived ease of use. The more users understand the benefit and value in a technology,

the greater the acceptance (Holden et al., 2016). The findings from this study and the recommendations are valuable because telehealth offers great potential for increasing efficiency and access to care, and the acceptance of its modal quality would be crucial for its diffusion and adoption.

Recommendations for Further Research

In this single case study, I used a purposively selected sample of participants from a healthcare organization in Indiana, semistructured interviews and documents from the organization as the basis for discerning telehealth implementation strategies. By thoroughly analyzing the data collected, I was able to discover the strategies employed by the healthcare leaders to implement telehealth. My primary focus was on healthcare leaders in Indiana. Limitations also exist in this study in the number of participants. I selected four healthcare leaders in Indiana for the purpose of the research. Further research could focus on a multiple case study with a larger sample size to provide additional insight. Another recommendation for future research could include the exploration of telehealth end users to further understand what other factors influence the adoption of telehealth. Future research could incorporate other variables into the technology acceptance model.

Developing a comprehensive approach to address the implementation of telehealth is critical to accelerate and advance its adoption and help advance the use of telehealth. Future research could also focus on understanding the revenue structure for telehealth, return on investment (ROI), and break-even analysis. Other areas of research could focus on how to address the challenges relating to the technological environment,

organizational environment, human environment, and economic environment when implementing telehealth.

Reflections

This case study is a reflection of the potential of telehealth if healthcare providers are able to overcome the obstacles hindering its implementation. An explorative research of this nature allowed me to gain insight into the various challenges that business and healthcare leaders undergo when implementing new technology. I work in the healthcare industry, and I see the gradual decline in the volume of inpatient services due to changes in healthcare laws and policies. Healthcare organizations realize the need and urgency to review their current business strategies to remain competitive. Telehealth provides healthcare providers with the tool to improve patient access, improve quality of care, and deliver the right care to patients.

By conducting face-to-face interviews with the participants, I was able to obtain firsthand knowledge of the expressions and nonverbal communication of the business leaders as compared to other methods like telephone or questionnaire. In qualitative research, it is possible to introduce personal biases or preconceived ideas and values (Yin, 2014). Throughout the research process, I strived to avoid personal biases by maintaining objectivity and following the interview protocols. Through member checking, I was able to evaluate and validate the responses of the participants. By using methodological triangulation, I reached data saturation, and I was able to determine the consistency of the information received from the participants. The findings from this

study demonstrated that a better understanding of telehealth deployment strategies could lead to a higher success rate in its implementation and adoption.

Conclusion

To improve access to quality care, healthcare providers must focus on leveraging the new technologies available in the healthcare system. While telehealth offers healthcare providers with ways of improving access to quality care, issues relating to technology, business strategy, legal/standards policies, financial, and human resources have hampered its implementation and adoption (LeRouge & Garfield, 2013). The purpose of this qualitative single case study was to explore strategies healthcare providers use to implement telehealth to increase profitability. The specific business problem was that some healthcare providers lack the strategies to implement telehealth to increase profitability. Grounded in the technology acceptance model (TAM), I used semistructured interviews and documentation from the organization to address the research question: what strategies do healthcare leaders use to implement telehealth to increase profitability? Three major themes emerged from the study: telehealth implementation strategies, telehealth adoption obstacles, and user acceptance of telehealth.

Saigí-Rubió et al. (2016) observed that the strategic elements supporting the competitiveness of telehealth revolve around the review of the social-economic context, organizational environment, the need of the users, and the sustainability of the technological systems linked with telehealth. A good telehealth strategy would provide insight to (a) why telehealth is appropriate for the organization, (b) target stakeholders,

anticipated outcomes, cost, and return on investment (Saigí-Rubió et al., 2016). Success in telehealth implementation is possible by carefully determining its needs and priorities. Telehealth facilitates access to quality and affordable care regardless of geographical location (LeRouge & Garfield, 2013; Saigí-Rubió et al., 2016). A better understanding of the strategies to use when implementing telehealth would help reduce the barriers inherent in the technological, organizational, human, and economic environments.

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Appendix: Interview Questions

1. What strategies have you used to implement telehealth to increase profitability?
2. What were the most important success factors in your telehealth strategies to increase profitability?
3. What obstacles did you face during the implementation of telehealth?
4. How did you overcome those obstacles?
5. What elements facilitated the adoption of telehealth?
6. What else can you add to help healthcare leaders implement telehealth to increase profitability?