

2022

# Strategies for Cryptocurrency Adoption in Contemporary Businesses

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*Walden University*

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# Walden University

College of Management and Technology

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Jacqueline Rodriguez

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Walden University  
2022

Abstract

Strategies for Cryptocurrency Adoption in Contemporary Businesses

by

Jacqueline Rodriguez

MBA, University of Maryland University College, 2003

BA, Washington and Jefferson College, 1989

Doctor of Business Administration – Project Management

Submitted in Partial Fulfillment of the Requirements for the Degree  
of Doctor of Business Administration

Walden University

May 2022

## Abstract

Millions of Bitcoin transactions occur daily, worth nearly \$2 billion annually. With the proliferation of cryptocurrency markets, the reluctance to adopt the currency as an alternate payment method could cause businesses to forgo growth opportunities within this expanding market. Grounded in the diffusion of innovation theory, the purpose of this qualitative multiple-case study was to explore strategies business leaders use to respond to the alternative payment concerns perpetuated by cryptocurrency markets. The participants comprised 6 business leaders who effectively employed cryptocurrency adoption strategies. Data were collected through semistructured interviews, corporate documents, and other company social media resources. Thematic analysis of the data resulted in 4 common themes: commitment to innovation as a relative advantage, cryptocurrency compatibility within the organization, overcoming the complexity of cryptocurrency adoption, and trialability and observability of innovative technology. Key recommendations include creating business models to encourage more cryptocurrency transaction-based outcomes and creating cryptocurrency education and training programs for employees and customers. The implications for positive social change include the potential to assist unbanked individuals who lack creditworthiness to gain access to more goods and services to improve their overall standard of living.

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## Dedication

I dedicate this study to my daughter Courtney. Please remember that the greatest things in life are the hardest to achieve, and do not ever shy away from challenges. Instead, lean into them and let them make you stronger. I want you to know that anything is possible if you set your mind to it. Do not accept being surrounded by people who do not encourage you to achieve your best. Be brave, be bold, and be courageous enough to take the first step towards your goals and dreams. The journey may not be easy, but it will be worth it in the end.

## Acknowledgments

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## Table of Contents

List of Tables .....	v
List of Figures .....	vi
Section 1: Foundation of the Study.....	1
Introduction.....	1
Background.....	1
Problem Statement.....	3
Purpose Statement.....	3
Nature of the Study .....	4
Research Question .....	5
Interview Questions .....	5
Conceptual Framework.....	6
Operational Definitions.....	7
Assumptions, Limitations, and Delimitations.....	8
Assumptions.....	8
Limitations .....	9
Delimitations.....	10
Significance of the Study .....	10
A Review of the Professional and Academic Literature.....	11
Search Tactics, Content, and Organization of Literature Review .....	12
Introduction to Cryptocurrency.....	13
The Ecosystem and Self-Regulation of Cryptocurrency .....	15

The Blockchain .....	17
Security and Cryptocurrency .....	18
Advantages of Cryptocurrency .....	19
Disadvantages of Cryptocurrency.....	21
The Diffusion of Innovation Theory.....	22
Diffusion of Innovation and Modern Strategies .....	25
The Diffusion of Innovation Theory and Cryptocurrency .....	29
Diffusion of Innovation and the Global Adoption of Cryptocurrency .....	30
Alternate Theories.....	32
Game Theory .....	32
Game Theory versus Diffusion of Innovation .....	36
Shifting from Traditional Fiat Currency to Cryptocurrency.....	37
Adoption of Cryptocurrency in the United States.....	39
Cryptocurrency as a U.S. National Currency.....	40
Regulation of Cryptocurrency in the United States .....	40
Business Ethics of Cryptocurrency.....	43
Companies, Consumers, and Cryptocurrency.....	46
Consumer Demand.....	48
Summary and Transition.....	48
Section 2: The Project.....	51
Purpose Statement.....	51
Role of the Researcher .....	52

Participants.....	58
Research Method and Design .....	62
Research Method .....	63
Research Design.....	64
Population and Sampling .....	67
Sample Size.....	69
Ethical Research.....	71
Data Collection Instruments .....	73
Data Collection Technique .....	75
Data Organization Technique .....	79
Data Analysis .....	79
Reliability and Validity.....	82
Reliability.....	82
Validity .....	84
Transition and Summary.....	86
Section 3: Application to Professional Practice and Implications for Change .....	87
Presentation of Findings .....	88
Participant Descriptions .....	88
Thematic Data Analysis.....	92
Emergent Themes .....	95
Theme 1. Using Technology as a Competitive Advantage in the Marketplace....	96
Theme 2. Cryptocurrency Compatibility with the Organization .....	98

Theme 3. Overcoming Complexity of Cryptocurrency Adoption.....	101
Connections to Theory.....	104
Applications to Professional Practice.....	107
Implications for Social Change.....	110
Recommendations for Action.....	111
Recommendations for Further Research.....	118
Reflections.....	118
Conclusion.....	119
References.....	121
Appendix A: Interview Protocol.....	138
Appendix B: Consent Form.....	141

## List of Tables

Table 1. Literature Review Sources by Type and Publication Date .....	13
Table 2. Participant Demographic Summary .....	88
Table 3. Data Analysis Codes and Themes .....	95
Table 4. Recommendations for Action .....	111

List of Figures

Figure 1. Innovation Decision Process Model..... 24

## Section 1: Foundation of the Study

### Introduction

Currency is an integral part of every civilized society. Throughout time, currency has evolved from a bartering system with no set mediums of exchange to nationally created, state-owned coins stamped in precious metals to paper notes representing coins made of precious metals (Bridel, 2018). Paper notes, however, are also evolving as several countries have replaced paper with durable polymer notes to detract from counterfeiting and improve security and durability (Mikulicova et al., 2019). Physical or fiat currency itself, however, is quickly becoming obscure. Global trends show increasing use of electronic currency in the form of debit and credit cards as well as virtual or cryptocurrency such as Bitcoin. This trend seems set to continue with reasonable expectations from industry experts expressing beliefs that physical money will eventually be replaced entirely with electronic currency (Roussou et al., 2019). The challenge to business leaders, however, is their ability to effectively respond with business strategies that can accommodate the rapid evolution to electronic currency that is being fueled by sophisticated and complex technologies.

### **Background**

The origin of currency exists between two philosophies that claim dichotomous viewpoints of whether money emerged from a trust basis or an authoritative foundation. The origin of the trust basis was founded by economist Carl Menger (Bridel, 2018; Menger, 1871). According to Menger's theory, the value of any currency hinges on the inherent value of the currency that people are willing to accept in exchange for a certain

commodity (Bridel, 2018; Menger, 1871). This acceptance, however, will never be attained by all individuals of a group at the same time (Bridel, 2018; Menger, 1871). The notion of an indirect exchange is a gradual process discovered first by a few members of a group and then imitated by others as they observe and confirm the success with currency and obtain the desired commodities (Bridel, 2018; Menger, 1871). According to the authoritative viewpoint, fiat currency such as coins or paper originate with a government and bear the markings that are representative of the ruling faction (Bridel, 2018). Authoritative currency is commonly created out of precious metals such as gold, silver, or copper, and the government controls the creation of this currency (Bridel, 2018). This currency is widely accepted and trusted by the collective group of a society to represent a contract between two parties (Bridel, 2018). In modern-day, authoritative or national currency is the most prevalent form of currency used worldwide, with exchange processes undertaken by the respective central banks to convert currencies of another country so that individuals can effectively buy and sell within established national borders.

In 2009, the world's first decentralized alternative currency known as Bitcoin was created by Satoshi Nakamoto (Didenko & Buckley, 2019; Nguyen et al., 2018; Raju et al., 2018). The goal of Nakamoto was to establish an alternative to national, state-controlled currencies, provide new opportunities for individuals to preserve wealth by reducing centralized banking fees, and provide alternative methods for transferring or storing monetary value (Didenko & Buckley, 2019). As of 2019, there were over 2,000 new, privately held, and controlled virtual currencies (Didenko & Buckley, 2019), which

are giving rise to both economic and business concerns worldwide. The slow regulatory responses have largely provided only consumer warnings and penalties for illegal activities associated with the currency (Didenko & Buckley, 2019). Lacking are the sophisticated dialogues and comprehensive analyses regarding how business leaders can exploit cryptocurrencies to expand trading and business growth. As such, the potential benefits that virtual currencies can lend to business strategies remains obscured.

### **Problem Statement**

In 2017, there were approximately 606 million Bitcoin transactions occurring daily worth nearly \$1.9 billion (Foley et al., 2019). Illegal users of Bitcoin accounted for 46% of all transactions or approximately 280 million transactions, versus legal users that accounted for 54% or approximately 326 million transactions (Foley et al., 2019). The general business problem is that although federal law enforcement agencies are continually shutting down illicit markets, sophisticated technology permits anonymous, untaxable, and untraceable exchanges, leading to volatilities and unfair competitive advantages for businesses. The specific business problem is that some business leaders lack strategies to respond to the alternative payment concerns perpetuated by cryptocurrency markets.

### **Purpose Statement**

The purpose of this qualitative, multiple-case study was to explore the strategies that business leaders use to respond to the alternative payment concerns perpetuated by cryptocurrency markets. The targeted population consisted of six business leaders in the United States who developed successful strategies to respond to the alternative payment

concerns perpetuated by cryptocurrency markets. The results of this study may invoke social change by providing insight and information regarding the growing illegal and immoral uses of cryptocurrencies that are harming society globally so that business leaders can use their power and influence financially as well as politically to support economic reform and regulation of the currency. This study may also catalyze social change by encouraging more business leaders to adopt cryptocurrency as a viable alternative payment method so that the world's most disenfranchised, impoverished, and credit-challenged individuals can be afforded the access to goods and services that they so desperately need.

### **Nature of the Study**

I selected the qualitative research methodology for this study because this method uses data to provide complex textual descriptions regarding how the social lives of human beings are impacted by a particular phenomenon (see Saunders et al., 2015). In contrast, a quantitative study was deemed inappropriate for this research effort because quantitative researchers examine variables' statistical characteristics or relationships that can be applied to a broader population by proving or disproving proposed hypotheses (Saunders et al., 2015). A mixed-method study was also deemed inappropriate because this method incorporates both qualitative and quantitative data and hypothesis testing between two or more variables (Saunders et al., 2015). Since this study's purpose does not require examining variables' characteristics or statistical relationships, the qualitative method was deemed most appropriate.

I selected a multiple-case study as the qualitative design over an ethnological, phenomenological, or narrative design because the foundation of the multiple-case design supports the investigation of an activity, event, process, or individuals by using various types of data and sources to obtain a profound understanding (Yin, 2018). The benefits of using a multiple-case study over a single-case study include the ability to analyze data from both an individual case and across several cases to determine the differences and similarities among the cases (Yin, 2018). Researchers are therefore provided more robust and reliable conclusions that are far greater than those obtained from a single case (Yin, 2018). The foundation of the ethnographical design emanates from cultural anthropology, where researchers immerse themselves within a culture (Marshall & Rossman, 2016). A phenomenological design was not selected for this study because there was not an interest in exploring the cultural aspects of this phenomenon. A narrative design is rooted in various social and humanities disciplines. It includes the reconstruction and retelling of experiences or events by individuals through personal stories, usually in a chronological context (Saunders et al., 2015). A narrative design was also not selected for this study because it was not an effective design to answer the research question for this study.

### **Research Question**

What strategies do business leaders use to address the alternative payment concerns perpetuated by cryptocurrency markets?

### **Interview Questions**

1. How did you develop the strategies to use cryptocurrency for the settlement of business transactions?

2. What strategies did you implement to counteract centralized banking system barriers (i.e., fees and creditworthiness determination) so that all your target markets can solicit your company for needed goods and services?
3. What key obstacles did you face in the process of adopting cryptocurrency transactions as a payment method?
4. How did you address and overcome the key barriers to establishing cryptocurrency as an alternative payment method?
5. How can you, as a business leader, assess the effectiveness of the strategies your organization developed to address the alternative payment concerns perpetuated by cryptocurrency markets?
6. What technological safeguards do you use to prohibit illegal cryptocurrency transactions?
7. What other information would you like to add regarding the strategies that your organization uses to address the alternative payment concerns perpetuated by cryptocurrency markets?
8. Is there anything further information that you would like to add at this time?

### **Conceptual Framework**

In this study, I used the diffusion of innovation theory as the conceptual framework, which was developed by E. M. Rogers in 1962 (Rogers, 1962). The inauguration of this theory began in the communication discipline to elucidate, over time, how a concept, idea, or novel product gains momentum and rapidly disperses through a collective population or communal system (Rogers, 1962). The result of this diffusion is

that people, as part of more extensive social systems, formally adopt an innovative idea, behavior, or product (Min et al., 2019; Presthus & O'Malley, 2017; Rogers, 1962). By viewing business leaders' adoption behaviors of cryptocurrencies through the lens of the diffusion of innovation theory, I expected to identify the alternative payment concerns perpetuated by cryptocurrency markets, so that strategy pathways are facilitated for legitimate business leaders.

As applied to this study, the diffusion of innovation theory holds that I expected that an exploration of the adoption of cryptocurrency as an alternative payment method would reveal the strategies that influenced business leaders to adopt the payment method since the proclamation of Bitcoin's legal status in 2013 (Bamert et al., 2013) by the United States Treasury. By using the information derived from using the diffusion of innovation theory, business leaders who were not innovators or early adopters may be enlightened by the outcomes of early adoption to develop strategies that will assist in the future adoption of cryptocurrencies while addressing the concerns as a legitimate payment option for goods and services.

### **Operational Definitions**

- *Blockchain*: A distributed, public record of all of the cryptocurrency transactions that have been executed. The Blockchain only lists the alphanumeric identifier of the cryptocurrency. The owner's name and other personal information are not disclosed (Raju et al., 2018).
- *Cryptocurrency*: Cryptocurrency is digital or virtual money that does not have a physical representation, such as a paper bill, metal coin, or plastic card.

Cryptocurrency only exists on the Internet and is represented by a long series of alpha and numeric characters that are used for the exchange of goods and services (Broseus et al., 2016).

- *Dark Web*: The Dark Web is a network of untraceable, anonymous online activity and websites on the Internet. It cannot be found using conventional Internet search engines, and specific software is needed for access (Shillito, 2019).
- *Decentralized*: In the cryptocurrency system, there are no government-regulated, centralized banks. Owners are charged with safeguarding their own money, which is usually kept on an encrypted thumb drive (Spithoven, 2019).
- *E-Commerce*: E-Commerce is another word for e-business or commercial transactions conducted electronically on the Internet (McCallum, 2015).

### **Assumptions, Limitations, and Delimitations**

#### **Assumptions**

Assumptions function as the basic foundation of all research efforts (Leedy & Ormrod, 2005). Assumptions consist of the suppositions made by the researcher that cannot be substantiated by facts or other evidentiary support (Bloomberg & Volpe, 2019). The processes and techniques exercised by the researcher are based on inductive reasoning about the theoretical framework and the researcher's own experience in gathering and analyzing data (Yin, 2018). The research contained in this multiple-case study was the product of the values of the researcher. My first assumption was that the participants have the prerequisite knowledge about cryptocurrency and why it was adopted as an alternative payment method for their particular company. The second

assumption was that the formulation of the interview questions was appropriate to collecting informative responses in relation to the research question. My third assumption was related to the limited use of cryptocurrency as an alternative payment method. Specifically, the information collected from the selected business leaders would be sufficient and yield enough in-depth information about cryptocurrency strategies to answer the research question.

### **Limitations**

Limitations are characterized as possible vulnerabilities or weaknesses that are commonly beyond the researcher's control that may affect the study design, results, and ultimately, conclusions (Theofanidis & Fountouki, 2018). The first limitation identified was that I had to rely on the interview responses provided by the business leaders identified for this study. Much of the information related to the business decision to adopt cryptocurrency as an alternative payment method was typically part of internal meetings, was considered business-sensitive information, and was not publicly distributed; thus, information pertaining to business strategies regarding the acceptance of cryptocurrency could not be verified by other documentation beyond the data collected by interviews. The second limitation identified was the limited number of businesses that currently accept cryptocurrency as an alternative payment method. Because this currency is considered cutting-edge technology and not considered mainstream, there was a limited number of business leaders that could be interviewed for this study.

## **Delimitations**

Delimitations are defined as limitations consciously set by the researchers themselves (Leedy & Ormrod, 2019; Theofanidis & Fountouki, 2018). Researchers decide to set boundaries or limits with their study so that the purpose and objectives do not become unachievable (Theofanidis & Fountouki, 2018). In this study, there were three delimitations established. The first was that the study only pertained to businesses within the United States and excluded any foreign businesses. Second, the business strategies pertained only to legitimate and legal business endeavors. Cryptocurrency is widely used to purchase goods and services illegally on the Dark Web (Shillito, 2019), but those businesses were excluded from this study due to their ethical nature and risk to the researcher. The third delimitation was that the study was limited to only business strategies and concerns for cryptocurrency adoption even though business leaders may have other concerns regarding security, regulation, availability, or volatility of the currency.

## **Significance of the Study**

The findings from this qualitative study can be used by business leaders to develop strategies for addressing alternative payment concerns perpetuated by cryptocurrency markets. Business leaders can avoid the barriers created by centralized banking systems, such as exorbitant fees and creditworthiness, by offering payment options using cryptocurrencies and providing alternative methods for transferring or storing monetary value (Didenko & Buckley, 2019) that could potentially widen their consumer base, increase revenue, and increase business performance.

The results of this study may invoke social change by educating business leaders regarding the diverse uses of cryptocurrencies that are influencing global economies and potentially harming society. Business leaders can use the information presented in this study and, along with their power and influence, financially and politically to support global economic reform for cryptocurrencies. The information derived from this study illuminated the growing phenomenon of the Dark Web and associated shadow economies (Shillito, 2019), which is harming society, and the need for further government action to impede its expanded influence. Finally, the results of this study may also catalyze social change by encouraging more business leaders to adopt cryptocurrency as an alternative payment method so that the world's most disenfranchised, impoverished, and credit challenged individuals who were disqualified for credit cards keep more of their earnings, and can be afforded access to goods and services (DeVries, 2016; McCallum, 2015) that they so desperately need.

### **A Review of the Professional and Academic Literature**

In this literature review, I examined the technical phenomenon of cryptocurrency, its origins, growth in popularity worldwide, cryptocurrency advantages and disadvantages, and the lack of business strategies regarding the acceptance of cryptocurrency as an alternative payment method. The diffusion of innovation theory served as the lens for my academic study into the global adoption of cryptocurrency as an alternative payment method, as well as the associated business strategies for utilizing this leading-edge technology in today's economy.

### **Search Tactics, Content, and Organization of Literature Review**

The purpose of this study was to explore the strategies that business leaders use to respond to the alternative payment concerns perpetuated by cryptocurrency markets. The research question—What strategies do business leaders use to address the alternative payment concerns perpetuated by cryptocurrency markets?—served as a compass to ensure that the search tactics and content selected for this literature review were pertinent and relevant to the foundational basis of the study. The literature review is organized as follows: (a) Introduction to Cryptocurrency, (b) Conceptual Framework: The Diffusion of Innovation Theory, (c) Alternate Theories, (d) Adoption of Cryptocurrency in the United States, and (e) Companies, Consumers, and Cryptocurrency. The number of resources reviewed demonstrated the profundity of research by subject and methodology. There were 27 articles that represented conceptual papers either from scholarly journals or professional conferences, nine empirical studies, eight qualitative studies, three seminal books, one government publication, and one corporate publication (see Table 1). Since the topic of business strategies involving cryptocurrency is at the forefront of innovative and contemporary business issues, the literature review is as comprehensive as possible, provided the very recent emergence of this complex technology.

**Table 1***Literature Review Sources by Type and Publication Date*

Sources	Total	Percentage of peer-reviewed resources	Between 2017 and 2021	Percentage of current resources
Peer-reviewed sources	47	90.4%	31	60.7%
Government, seminal, or other nonpeer-reviewed sources	5			
Total	52	90.4%	31	60.7%

The primary research databases used to find articles were ABI/INFORM, Emerald, ProQuest Central, and SAGE Premier. Primary keywords searched included *cryptocurrency, Bitcoin, alternative payment methods, virtual currency, Blockchain, e-business, Dark Web, money laundering, FinCEN, terrorist financing, and diffusion of innovation.*

### **Introduction to Cryptocurrency**

Cryptocurrency is a new concept of money discovered in 2008-2009 by Satoshi Nakamoto that addresses many of the risks associated with traditional currency (Didenko & Buckley, 2019; Nguyen et al., 2018; Raju et al., 2018). In a qualitative study conducted by Raju et al. (2018), the researchers defined cryptocurrency as a virtual, Internet-based system of currency exchange that uses a pseudo-anonymous, alphanumeric string of

letters and numbers for identification. Cryptocurrency can be purchased at a machine that resembles an automated teller machine (ATM), or it can be purchased online with any number of cryptocurrency exchanges or peer-to-peer directly with individuals (Dyson et al., 2018). Once users purchase the cryptocurrency, they are provided with the unique alphanumeric address (i.e., a129vb34tk89dsp14mnwty6554gy) that can be used to perform exchanges for goods and services. Only the anonymous cryptocurrency address is recorded on a public ledger called the Blockchain (Suyambu et al., 2020), and no other customer attributes are stored. The goal of the Blockchain is to ensure that double spending does not occur and to preserve the privacy and anonymity of the users (Suyambu et al., 2020), which has introduced a completely novel and technological way to perform commercial settlements.

Many technical laymen to the world of virtual currency compare the cryptocurrency address to a prepaid credit card number. The exception is that a plastic card is not issued, and a central banking system does not insure the currency. According to research conducted by Nguyen et al. (2018), this unfettered nature makes cryptocurrency extremely volatile and financially risky. Users are responsible for safeguarding the address with an access code known as a wallet seed key, which is a 12-word phrase. Cryptocurrency addresses cannot be used for transactions without a wallet seed key. If the wallet seed is forgotten or lost, the currency becomes worthless as there is no way to reset the wallet seed key or obtain a new one.

While Bitcoin is the most popular cryptocurrency on the market, there have been over 45 different cryptocurrencies that have had initial coin offerings (ICO) to raise

capital (Liebau & Schueffel, 2019). Cryptocurrency is traded on the futures market, so it is subject to differing daily values, gains, and losses (Nguyen et al., 2018). Liebau and Schueffel (2019) found that 80% of all ICOs were scams, which mainly resulted from the unregulated process, and the remaining 20% incurred high failure rates. While most investors hope for the stunning performance experienced by Bitcoin, investing in cryptocurrency remains a very volatile and risky endeavor.

### **The Ecosystem and Self-Regulation of Cryptocurrency**

The ideology behind the invention of cryptocurrency was to permit people to transact directly with each other without the costs, delays, and regulations of a third party (Spithoven, 2019). According to Spithoven (2019), the cryptocurrency ecosystem is comprised of the initiators, the codebase, programmers, miners, middlemen, customers, and governments. The initiators are the organizations behind the venture capital funding to create a cryptocurrency (Spithoven, 2019). These organizations' leaders also influence governance, lobby politicians, and have many personal interests in non-profit organizations that fund programmers and form cryptocurrency communities of interest (Spithoven, 2019). This concept of self-regulation, however innovative, may not inspire the confidence needed to attract consumers unless it is performed with transparency.

The codebase is the software behind the virtual cryptocurrency (Spithoven, 2019). Many are unaware that the software behind Bitcoin is very common and is based on an open-source license (Spithoven, 2019). The decentralized public settlement ledgers, known as Blockchains, tout efficiency by reducing transaction costs (Spithoven, 2019). The Blockchain code and algorithms also set the rules for transactions, hash protocols,

block attributes, and consensus mechanisms (Spithoven, 2019), which may provide the security to attract more consumers.

The programmers centrally coordinate the Bitcoin protocol and regulate the cryptocurrency through a series of decisions regarding forking and blocking transactions from specific currency addresses (Spithoven, 2019; Suyambu et al., 2020). The core programmers contribute to the codebase and interact with commenters who propose changes to the codebase (Spithoven, 2019). Miners constitute the electronic payment network that often belongs to a pool of miners that charges a membership fee (Spithoven, 2019). The network security surrounding the payments is complex and can require high investments from miner companies (Spithoven, 2019; Suyambu et al., 2020) which are further exacerbated by the high costs of electricity and computer equipment.

Although the ideology behind cryptocurrencies is to eliminate third-party involvement in transactions, an entire set of intermediaries exist that perform processing and financial services (Spithoven, 2019). Even the highly criticized traditional centralized banking system is also interwoven into the mix of middlemen because cryptocurrencies are listed and traded on public stock exchanges. Customers also fuel the dynamics of virtual currencies as their behaviors, level of risk, and willingness to adopt radically new concepts in currency causes vast fluctuations in the value of cryptocurrencies (Spithoven, 2019); therefore, while the seminal ideology behind cryptocurrency was to ultimately abolish middleman transactions and related fees to preserve wealth for customers, modern commercial, financial systems are not yet equipped to entirely operate without third party involvement.

Government leaders are overwhelmed by the popularity of cryptocurrencies and the Blockchain, and even though they are struggling with how to regulate the currency, they cannot outright forbid it for fear of stifling innovation (Spithoven, 2019). Although governments differ from country to county, politicians worldwide are wary of the crime surrounding cryptocurrencies and desire to protect consumers. They are also aware of the dangers that cryptocurrencies pose to traditional financial infrastructures and taxation systems (Spithoven, 2019; Stratiev, 2018). Still, in the United States, federal regulations are not focused on cryptocurrencies, which means that law enforcement is a challenge.

### **The Blockchain**

A major criticism of the current traditional banking system is the exorbitant length of time for transactions to reach a settlement between concerned parties. According to George et al. (2019), traditional banking transactions require that both the payor and payee's bank accounts be updated to reflect transactions and often involve intermediaries such as Paypal. This process usually takes several days and allows for the transactions to be tampered with and changed (Raju et al., 2018) by hackers and other cybercriminals. Shillito (2019) stated that legitimate businesses and organizations are aware of these vulnerabilities; thus, several have adopted Blockchain as a more secure way of banking.

The Blockchain is a publicly distributed ledger of all of the cryptocurrency transactions that have taken place (Raju et al., 2018; Suyambu et al., 2020). Organizations called miners exist to record cryptocurrency transactions and place them on the Blockchain (Raju et al., 2018). The first miner to enter the transactions onto the Blockchain receives a fee for this service. This process happens at lightning speed so that

the Blockchain is continuously updated in real-time to prevent double or fraudulent purchases. If a miner in the network attempts to reverse or tamper with a cryptocurrency transaction, they forfeit their portion of the transaction and all associated fees (Raju et al., 2018). In addition, their actions are made publicly known to the other miners in the network (Raju et al., 2018). Illegitimate or illegal organizations use Blockchain for the same reasons as well and exploit cryptocurrencies' anonymity features to avoid law enforcement (Shillito, 2019). This side of the Blockchain has perpetuated a shadow economy on the portion of the Internet known as the Dark Web (Shillito, 2019).

### **Security and Cryptocurrency**

Studies performed by Nguyen et al. (2018), Raju et al. (2018), and Shillito (2019), found that decentralized cryptocurrency networks intentionally avoid regulated, centralized banking systems. Even though cryptocurrency users value their anonymity and technological security, they have to rely on the Blockchain to thwart fraud and keep people honest. The Blockchain allows transaction partners, miners, and customers to publicly observe each other, thus maintaining a level of trust among all (George et al., 2019). Whether the marketplace networks are for legal or illegal exchanges, the reconciliation speed of transactions and the restricted one-way operations lower the risk for transaction fraud (Raju et al., 2018). Speed, however, is just one advantage that the Blockchain has over conventional financial institutions for daily practical use that is causing them to fall behind market pace.

The Blockchain has also proven to be more secure than traditional banks, and the multilevel encryption of cryptocurrency makes it technologically challenging to hack.

This security is further enhanced by the Proof of State concept, whereby a participant in the Blockchain cannot attempt to settle or mine any cryptocurrency transaction that is more than its current total worth (Raju et al., 2018). By comparing this concept to a line of credit in traditional banking, a customer cannot take out a loan for more money than has previously been approved. Similarly, a participant in the Blockchain cannot attempt to settle a transaction for more currency than it currently holds on the network (Raju et al., 2018). This security feature further prevents participants from fraudulent activities on the network. Roussou et al. (2019) unequivocally concur and maintain that managers need to build their policies regarding transactions in digital currencies on the basis of security.

### **Advantages of Cryptocurrency**

Cryptocurrency is considered to be the transformative and disruptive technology to challenge the historical financial systems that have depleted the wealth of the most impoverished individuals (DeVries, 2016). Since no middleman or brick and mortar banks are necessary, individuals can use Bitcoin and other cryptocurrencies using just their mobile phones. Unlike traditional credit cards, cryptocurrencies also do not require costly intermediaries prior to bank settlement (Amanzholova & Pavel, 2018). Bitcoin and other cryptocurrencies permit almost anyone to participate in a contemporary economy, which is advantageous to the millions of people that cannot qualify for credit cards or other lines of credit (McCallum, 2015). The stark reality of cash-basis of exchange for everything is a horrifying and unsympathetic simple formula: no cash, no goods, no services, no anything. A cash-basis economy isolates individuals from e-commerce and

detracts from the financial livelihoods of the world's most impoverished individuals as centralized banks and payment companies charge staggering fees – up to 10% for international money transfers (McCallum, 2015). The lower settlement fees imposed by Bitcoin and other cryptocurrencies help everyone, but especially disenfranchised individuals who were disqualified for credit cards, keep more of their earnings (McCallum, 2015). This advantage is also translated into value for businesses that desire prompt settlements and lower fees (DeVries, 2016), which is passed on to the consumer in the form of lower prices for goods and services.

Another advantage is that cryptocurrency permits extremely small micropayments – currently, to the eighth decimal point (McCallum, 2015). These minuscule payments can be used in a number of innovative ways. For example, McCallum (2015) presented the idea to charge originators of spam messages a fraction of a Bitcoin for each message that is sent over the Internet. On the surface, this seems like an insignificant amount, but when multiplied by the millions of spam messages sent daily, the total fees become significant, thus deterring spammers on the Internet (McCallum, 2015).

Stegaroiu (2018) explained that the settlement process conducted on the Blockchain is transparent and available to the public and that Bitcoin is cryptographically safe, meaning that bad actors cannot manipulate it. Amanzholova and Pavel (2018) added that another notable strength of cryptocurrency is the anonymity associated with the currency which also subsequently contributes to the ability to avoid legal tax liabilities. This advantage is a resounding compliment to the potential profitability of

cryptocurrencies as a speculative financial investment, as many investors have made high returns on cryptocurrency investments (Amanzholova & Pavel, 2018).

### **Disadvantages of Cryptocurrency**

Cryptocurrencies also have associated threats and inherent risks. Amanzholova and Pavel (2018) stated that cryptocurrencies can be used for criminal tax evasion and are actively used for the purchase and sale of illegal goods and services primarily through shadow economies thriving in markets facilitated by the Darknet (Troeller, 2016). The lack of mainstream adoption and attractiveness to law-abiding citizens may be a direct result of the currency's widespread and continued use by nefarious individuals (Troeller, 2016). Cryptocurrency transactions are also irreversible, so if an error is made in the payment, the Blockchain prohibits any adjustments (Amanzholova & Pavel, 2018; Stegaroiu, 2018). Currency users are also susceptible to cyber fraud and hacking (Amanzholova & Pavel, 2018). Subsequently, the anonymity associated with the currency makes these crimes nearly impossible to prosecute.

Due to the anonymous nature of cryptocurrency, it is impossible to fully quantify the extent of criminal activities using traditional law enforcement tactics and strategies. The international law enforcement community is perplexed by the growing number of illegal activities propagated by cryptocurrencies and the inability to prosecute the offenders because of the complexity of such operating environments as the Darknet (Tziakouris, 2018). Although cryptocurrencies are a disruptive technology that enables criminals to facilitate crimes easily, the Blockchain ledger is a permanent record of all illegal activities and can aid investigations via analysis and data extraction (Tziakouris,

2018). Most recently, experts have managed to de-anonymize certain attributes of the popular Bitcoin, which has caused a shift to other cryptocurrencies such as Ethereum, Dash, Monero, Verge, and Zcash that are more anonymous (Tziakouris, 2018).

Tziakouris (2018) maintained that cryptocurrencies continue to be widely used for payments for illegal goods and services such as malware attack ransoms, weapons, child pornography, drugs, counterfeit documents, and stolen antiquities. Extremist groups and terror organizations also use cryptocurrencies to crowd-fund their operations (Tziakouris, 2018). Ultimately, cryptocurrency is an alluring phenomenon for tech-savvy criminals.

Additional disadvantages include the technical complexity and sophistication of cryptocurrency. As such, most people have a general lack of knowledge and understanding of virtual currency (Stegaroiu, 2018). Compared to fiat currency, there are also relatively few legitimate companies accepting Bitcoin or other cryptocurrencies as payment, even though that number is growing. Coupled with the past market volatility and instability of the Bitcoin futures market, many people and businesses chose to pause regarding future cryptocurrency investments (Stegaroiu, 2018). Finally, cryptocurrency can be created by anyone with the proper technical skillset, and exchanges can be carried out by licensed and unlicensed exchange offices (Amanzholova & Pavel, 2018). The plethora of disadvantages and how to overcome them continue to discourage adoption by the masses and subsequently the widespread use within businesses today.

### **The Diffusion of Innovation Theory**

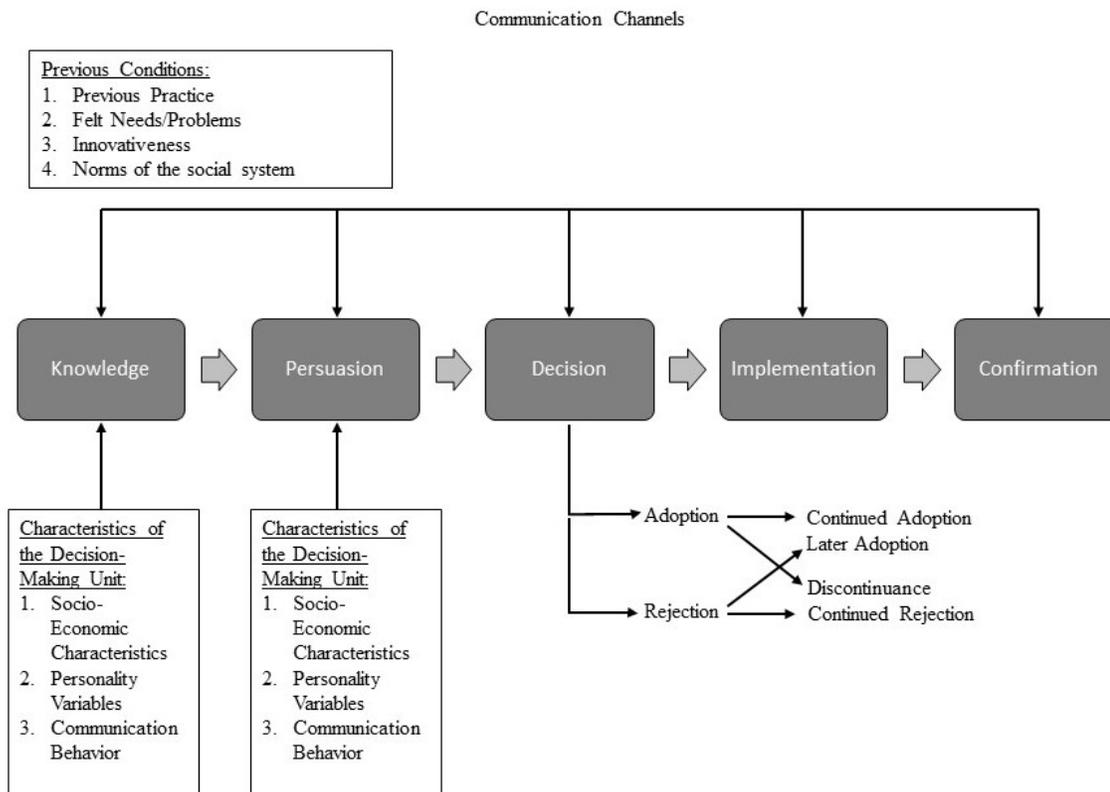
Most monetary theories do not emphasize the importance of technological advancement and innovation (Papadopoulos, 2015). According to Papadopoulos (2015),

technological innovation is often only minimally considered as a factor in a monetary system. Innovation, however, was the driving force behind the creation of cryptocurrency (Spithoven, 2019), and thus, the diffusion of innovation theory was an appropriate lens for this study. The diffusion of innovation (DOI) theory was developed by E. M. Rogers at the University of New Mexico in 1962 (Rogers, 1962). The inauguration of this theory began in the communications discipline to elucidate, over time, how a concept, idea, or novel product attaches itself, gains momentum, and rapidly disperses through a collective population or communal system (Rogers, 1962). The result of this diffusion is that people, as part of more extensive social systems, formally adopt an innovative idea, behavior, or product (Min et al., 2019; Presthus & O'Malley, 2017; Rogers, 1962; Roussou et al., 2019). The relevance of the diffusion of innovation theory to this study was that it is the foundational premise to explain business leaders' behaviors and strategies to adopt cryptocurrencies as an alternative payment method in the modern global economy.

The diffusion of innovation theory consists of four elements (a) innovation, (b) communication through channels, (c) time, and (d) members of a social system, and five groups of people (a) innovators, (b) early adopters, (c) early majority, (d) late majority, and (e) laggards (Presthus & O'Malley, 2017). According to E. M. Rogers, the theory's author, the innovators and early adopters will welcome innovation, such as a new technology like Bitcoin, and influence others (early majority, late majority, and laggards) to adopt later (Presthus & O'Malley, 2017). Methods of communication, subjective opinions, the amalgam of urban to rural populations within a larger population, level of

education, and the degree of industrialization and economic development are also important factors that impact how quickly the diffusion occurs (Rogers, 1962). While the diffusion of innovation theory has its complexities, once mastered, the theory is quite effective in promoting the adoption of new products.

In addition to the four elements of the diffusion of innovation theory, Rogers (1995) later pinpointed five constructs that serve as the catalyst for the diffusion of innovation: (a) relative advantage, (b) compatibility with existing values and practices, (c) complexity, (d) trialability, and (e) observability, which he termed the Innovation Decision Process Model (IDPM) (Figure 1). Although the IDPM is constructed on the theory of communication, it is often associated with the diffusion of innovation theory as a conjunctive element (Roussou et al., 2019). According to the IDPM, potential groups of adopters evaluate an innovation using the innovation attributes as a foundation for their decision to embrace or reject the innovation (Seligman, 2006).

**Figure 1***Innovation Decision Process Model*

*Note:* This figure displays the process through which an individual (or another decision-making unit) passes from first knowledge of an innovation to persuasion factors toward the innovation, to decide to adopt or to reject, to implementation of the new idea, and to confirmation of this decision. Adapted from *Diffusion of Innovations* (4th ed.), by E. M. Rogers, 1995. Copyright 1995 by The Free Press.

### **Diffusion of Innovation and Modern Strategies**

In the quantitative study conducted by Roussou et al. (2019), the researchers examined the factors that influence commercial customers to adopt digital currencies

using the diffusion of innovation and the technology acceptance model as a theoretical basis. In the study, 254 respondents were surveyed globally using an online questionnaire that probed their attitudes and future prospects of digital currencies. A total of 198 independent variables were identified, but due to potential issues of under-identification using the structural equation model, only 19 of 198 independent variables were used to examine their effect on the dependent variable (Roussou et al., 2019). The results derived from the survey data illustrated that the respondents believed that security was the most significant factor affecting their decision to adopt digital currencies as an alternative payment method for commercial transactions, followed by perceived usefulness (Roussou et al., 2019).

The study conducted by Roussou et al. (2019) further supported studies by Chau and Hu (2002) and Chismar and Wiley-Patton (2003) using the closely related technology acceptance method (TAM) that confirmed that usability was not a significant factor regarding new technology adoption. Also, in the studies conducted by Chau and Hu (2002) and Chismar and Wiley-Patton (2003), researchers found that early adopters felt that an understanding of the technology was the most meaningful factor for adoption. These studies, coupled with Roussou et al.'s. (2019) research based on DOI demonstrated that early adopters were not heavily reliant on the simplicity and ease of use of new technology to spur adoption. Other factors such as security ranked far higher for commercial end-users to adopt the new innovations of digital currencies (Roussou et al., 2019).

The quantitative study conducted by Kijek et al. (2020) can be used to illustrate the impact that certain variables have on the rate of diffusion of technology products, as suggested in the seminal work of Rogers (1962). Kijek et al. (2020) focused on the influence of social media as a variable on millennials as early adopters regarding purchasing new and innovative technological goods and services. Using a research model grounded in the diffusion of innovation theory, the researchers proposed several hypotheses concerning the power of social media on millennials' availability of information on innovative products and whether or not social media had a positive effect on purchasing innovative products. This study demonstrates the type of modern social strategies, such as social media campaigns, that business leaders may need to adopt to further the acceptance of cryptocurrencies as a mainstream alternative payment method rather than an anonymous phenomenon associated with illicit markets.

Kijek et al. (2020) used seven latent variables: information availability, convenience, habit, adventure, social media innovative product browsing, social media innovative product information sharing, and innovative product purchase intention. Questionnaires using a 5-point Likert scale were distributed to 315 respondents in three Polish universities (Kijek et al., 2020). The results were calculated using the chi-square model and indicated that 6 of the 7 latent variables had a positive and significant effect on millennials' purchasing of innovative products (Kijek et al., 2020). Contrary to the studies conducted by Chau and Hu (2002) and Chismar and Wiley-Patton (2003), in this study, information availability to promote overall understanding was the only variable that did not have a significant correlation on innovative product browsing (Kijek et al., 2020).

Kijek et al. (2020) concluded that if business leaders and product managers want to stimulate millennials as early adopters to engage with innovative products, such as cryptocurrency, they must take steps to fulfill the motives represented by the six latent variables that proved to have a positive and significant impact on purchasing behavior of millennials.

Kijek et al. (2020) contended that several forms of Internet communication should be employed, such as blogs and online reviews, to stimulate the enticements of the elements of convenience, habit, adventure, and social media innovative product browsing for the early majority population of innovation adoption (Kijek et al., 2020). By giving consumers a venue to search and share experiences, they can connect with others to satisfy their purchasing motives (Kijek et al., 2020). As such, the early adopters may have significant influence over the early and latent majorities by using technology such as the Internet to invoke, encourage, and enhance the diffusion of innovation. Kijek et al. demonstrated that the power of social media has proven to have an influence on specific age groups, such as millennials as early adopters, to embrace innovative alternative payment methods such as Bitcoin and other cryptocurrencies and may be a basis for further business strategies to popularize the currency.

Wonglimpiyarat and Yuberk (2005) also explored the entire lifecycle of Roger's innovation diffusion theory. In their paper, 53 research and development projects from two major research funding organizations in Thailand were used to examine the initial development stages of new ideas through the final diffusion or commercialization stage. Wonglimpiyarat and Yuberk found that only 10 out of 53 projects (19%) successfully

made it to diffusion (commercialization). All of the 43 other projects (81%) failed to make it to the commercialization stage due mainly to the extent of the change agents' promotion efforts. Wonglimpiyarat and Yuberk demonstrated that the innovation of diffusion followed an S-curve and that demands for technological innovations are not overwhelming for projects that did not have significant marketing efforts. The high demand for the ten successful innovations resulted from intensive marketing campaigns and effective linkages with industries, thus supporting the need for modern strategies for successful adoptions of new innovations and technology.

### **The Diffusion of Innovation Theory and Cryptocurrency**

The proclamation of Bitcoin's legal status by the United States Treasury began in 2013 (Bamert et al., 2013). The early adopters served as paradigm shifters within the economy and predicted visionary advantages to the cryptocurrency and its rapid and secure settlement process using Blockchain technology (Harris & Wonglimpiyarat, 2019). These early adopters mentioned such concepts as lending and currency exchange, as well as real estate, diamond mining, stock trading, hospital operations, and digital content distribution (Harris & Wonglimpiyarat, 2019). The application of the currency by early adopters, however, has since extended to many more markets, including both legitimate and illegal commercial environments.

Within the small-scale qualitative study conducted by Presthus and O'Malley (2017), the researchers discussed the diffusion of innovation theory as the basis for the enthusiasm and reluctance regarding the adoption of Bitcoin as a digital currency. According to Presthus and O'Malley, the profile of the average Bitcoin user is 32.1 years

of age, male (95.2%), full-time employment (44.7%), non-religious (61.8%) and a libertarian political association (44.3%). Most Bitcoin early adopters embraced the cryptocurrency out of technical curiosity and not by the potential monetary gain (Presthus & O'Malley, 2017). The major deterrents, according to Presthus and O'Malley, for the non-users of Bitcoin were the switching costs between fiat currency and Bitcoin and the perceived non-value of using the currency. Although this study was very small-scale in nature, Presthus and O'Malley demonstrated the need for a further in-depth study demonstrating Bitcoin's perceived advantages and disadvantages for individuals to make an educated decision about the innovative currency.

### **Diffusion of Innovation and the Global Adoption of Cryptocurrency**

Cryptocurrency adoption continues to propagate globally, but more than anecdotal evidence is needed to objectively determine what variables impact the rates of adoption around the world. In a quantitative study, Reddick et al. (2019) examined the factors that influenced Blockchain adoption at the national government level using the diffusion of innovation theory as a theoretical framework. The researchers reviewed Blockchain initiatives within 213 countries globally and found that only 40 had instigated such initiatives proving that global adoption of the technology is still very limited. These results provide insight regarding the likelihood of the continuation of Blockchain initiatives, which may influence business leaders to consider the initial or continued adoption of the Blockchain and cryptocurrency.

Reddick et al. (2019) used the diffusion of innovation theory to explain the elements leading to the Blockchain initiatives and their level of influence at the national

government level. Reddick et al. investigated the five adoption categories within the diffusion of innovation: innovators, early adopters, early majority, late majority, and laggards, and their role in influencing new innovations such as the Blockchain; however, Reddick et al. also examined the five aspects of innovation that significantly influence technological adoption: relative advantage, complexity, compatibility, trialability, and observability, and provided an overview of each aspect and its significance within the diffusion of innovation theory. The variables examined in the study by Reddick et al. were the level of cybersecurity, e-government adoption, government effectiveness, control of corruption, political stability and absence of terrorism, voice and accountability, and gross domestic product per capita. The results of this study indicated high levels of correlation between government effectiveness and control of corruption, as well as e-government adoption and government effectiveness (Reddick et al., 2019). Additionally, results showed higher scores on all independent variables (Reddick et al., 2019). Specifically, the early adopters of Blockchain technologies displayed, on average, a better national framework of cybersecurity, control of corruption, e-government development, government effectiveness, and political stability (Reddick et al., 2019).

Reddick et. al.'s (2019) overview of each aspect and its significance within the diffusion of innovation theory provided insight into the fundamental elements needed to achieve successful national adoption of cryptocurrency. The results of the study conducted by Reddick et al. also upheld their prediction that countries may likely have Blockchain initiatives based on their internal characteristics examined as independent variables. Of the six variables examined, only three were statically significant for

Blockchain initiatives and adoption: cybersecurity, government effectiveness, and political stability (Reddick et al., 2019). The remaining three variables, e-government adoption, control of corruption, and GDP per capita, were not statistically significant (Reddick et al., 2019). This insight into the fundamental elements necessary for cryptocurrency adoption fostered by Reddick et al. provided a glimpse into the likelihood of the continuation of Blockchain initiatives in certain countries, which may influence business leaders to consider the initial or continued adoption of the Blockchain and cryptocurrency.

### **Alternate Theories**

Researchers are expected to make a distinctive application of the constructs of the selected conceptual framework within their doctoral studies. The selection of the conceptual framework requires comprehensive knowledge and appreciation of the problem, purpose, and significance of the study. As such, the chosen conceptual framework must give emphasis to the purpose and importance of the inquiry (Grant & Osanloo, 2014). If the selection of the conceptual framework is poorly chosen, the entire foundation of the study can be flawed. By reviewing an alternate theory as well, researchers increase the validity of the study by ensuring the guiding principles of the selected conceptual framework provide the soundest underpinning for the inquiry. Game theory was an alternate conceptual framework reviewed for this doctoral study.

### **Game Theory**

Although cryptocurrency adoption continues to propagate globally, anecdotal evidence suggests that the rates of adoption around the world are influenced by illegal

commercial markets in virtual environments such as the Darknet (Berdiev et al., 2018). Berdiev et al. investigated the growing size of underground shadow economies and the clandestine environment that keeps them hidden from main national economies. Many experts believe that the overall size of shadow economies constitutes nearly 30% of the world's gross domestic product (GDP) (Berdiev et al., 2018). While this number represents a worldwide average, the size of shadow economies from country to country varies greatly. In this virtual environment, vendors engage in strategic business-building endeavors utilizing cryptocurrency and a labyrinth of online goods and services.

In unregulated shadow economies such as those that exist on the Darknet, the game theory is used in a practical business application to demonstrate how business leaders employ games of strategy, but not chance (Fatemi et al., 2012) to grow their business ventures. Ott (1999) agreed, stating that the game theory is not limited to mathematics and can be appropriately applied to international business by using the theory as a strategic tool to examine rational analysis. Ott (1999) also examined strategic choices and decisions as part of the game theory and believed that it overlaid the foundations for economic influences of international business.

Game theory was developed by Oskar Morgenstern and John von Neumann in 1944 (Aigbokhaevbolo, 2011; von Neumann & Morgenstern, 1944) and involves strategic interaction between two or more individuals in a situation containing set rules and outcomes (Fatemi et al., 2012). The participants are confronted with choices of engagement or actions (Aigbokhaevbolo, 2011), whereby each participant can gain or lose, depending on what others choose to do or not do (Fatemi et al., 2012). The final

outcome of the game, therefore, is determined jointly by the strategies chosen by all participants (Fatemi et al., 2012).

For businesses operating in shadow economies, anonymous cryptocurrency is used as a medium for exchange and trade where business leaders, vendors, and customers face a series of strategic decisions to achieve their desired goals, which are to achieve wealth, attain illegal goods or services, and avoid detection by law enforcement and taxation authorities (Shillito, 2019). For vendors, they must respect the privacy and anonymity of customers and fellow vendors, and they must truthfully represent the goods that they are selling, even if the goods are illegal. Vendors must make a good faith effort to deliver the goods to the customers' desired location even if the authorities intercept them. It is accepted as a known risk of doing business on the Darknet.

Transactions of the shadow economy remain anonymous by using cryptocurrency. By conducting business on the Darknet, participants decrease the likelihood of being detected by law enforcement and tax authorities (Shillito, 2019). As likened to the game theory, there is no advantage for the vendors to try and disrupt sales for another vendor, cooperate with authorities, or reveal anyone's identity. Any participant attempting a zero-sum game, whereby one vendor wins and one loses, would eventually disrupt the delicate balance of the shadow economy (Aigbokhaevbolo, 2011). The outcome of the game, or in this case, the continued existence of the shadow economy on the Dark Web, depends on the strategies jointly chosen by all participants. Although there is no way of knowing what the other participants are going to decide, ultimately, if everyone does not play by

the same rules, the entire economy could fail, and everyone would lose (Aigbokhaevbolo, 2011).

### ***Game Theory and Behavior Prediction***

According to Casey et al. (2019), the current phenomenon of pseudonymous identities on the Internet has the possibility of enforcing a system of usage identity. By applying the game theory, Casey et al. stated that it is possible to analyze individuals' decisions to establish patterns of behavior, to include commercial purchasing activities, and expose identities. By using a dynamic system to capture decisions over a period of time, repeated play and strategies are captured, thus creating a roadmap to a pseudonymous individual. Casey et al. liken this human behavior to an ant colony where the insects use pheromone communication to reinforce good paths of travel between the nest and food source. Behaviors become predictable, thus exposing the ants' roles in the colony. Pseudonymous users of social networks are much the same as ants by exhibiting patternistic behaviors that can lead to identity exposure. Business leaders could exploit the patterns of behavior to develop marketing strategies for cryptocurrency to consumers who show behavior patterns towards technology and fit the consumer profile for their goods and services.

Similarly, Castiglione et al. (2019) utilized game theory to establish community detection to uncover the underlying social structure of Internet influencers and their associated communities known as hubs. By using the game theory and the Nash equilibrium for this phenomenon, Castiglione et al. believed that social network participants would behave as rational actors who influenced the individual strategies and

independent decisions of others unknown to them within a virtual community. The goal of the actors, while only assuming knowledge of the other participants, was to exert an influence that triggered others to react to maximize the actors' personal benefits and utilities. Business leaders who possess the ability to influence segments of the population using the game theory could establish business strategies to make cryptocurrency adoption desirable to those who exhibit specific behaviors and tendencies.

### **Game Theory versus Diffusion of Innovation**

Business leaders may consider whether the game theory or the diffusion of innovation theory better explains the rate of global adoption for cryptocurrency as an alternative payment method. Although the purpose of this study was to explore the strategies that legitimate business leaders use to respond to the alternative payment concerns perpetuated by cryptocurrency markets through the lens of the diffusion of innovation theory, there was value to examining the growing success of illegal shadow economies and the operating strategies that have been adopted using cryptocurrencies as an exclusive medium of exchange (Berdiev et al., 2018) using the game theory.

It was expected, however, that legitimate business leaders may not have the palate to forensically examine the intricate commercial strategies regarding the buying and selling of the plethora of goods and services offered on the Darknet. Even though shadow economies represent an estimated 30% of the GDP in some countries (Berdiev et al., 2018), adopting cryptocurrency strategies used for illegal drug sales, human trafficking, terrorism financing, and credit card and document fraud (Shillito, 2019) may not be applicable in the legitimate and regulated legal, commercial environment. As such, using

the diffusion of innovation theory as a lens for this study can apply to all business environments to explain the adoption of cryptocurrency as an alternative payment method and expose associated concerns with the strategies to broaden the pace and size of the adoption.

### **Shifting from Traditional Fiat Currency to Cryptocurrency**

In a qualitative study, Wonglimpiyarat (2015) discussed whether or not Bitcoin had the potential to transform the traditional fiat payment systems worldwide. According to Wonglimpiyarat (2015), technological advancements in banking have caused a shift towards cashless transactions such as credit cards and electronic fund transfers in the last several decades. Cryptocurrencies, such as Bitcoin, are the latest trend in electronic settlement concepts and appear to be slowly gaining in popularity, especially among millennials who have extensive experience, contentment, and attachment with technology and related solutions (Kijek et al., 2020). Wonglimpiyarat (2015) questioned, though, if the cryptocurrency innovation had the potential to cause a sweeping revolution in electronic payments. U.S. government agency leaders, such as those in the U.S. Treasury Financial Crimes Enforcement Network (FinCEN), however, have voiced suppositions that Bitcoin could possibly provide business leaders with the assurance that the currency is likely to be long-lived (Singh, 2015), thus aiding the catalyst for a possible global transformation of alternative payment methods such as cryptocurrencies.

By applying Gompertz's model within the theory of innovation diffusion, Wonglimpiyarat (2015) explored how technological advancements trigger paradigm shifts in society to become widely accepted and if Bitcoin was following the standard S-

curve experienced by other technological inventions. According to Wonglimpiyarat, the most significant reasons noted for the hesitance in the widespread adoption of Bitcoin were (a) competing mining protocol standards, (b) legality of Bitcoin activities, (c) risk loss or theft of digital wallets, (d) financial crime concerns such as money laundering, (e) insecure computer and Internet infrastructure, and (f) lack of trust in Bitcoin exchanges since central banks do not issue it. These reasons are significant enough to have prohibited Bitcoin from widespread adoption and achieve only a penetration rate of less than 5 percent (Wonglimpiyarat, 2015). Subsequently, the low penetration rate demonstrates another problematic issue for business leaders to consider about accepting cryptocurrency as an alternative payment method.

In a quantitative study, Yoo et al. (2019) applied the diffusion of innovation theory to examine four user-oriented theories regarding consumers' willingness and intention to use new goods and services. By using the theory as a lens, Yoo et al. investigated the benefit-risk concept, the theory of planned behavior, and transaction cost theory to address 1300 samples to propose that apparent benefits and corresponding service had significant roles in determining Bitcoin adoption behavior of individuals. Comparatively, Yoo et al. also determined that risk, cost, and complexity had no substantial impact on users' adoption behavior. The researchers found that the study participants' attitudes towards services were a key determinant in user adoption. More simply put, if the participants believed that the innovation was not unique or new, adoption behavior was hindered. Yoo et al. concluded that potentially both business leaders' and customers' attitudes toward Bitcoin could be a determining factor on whether

or not business leaders would risk implementing Bitcoin as an alternative payment method for goods and services in legitimate markets.

The findings of Yoo et al. (2019) were echoed by Narman and Uulu (2020), who found that investors reacted to the positive and negative attitudes on social media towards cryptocurrencies. Narman and Uulu's (2020) results are significant to contemporary businesses that desire to explore the establishment of cryptocurrencies as alternative payment methods. Business leaders should first explore the feelings and attitudes regarding specific digital currencies before making definitive decisions on what cryptocurrencies to accept as alternative payment, especially since this action would represent a hefty shift away from convention fiat payments and conventional payment options such as credit cards.

### **Adoption of Cryptocurrency in the United States**

The Stamp Payment Act of 1862 made it illegal for anyone to create and circulate money intended to be used as lawful currency in the United States (Lane, 2014). It is, however, in the interpretation of The Stamp Payment Act as to whether or not cryptocurrencies are indeed money (Lane, 2014). Lane contended that many view cryptocurrencies, such as Bitcoin, like credit cards, as an electronic payment method used for the exchange of goods and services. However, Bitcoin is not backed by official currency or commodities like gold or silver; therefore, others believe that Bitcoin does not meet the standards for traditional currency and is not subject to securities regulation (Lane, 2014). Without any new federal legislation in the United States regarding cryptocurrency, politicians and scholars are left to engage in the subjective interpretation

of existing laws (Lane, 2014). As such, debates continue on each side of the aisle in the United States Congress. Still, without evolving laws that address new technologies, there may never be a clear argument on whether or not Bitcoin is actually money in the eyes of the law (Lane, 2014).

### **Cryptocurrency as a U.S. National Currency**

McCallum (2015) stated that Article 1, Sections 8 and 10 of the U.S. Constitution stipulate that the nation's monetary system will be based in gold and silver. Unless the Supreme Court rules to change this portion of the U.S. Constitution, it is unlikely that Bitcoin will ever become the official national currency of the United States (McCallum, 2015). The U.S. Constitution, however, does not preclude private individuals from creating money (McCallum, 2015). While counterfeiting is illegal, scholars have argued that money is based on tangible assets, and since Bitcoin is an intangible asset, it does not qualify as money (McCallum, 2015). Counterfeiting laws, subsequently, do not apply (McCallum, 2015). It is the consensus of scholars and policy experts that Bitcoin will likely remain an unregulated, technical phenomenon that is likely to grow in popularity without interference from policymakers (McCallum, 2015).

### **Regulation of Cryptocurrency in the United States**

The United States Treasury's Financial Crimes Enforcement Network (FinCEN) is the first federal agency to address the regulation of cryptocurrency (Singh, 2015). Singh (2015) explained that under FinCEN's Bank Secrecy Act (BSA), statutory conditions attempt to address money laundering by requiring the reporting of certain transactions using banks and other financial institutions (Singh, 2015). According to the

stipulations in the BSA, all financial institutions are required to report transactions in excess of \$10,000 in Currency Transaction Reports (CTR) (Singh, 2015). In addition, all financial institutions are required to file Suspicious Activity Reports (SAR) if suspected illegal transactions are encountered (Singh, 2015). The Money Laundering Control Act of 1986 made money laundering a federal crime, and the USA Patriot Act of 2001 made any unlicensed money-transmission business a felony (Singh, 2015). Under the Cybersecurity Information Sharing Act (CISA), companies are required to combine and share their information with the government to counter cybersecurity threats (DiPiero, 2017). The Digital Millennium Copyright Act (DMCA) was also established to provide a pathway for law enforcement to identify Dark Web users to be able to prosecute them due to involvement in illegal activities (Dipiero, 2017). While the United States has instituted several statutory measures to combat illegal currency transactions, the same has not been undertaken by other countries on the global frontier.

FinCEN recently proposed, as part of the Bank Secrecy Act (BSA), a requirement for:

Banks and money service businesses (MSB) to document, submit, and verify the identity of customers engaging in transactions involving convertible virtual currency (CVC) or digital assets with legal tender status (legal tender digital assets or LTDA) held in unhosted wallets, or held in wallets hosted in a jurisdiction identified by FinCEN (Bank Secrecy Act, 2020, Summary section, p. 83840).

Although this proposal is still in the exploratory public comment stage, business leaders have expressed extreme concern with bearing the responsibility to identify and report on individuals using cryptocurrency under the guidelines proposed by FinCEN. By removing the anonymous benefits of using the currency, this proposal has the ability to detract cryptocurrency adoption as an alternative payment method as well as derail the overall general use and purchasing activity using cryptocurrency. Subsequently, this proposal, if adopted, could also negatively impact the business leaders who are considering cryptocurrency adoption as a way to expand their commercial footprint to techno-savvy consumers who prefer anonymity and shopping privacy.

### ***Legal Interpretation and Evolving Viewpoints***

According to the Government Accountability Office (GAO) and FinCEN, virtual currency is not a legal tender, and its value is propagated on the individuals' acceptance that the currency represents value (Trautman & Harrell, 2017). The currency is not backed by assets or precious metals such as gold or silver but instead is generated by sophisticated computer algorithms (Trautman & Harrell, 2017). FinCEN, however, has also issued interpretive guidance of money-service-businesses, such as Paypal, provided definitions of virtual currency and information for contemporary technical environments regarding federal reporting responsibilities (Singh, 2015). FinCEN is the only federal agency that has attempted such interpretive guidance and continues to bear the burden of continuing uncertainties surrounding cryptocurrencies (Singh, 2015). FinCEN has also recognized the benefits of cryptocurrency to the public and has officially stated that it does not want to stifle Bitcoin's potential to improve the lives of poverty-stricken

individuals (Singh, 2015). As such, FinCEN's position on Bitcoin could possibly provide business leaders with the assurance that the currency is likely to be long-lived, thus reducing the business risk of adopting the currency as an alternative payment (Singh, 2015). An endorsement such as this from FinCEN may be a catalyst that improves cryptocurrency's outlook among many leaders in contemporary businesses.

Notwithstanding the endorsement from FinCEN, there is still cautious speculation regarding the investment in cryptocurrency because of the lack of comprehensive regulation worldwide. In a quantitative study, Liebau and Schueffel (2019) examined the popularity of Bitcoin cryptocurrency on the market and also explored over 45 other cryptocurrencies that have had initial coin offerings (ICO) to raise capital. Liebau and Schueffel concluded that 49% of ICO were failures, of which 6.7% were scams, which largely resulted from the overarching, unregulated process. The remaining 51% were deemed survivors that yielded an annual interest rate of 164%. While most investors hope for the stunning performance experienced by Bitcoin, Liebau and Schueffel stated that investing in cryptocurrency remains a very volatile and risky endeavor. Liebau and Schueffel's empirical studies on the market volatility of cryptocurrency and the factors that affect the networks that create and support virtual digital currencies demonstrated the perpetual risks of virtual currencies as well as the high failure rates of ICOs.

### **Business Ethics of Cryptocurrency**

In addition to the volatility of cryptocurrency, business leaders are faced with an ethical dilemma as well regarding the currency. According to Dierksmeier and Seele (2018), there is an ethical significance of cryptocurrencies and the impact of Blockchain

technology on financial transactions in the global business environment. Cryptocurrency has been hailed by many as the solution to persistent societal ailments such as poverty, growing debt crises, and hyperinflation. Still, others have touted the currency as one that encourages shadow economies and nefarious markets dealing in sex, drugs, human trafficking, child exploitation, and weapons trafficking (Shillito, 2019). Regardless, both sides agree that cryptocurrency has the potential to transform the previous forms of traditional money.

### ***Immoral Uses of Cryptocurrency on the Darknet***

The Darknet was developed by the United States Naval Research Laboratory to protect sensitive information but was made available to the general public in 2004 (Alnabulsi & Islam, 2018). Since then, the Darknet has given rise to the Dark Web, which is an unsafe environment for users because of the unethical and illegal goods and services that are traded on that portion of the Internet (Alnabulsi & Islam, 2018). In addition to drugs, weapons, fake documents, stolen merchandise, and pornography, users can purchase the services of hitmen and hackers (Alnabulsi & Islam, 2018; Shillito, 2019). Terrorist and extremist organizations use the Darknet to spread information about improvised explosive devices, as well as Jihadist forums and other violent propaganda (Alnabulsi & Islam, 2018).

Shillito (2019) provided poignant and illustrative statistics and information regarding the illegal and immoral cryptomarkets that have emerged as a result of the anonymity and subsequent lawlessness of the shadow economies on the Dark Web. Shillito also illustrated that the users of virtual private networks (VPN) and The Onion

Router (TOR) could conduct illegal businesses from any place in the world anonymously. The advanced technology of the Dark Web, coupled with anonymous digital currency, has presented extraordinary challenges to law enforcement.

In addition to law enforcement challenges, cryptocurrency tests the traditional relationships between vendors and consumers. Dierksmeier and Seele (2018) expressed a genuine desire to invoke a candid discussion on the pros and cons of cryptocurrencies from an exploratory basis, without bias or moral opinions. Of particular interest in their essay was the examination of trust among payers and payees involved in financial transactions. With no opportunity to establish transparency and credibility through face-to-face business relationships, cryptocurrencies users believe in verification technology to mediate the settlement of transactions. Most claim that this risk is worth being able to avoid centralized banking, high settlement fees, and government manipulation of currency valuation.

Dierksmeier and Seele (2018) acknowledged that academic endeavors are lacking in the specific subject of the business ethics of cryptocurrencies and offer a limited overview of the phenomenon from a micro, meso, and macro perspective; however, when the subject is broadened to consider illegal and immoral activities on the Dark Web concerning transactions for good and services as unethical using cryptocurrencies, the academic endeavors are more robust. Given the newfound phenomenon of cryptocurrency, some latitude should be provided to examine the comprehensive commercial uses of cryptocurrencies, even if illegal businesses are involved.

### **Companies, Consumers, and Cryptocurrency**

For an innovation in currency to flourish in today's economy, it needs to expand and enhance the existing benefits of credit and debits cards (Parashar & Rasiwala, 2019). The innovation also has to be safer, expedient, more convenient, and widely accepted by merchants and businesses globally (Parashar & Rasiwala, 2019). Although cryptocurrency has not yet achieved vast adoption within the United States, a growing number of legitimate companies have ventured forward as early adopters of the currency as an alternative payment.

In 2019, Zogby Analytics was commissioned by HSB Group, Inc. to conduct a survey of 505 small to medium-sized businesses within the United States (Hartford, 2020). The survey found that 36% of all small and medium-sized companies in the United States now accept cryptocurrency as an alternative payment. Several major companies are also following suit regarding the acceptance of cryptocurrency as payment. For example, Wikipedia is an American non-profit and charitable organization headquartered in San Francisco, California (Wikimedia, n.d.). Wikipedia is the world's largest open-source encyclopedia and began accepting donations in Bitcoin on July 30, 2014 and achieved \$140k in its first week (Wikimedia, n.d.). The organization cited grassroots community support for the integration of Bitcoin with a goal to offer flexible payment options to those who donate to keep the online encyclopedia running. Payments are made through an online service called BitPay and offer patrons greater versatility in their donation options (Wikimedia, n.d.). While Bitcoin adoption continues to slowly progress among businesses, the study conducted by Parashar and Rasiwala (2019) found

that respondents felt that the risks for online theft or technical problems remained significant disadvantages and subsequently deterrents from fully embracing Bitcoin as an alternative payment method. Despite the controversy surrounding cryptocurrency, the lack of global regulation, and the market volatility, cryptocurrency, an increasing number of small, medium, and large business leaders are choosing to adopt the currency as an alternative payment method. Additionally, the growth of the virtual currency industry to include Bitcoin Exchanges, Bitcoin Banks, Bitcoin ATMs, Bitcoin Wallets, and Bitcoin payment gateways all support the use of Bitcoin as a global medium of payment for goods and services as well as a speculative investment (Tu & Meredith, 2015). Additionally, innovative technologies present opportunities organizations to increase their economic growth and market competitiveness (Wong et al., 2020). With a focus on technological innovations and perceived value, organizational leadership is able to use cryptocurrency to capitalize on operational and environmental conditions that improve their competitiveness in the global marketplace (Wong et al., 2020).

An increasing number of institutions and individuals are opting out of conventional banking systems because of privacy concerns, overt government influence, and corruption. The complete lack of unified global regulatory frameworks and growing criminal involvement (i.e., human trafficking, illegal drug distribution, etc.) with cryptocurrencies, however, leave many people and business leaders wary about the volatility and legitimization of the currency (Dierksmeier & Seele, 2018). As such, the legitimate and legal aspects of cryptocurrency are still widely debated topics.

## **Consumer Demand**

Additionally, Dierksmeier and Seele (2018) expressed that, on a micro-level, cryptocurrencies are typically not a reliable method for personal savings due to the risk of accidental loss of the unique, irreplaceable wallet seed key, valuation fluctuations, and the criminal activity of hackers. Cryptocurrency does have the potential to reduce poverty for individuals who cannot qualify for a credit card or who cannot afford the high interest or yearly membership fees, but hurdles still exist regarding overcoming the inherent risks. Speculation, therefore, remains if cryptocurrency is palatable for the average citizen.

On a meso-level, Dierksmeier and Seele (2018) pointed out that cryptocurrencies have enormous potential for pockets of worker populations like migrant workers who are charged exorbitant transaction fees up to 17% to wire money to their home countries of origin. Unfortunately, the continuing volatility of cryptocurrencies has resulted in many firms not accepting the currency as mainstream payment for goods and services. The essential dilemma, therefore, remains regarding how business leaders will change their business strategies to adopt cryptocurrency more widely as an alternative payment method while combating the stigma of illegal market uses and law enforcement concerns of the currency.

## **Summary and Transition**

The concept of currency has existed for thousands of years in every civilized society and has evolved throughout the ages (Bridel, 2018). Contemporary currency has been transformed by technology from fiat currency that is made of paper and precious metals to one that is virtual, where all transactions occur with a computer using the

worldwide web. Virtual or cryptocurrency is more secure, provides faster settlements, and is widely accessible to all people, even those who were previously barred from credit cards due to their existing creditworthiness. According to government organizations like FinCEN, cryptocurrency is the currency of the future (Singh, 2015), but accommodating it, is likely to present several challenges.

Money illusion refers to the influence that the nominal value of currency has on individuals' perception of its true value (Wertenbroch et al., 2007). Carl Menger (1871) believed that the value of any currency hinges on the inherent value of the currency that people are willing to accept in exchange for a certain commodity, but this acceptance, however, will never be attained by all individuals of a group at the same time (Bridel, 2018; Menger, 1871). Cryptocurrency's market volatility and the instability of the Bitcoin futures market have resulted in many people and businesses choosing to pause regarding future cryptocurrency investments as society debates over the value of the virtual currency that is not backed by any asset or precious metal (Stegaroiu, 2018). This phenomenon presents extraordinary challenges for business leaders who are debating and strategizing over how to integrate cryptocurrency into their businesses as an alternative payment method, but the lack of acceptance by mainstream society leaves them perplexed regarding the next steps.

In Section 1, I provided the basis for an applied business study on cryptocurrency adoption using a multiple-case qualitative study. A research question, interview questions, conceptual framework, operational definitions, assumptions, limitations, delimitations, and significance of the study were also provided, along with a thorough

and comprehensive literature review. The literature review included an introduction to cryptocurrency and its ecosystem along with the most contemporary information on the Blockchain, the security of cryptocurrency, advantages and disadvantages, as well as the current state of global adoption and national regulation of the currency. In Section 2, I provide information on how the study was conducted, data collection instruments and techniques used in the study, the data organization technique, and the data analysis approach. Section 2 also includes details on the strategies used to enhance the overall reliability and validity of the study.

## Section 2: The Project

In Section 2, information is provided on the study's purpose, the role of the researcher, the participants selected for the study, the research method and design, and the population and sampling of the business leaders engaged in cryptocurrency adoption for their companies within the United States. Section 2 also includes the details on the adherence to ethical research standards, data collection instruments and techniques used in the study, the data organization technique, and the data analysis approach. The final area of Section 2 details the strategies that were used to enhance the overall reliability and validity of the study.

### **Purpose Statement**

The purpose of this qualitative, multiple-case study was to explore the strategies that business leaders use to respond to the alternative payment concerns perpetuated by cryptocurrency markets. The targeted population consists of six business leaders in the United States who have developed successful strategies to respond to the alternative payment concerns perpetuated by cryptocurrency markets. The results of this study may invoke social change by providing education and information regarding the growing illegal and immoral uses of cryptocurrencies that are harming society globally so that business leaders can use their power and influence financially as well as politically to support economic reform and regulation of the currency. This study may also catalyze social change by encouraging more business leaders to adopt cryptocurrency as a viable alternative payment method so that the world's most disenfranchised, impoverished, and

credit-challenged individuals can be afforded the access to goods and services that they so desperately need.

### **Role of the Researcher**

In a qualitative research effort, the research is conducted from an emic perspective whereby the researcher has categorical involvement with the research participants for the purposes of collaboration, interaction, and interpretation (Marshall & Rossman, 2016; Terrell, 2016). The researcher becomes the data collection tool with receptivity and mindfulness to demonstrate trust and ethical behavior with the participants and to avoid potential biases that may not be open to contrary evidence that does not support their research problem (Marshall & Rossman, 2016; Yin, 2018). I served as the principal data collection instrument in this qualitative study. Achieving the knowledge to answer the research question required a thorough comprehension of the cryptocurrency technology, which I obtained as a federal technical analyst at the U.S. Treasury, Financial Crimes Enforcement Network (FinCEN). Academic training also assisted me in developing an acute awareness of a researcher's innate beliefs, opinions, and biases so that research can be conducted in the most neutral, non-judgmental, and objective environment (Klamer et al., 2017; Marshall & Rossman, 2016). These efforts helped ensure that qualitative data was collected in a sensitive and respectful manner while providing maximum consideration to ethical issues (Marshall & Rossman, 2016).

### **Researcher's Relationship with the Topic**

A researcher should design the research with consideration to one's identity, experiences, sensitivities, perceptions, opinions, and assumptions (Marshall & Rossman,

2016). Awareness of the whole self helps minimize personal biases so that interpretation of results data was done in such a way as to strengthen the validity of the study overall. By seeking to discover and understand the meaning and experience of the study, the researcher was able to acknowledge how personal values impact the study (Bloomberg & Volpe, 2019). The resulting consciousness of this information and dispositions also helped to control the intrusion of bias.

As a retired U.S. Army officer and now federal employee of the U.S. Department of the Treasury, Financial Crimes Enforcement Network (FinCEN), my personal experience, perspectives, and values were defined by a keen sense of duty to the United States of America, along with strict ethical and moral boundaries. I believe in democracy and capitalism, whereby anyone from any background in life has the opportunity to succeed in life and to carve out a path of prosperity with hard work and dedication. I am also the descendant of a grandfather who fought in World War II and the wife of a retired Army officer who fought in Desert Storm, Operation Enduring Freedom, and Operation New Dawn. In my current position with FinCEN, I design and manage software applications to thwart money laundering and terrorism financing. I am intimately knowledgeable of U.S. federal policy on cryptocurrency and consider myself a subject manager expert on the topic. In my previous position as an IT project manager with the Drug Enforcement Administration (DEA), I created and managed law enforcement software applications to assist federal agents in the war against drugs. These software applications included ones that collected and tracked cryptocurrency addresses and other attributes used in illegal drug transactions.

According to Terrell (2016), the researcher often desires to prove things that support their principles, personal convictions, or beliefs. Additionally, valuations of most anything are based on knowledge, experience, familiarity, and interpretation (Klamer et al., 2017). My knowledge and expertise of cryptocurrency are entrenched in years of experience with my current and previous federal positions as a technical analyst and project manager with FinCEN and the DEA, which included training federal and contract personnel. I was vigilant and receptive recognizing and accepting contrary or divergent data and subsequent findings of my desired conclusions (Yin, 2018). Additionally, I was cognitively aware to not disregard data that does not fit my preconceptions of the desired outcome of my study.

Peer reviews have long since been recognized as a prerequisite and essential component for any journal, study, or academic writing process (Kelly et al., 2014). Subjecting a researcher's study to the inspection and examination of others who are experts in the same field helps to ensure that only superior research that withstands the rigors of peer scrutiny is published (Kelly et al., 2014). Peer reviews can also illustrate areas of bias, but researchers are ultimately responsible for the rigor, validity, and objectivity of their studies (Yin, 2018). Although I have an elaborate knowledge of cryptocurrency, its history, and various commercial uses, I took extraordinary measures not to exhibit bias or to judge my research participants' viewpoints on cryptocurrency, their past or future business strategies, technological knowledge, or awareness of the illegal uses of the currency. I was not an acquaintance of any of the research participants,

nor did I have any in-depth knowledge of their business entities, other than the general brand recognition of the average consumer.

### **Researcher's Role Related to Ethics and the Belmont Report Protocol**

The ethical behaviors of researchers regarding the health and humane treatment of human research participants were not always a mandate of academic research. The Belmont Report instigated by the United States government Health and Human Services (HHS) (1979) overhauled the research standards on human subjects and mandated three overarching principles. The first mandate related to beneficence and the ethical treatment of participants, protection from harm, and respect for their decisions (HHS, 1979; Terrell, 2017). The second mandate directed that participants be treated as persons capable of making their own decisions regarding their health and welfare. Even persons that were incapable of acting on their own behalf were entitled to the same protections (HHS, 1979; Terrell, 1979). The third mandate pertained to justice for participants and their entitlement to all entitled benefits without imposed burdens or inequality amongst research participants (HHS, 1979). More succinctly, these mandates focused on informed consent whereby researchers must ensure that all participants give informed consent and understand their rights as a participant (HHS, 1979; Terrell, 1979); the assessment of risks and benefits for each participant as well as provisions for information to participants to assist them in their decision to participate in the study (HHS, 1979; Terrell, 1979); and that researchers must establish impartial protocols for the identification and selection of study participants (HHS, 1979; Terrell, 1979). I was committed to ensuring the safeguarding of each participant and that each participant benefitted equally from

participation in my study. By adhering to the Belmont Study mandates, I provided open and transparent access to my study's raw data collection, findings, and conclusions to Walden University's chief academic officer for review and approval.

### **Bias Mitigation Efforts**

Researchers must be cognizant of their personal lens and be prepared to respond to any concerns about subjectivities that may influence the research study at any point within the effort (Marshall & Rossman, 2016). The strength of any qualitative research study depends on how intently a researcher understands each participant's world from their unique point of view and the ability to objectively collect and interpret data. A researcher's personal biases can only serve to unfavorably impact the authenticity of the participants' contributions and negatively affect the validity of the study overall; therefore, researchers should attempt to diminish bias by employing tools and tactics throughout their study.

One common tool used by researchers is triangulation. Methodological triangulation combines various sources of data together to assist in the minimization of fundamental biases arising from the utilization of a single source of information and develop a more complex understanding of the phenomena being studied (Marshall & Rossman, 2016; Yin, 2018). By utilizing various data types such as documents, reports, interviews, and observations, researchers are able to corroborate their findings and increase the overall validity of their study (Yin, 2018). Other tools, such as case study databases, are used as a repository for data so that the researcher can organize, revisit, and analyze data throughout the study (Yin, 2018). Having a well-organized database

also permits ease of peer review to identify bias and tolerance for divergent findings, as well as other academic officer reviews for validity and rigor (Yin, 2018).

Training is considered by Yin (2018) as an essential component for any research effort. Walden University requires all doctoral students to take a prerequisite number of courses that prepare us for the inevitable influence of our personal biases and how to minimize their impact within our doctoral study. Because of this training and information that I gleaned from my coursework, I selected a multiple-case study instead of a single case study to combat bias and improve the validity and rigor of my study. Finally, is the act of reflexivity. Reflexivity is the description of the relative nature of the association and interactions that occur between a researcher and the study's participants (Dodgson, 2019). A reflexivity journal is a record of common intersections between the researcher and participants such as age, ethnicity, community, cultural background, or any other element, however minute, that may invoke bias and impact the credibility of the research findings (Dodgson, 2019). Maintaining such an artifact allows the researcher to self-reflect on their experiences with participants and monitor the impact of serendipitous events, circumstances, or situations that have an inevitable impact on the overall study.

### **Interview Protocol Rationale**

Interviews are the most prevailing form of qualitative data (Bloomberg & Volpe, 2019). When used correctly, interviews can offer a researcher a rich and in-depth description of a participant's experiences, feelings, and viewpoints (Bloomberg & Volpe, 2019). Yin's (2018) philosophy is in alignment with Bloomberg and Volpe's (2019) summation that interviews offer the most intimate understanding of a study participant.

As such, established protocols provide researchers with the best chance of gleaning the most relevant data from participants. First, researchers must be sure to follow their established line of questioning (Yin, 2018). Secondly, researchers must ask their questions in an unbiased, non-threatening, and friendly way to the participants (Yin, 2018). Electronically recording all interviews provides the most accurate interpretation of the interviews but should only be used with the participant's permission (Yin, 2018). Interviewing is an art form and requires training and practice for a smooth, comfortable, and effortless execution. Despite the obvious strengths of interviews, there are several associated shortcomings that may present obstacles to researchers. For example, participants may not be equally articulate or cooperate (Bloomberg & Volpe, 2019). To combat these issues, researchers should present themselves as neutral and non-threatening to put participants at ease. Rehearsals can also aid the researcher in helping ensure successful interview sessions. An interview protocol was established for my multiple-case study to provide consistency among participants, ease of transcription and member checking, and minimize researcher bias throughout the participant interviews.

## **Participants**

### **Eligibility Criteria**

The recruitment and selection of participants are two of the most critical tasks that a researcher undertakes as part of the qualitative study and carries with it the credibility of the entire study (Bloomberg & Volpe 2019; Marshall & Rossman, 2016). Compared to the random participant sampling strategies in quantitative research efforts, participants in qualitative research are purposely and intentionally selected (Bloomberg & Volpe, 2019;

Patton, 2015). Qualitative research participants are selected for their ability to provide prolific information about themselves and the phenomenon being studied (Bloomberg & Volpe, 2019). Other considerations include access to the participants for interviews and member checking.

For this research study, the purposive sample selection method was used to select the research participants. The first criterion was that each participant was a business leader for an entity within the United States. The size of the business was not considered pertinent, only that it was a legal entity headquartered within the United States. The second criterion was that cryptocurrency was adopted as an alternative payment method and was used within the business. The length of time since adoption was not considered relevant. The third criterion was that the participants must have a tenure of at least one year at their organization and have intimate knowledge of why cryptocurrency was adopted and how it contributed to the overall business strategy. There were no exclusion criteria based on position, gender, ethnicity, or age, but the participant must be able to provide a rich background on how the decision to adopt cryptocurrency was made and how it contributed to their company's business strategy for future growth.

### **Gaining Access to Participants**

Scrupulous and ethical behavior was at the heart of identifying and gaining access to participants for purposes of encouraging them to participate in the research effort (Marshall & Rossman, 2016). Monetary enticements or the promise of tangible gifts may skew the study's data, so the focus must be on establishing truthful relationships with the

participants in order to gather data to answer the research question (Marshall & Rossman, 2016).

Through my professional network, I was able to identify the names and contact information of six business leaders in the United States who have developed successful strategies to respond to the alternative payment concerns perpetuated by cryptocurrency markets. I first created a protocol explaining the study's purpose, background, specific business problem, and the assurance of confidentiality (Yin, 2018) so that my professional network was able to more succinctly help me identify participants who possessed the technical background and unique experience regarding cryptocurrency that was necessary to answer my research question. This protocol was also subsequently used with research participants to ensure that they had a thorough understanding of the study. Walden University's (2020) research ethics policy permits a researcher to use professional networks to assist with participant recruitment activities, such as providing participant contact information that was available from social media platforms, public websites and directories, and other public-facing websites. Although formal recruitment efforts of participants may not begin until after Institutional Review Board (IRB) approval (Walden, 2020), discussions with my professional network to learn more about the prospective participants served as a great foundation for building fruitful and trusting relationships.

### **Strategies for Establishing a Working Relationship with Participants**

Qualitative research efforts rely heavily on the informed research interviews of the selected study participants. The relationship between the researcher and the

participants plays a vital and dynamic role in eliciting and comprehending the individual experiences of each participant, as well as influencing the data collection process overall (Harvey, 2017). In the purest sense, the researcher–participant relationship is a human relationship that serves as a portal through which data are collected (Harvey, 2017). Even though researchers are trained to be keenly aware of the risks of personal biases, each must be constantly mindful to exhibit neutrality so that participants’ responses are not influenced (Yin, 2018).

Harvey (2017) also included considerations such as the researcher’s personality, mannerisms, physical appearance, and dress that need to be restrained and filtered to conscious neutrality so that participants’ responses are not affected. Additionally, Harvey (2017) cautioned situations where researchers and participants share particular identities and experiences. This circumstance may result in participants responding in a more candid or outspoken manner due to the perceived kinship (Harvey, 2017). Ultimately, being knowledgeable of the conscious and subconscious aspects of the research-participant relationship inevitably assisted researchers in establishing the most trusting and impartial relationship possible with the study’s participants for the most reliable and valid data collection.

Initial contact with potential participants was through an introductory email from one of my professional colleagues. The email provided a cursory explanation of the study along with a few biographical sentences about me and a request for an initial online meeting or phone call. After potential participants have affirmatively responded to my email invitation to participate in the study and an initial agreement for a meeting has been

established, my efforts shifted to the mechanics of establishing relationships with the participants. I pressed for at least one introductory phone call or online meeting to create a stronger foundational relationship with the participants, along with several emails addressing any questions they may have, a general timeline for interviews and data collection to set expectations, as well as emails thanking them for their time and commitment to my study. Yin (2018) recommended that such protocols be established, which provide an introductory overview of the study as well as setting expectations for the participants. Once the potential participants met the established criteria and verbally agreed to be engaged in the study, I obtained a signed consent form from each participant in addition to answering any further questions that they may have, which is a best practice according to Walden University's, Ethics Review Board (Walden, 2020). I also assured each participant of strict confidentiality and safeguarding of the study's data, both of which aided in establishing a more trusting relationship between the participants and me.

### **Research Method and Design**

Together, the research method and design serve as a comprehensive road map for the researcher to progress from a problem statement to a conclusion in a reliable and valid fashion. Research methods refer to the techniques and procedures used to obtain and analyze data (Saunders et al., 2015). Research design provides the framework and reasoned justification for the collection methods and data analysis techniques to answer the research problem more effectively (Saunders et al., 2015). Although the research

method and design are closely intertwined, both are necessary for a successful research study endeavor.

### **Research Method**

The research method is a foundational element of every research effort that defines how the research was conducted. Researchers must decide between using a qualitative, quantitative, or mixed-method approach, as each method has its own distinction regarding what kind of data is used (Saunders et al., 2015; Trochim & Donnelly, 2008). The hallmark of the qualitative research method is the use of contextual, non-numeric data whereby participant interviews, observations, or images are categorized and interpreted to answer a research question (Saunders et al., 2015; Yin, 2018). In contrast, the quantitative method distinguishes between numerical data using statistics and graphs to prove or disprove a number of precise hypotheses (Saunders et al., 2015; Yin, 2018). The mixed-method approach uses the strengths of qualitative and quantitative data collection techniques and is particularly beneficial in comprehending contradictions between quantitative results and qualitative findings by using a panoramic view of all data collected (Saunders et al., 2018; Shorten & Smith, 2017). I selected the qualitative research methodology for this study because I endeavored to understand the perspective of business leaders to address alternative payment concerns perpetuated by cryptocurrency markets. A qualitative researcher explores complex textual descriptions regarding how the social life of human beings are impacted by a particular phenomenon (Saunders et al., 2015). By using a multiple-case study, I performed a comprehensive investigation of multiple organizations to strengthen the reliability and validity of my

study (Yin, 2018). According to Yin (2018), case studies are a practical approach to research that explores the outcome of current phenomena in the context in which they occur while attempting to dissect how, what, and why decisions occurred. I interviewed business leaders to attain their perspective on the decision to adopt cryptocurrency as an alternative payment method and their plans to thwart concerns associated with the currency's anonymous features.

In contrast, a quantitative study was deemed inappropriate for this research effort because quantitative researchers examine variables' statistical characteristics or relationships that can be applied to a broader population by proving or disproving proposed hypotheses (Saunders et al., 2015; Trochim & Donnelly, 2008). A mixed-method study was also deemed inappropriate because this method incorporates both qualitative and quantitative data and hypothesis testing between two or more variables (Saunders et al., 2015). Specifically, mixed-method researchers attempt to view a phenomenon from diverse viewpoints and through distinct and disparate research lenses to provide a broad and varied body of data (Corr et al., 2020; Gallant & Luthy, 2020; Shorten & Smith, 2017). Additionally, addressing this study's purpose does not require examining variables' characteristics or statistical relationships; therefore, the qualitative method was deemed most appropriate.

### **Research Design**

There are many approaches for conducting qualitative research ranging from grounded theory to feminist and historical qualitative research and beyond, but the most common approaches are case study, ethnography, narrative inquiry, and phenomenology

(Tomaszewski et al., 2020; Yin, 2018). While qualitative research is considered interpretive, no one research design approach is neither encouraged nor discouraged as a practice (Denzin & Lincoln, 2018). According to Denzin and Lincoln (2018), qualitative research is a “field of inquiry” (p.9) and contains prolific histories that bring the complexity of humanity to the forefront of contemporary research efforts. Ultimately, however, a researcher must select the design approach that will provide the greatest likelihood that relevant, useful, reliable, and valid data can be obtained to answer the research question at hand.

**Case Study.** I selected a multiple-case study as the qualitative design over an ethnological, phenomenological, or narrative design because the foundation of the multiple-case design supports the investigation of an activity, event, process, or individuals by using multiple types of data and sources to obtain a profound understanding (Yin, 2018). The benefits of using a multiple-case study over a single-case study include the ability to analyze data from both an individual case and across several cases to determine the differences and similarities among the cases (Yin, 2018). Multiple-case studies explore several instances of a phenomenon as a means to construct pragmatic and contextualized knowledge known as phronesis, which is indispensable data elicited from the authentic participants within the token environment (Marshall & Rossman, 2016). This collection of data, therefore, can provide more robust and reliable conclusions that are far greater than those from a single-case study (Yin, 2018). Denzin and Lincoln (2018) caution, however, that there is no true transparent window into an individual’s life experiences and that all data obtained from human beings will always be

tainted, however slight or unintentional, by a film of bias that can never be completely removed.

**Ethnography.** The foundation of the ethnographical design emanates from cultural anthropology, where researchers immerse themselves within a particular culture, usually for an extended period of time (Marshall & Rossman, 2016; Yin 2018). Ethnographical researchers seek to expose the raw context of the interactions within a community, its social norms, and practices to provide descriptive frameworks for an observed phenomenon (Sayago & Blat, 2011). These lengthy observations have the potential to result in substantial field efforts that carry sizable investments in time and capital for the researcher (Sayago & Blat, 2011). Criticisms of this design model also include lengthy observation documentation that may be difficult to digest, categorize, and interpret (Sayago & Blat, 2011). The ethnographical design was not selected for this study because participant-observer data was not required to answer the research question.

**Phenomenology.** According to da Pos (2020), relevant research data stems from either the physical world or the phenomenal world. The physical world is wrought with measurements, calculations, statistics, and absolute dimensions. The phenomenal world exists within the psychological mind, perceptions, and lived experiences of individuals and their interpretation of specific events (da Pos, 2020; Halling, 2020; Marshall & Rossman, 2016). This research design seeks to focus on the life of each study participant as they have lived it and share the accounts with others (Marshall & Rossman, 2016). A phenomenological design was also not selected for this study because there was not an interest in exploring the aspects of this phenomenon or the cognitive view of individuals.

**Narrative Design.** A narrative design is rooted in various social and humanities disciplines and includes the reconstruction and retelling of experiences or events by individuals through personal stories, usually in a chronological context (Saunders et al., 2015). A researcher in narrative inquiry assumes that individuals appreciate their life experiences by attaching their own narrative constructs to these experiences (Marshall & Rossman, 2016; Visser et al., 2019). A researcher's primary objective is to probe how people structure, recall and relay their lived experiences in the form of unique narratives (Visser et al., 2019). A narrative design was rejected for this study because it was not an effective design to answer the research question for this study.

### **Population and Sampling**

According to Stake (2006), sampling refers to the selection of particular data sources from which data are collected to answer the research question and address the research objectives. As such, sampling is considered to be the cornerstone of integrity for the entire research effort (Abrams, 2010). Qualitative research differs from quantitative research in sampling protocol construction because qualitative research does not require a representative sample that can be extended to an entire population (Abrams, 2010; Saunders et al., 2016). Qualitative researchers seek out samples within a distinctive population to provide key insight and understanding regarding a certain phenomenon (Abrams, 2010; Marshall & Rossman, 2016).

In qualitative research utilizing a case study design, each case selected for inclusion in the research effort is considered a complex and intricate entity set in its own environment (Stake, 2006). Each case has its own context, background, and set of

conditions that have determined its current state of affairs. (Stake, 2006; Yin, 2018).

These constructs are what the qualitative researcher desires to learn more about and make the center of the research study endeavor (Marshall & Rossman, 2016). Non-probability sampling was used for this multiple-case study, and participants were intentionally recruited and selected based on certain criteria.

### **Sampling Methods**

There are many genres of non-probability sampling, but all generally fit under two general approaches: convenience and purposive (Trochim & Donnelly, 2008). Accidental or haphazard sampling resembles the act of asking for volunteers from a group of people or standing outside of a busy grocery store asking random patrons for their opinion on a popular issue (Saunders et al., 2016; Trochim & Donnelly, 2008). A purposive sample begins with a plan that best meets the research objective or a goal (Saunders et al., 2016; Trochim & Donnelly, 2008). Types of purposive sampling include modal instance sampling, expert sampling, quota sampling, heterogeneity sampling, and snowball sampling (Trochim & Donnelly, 2008). Modal sampling targets the most frequently occurring value in a population distribution (Trochim & Donnelly, 2008). Expert sampling focuses on individuals who exhibit a high level of expertise in a certain area (Trochim & Donnelly, 2008). Quota sampling is further broken down into the subcategories of proportional and non-proportional (Saunders et al., 2016; Trochim & Donnelly, 2008). Proportional sampling occurs when major characteristics are equally represented in the sample (Trochim & Donnelly, 2008). Non-proportional sampling only specifies a total number of samples and is not concerned with the proportions of a normal

population (Trochim & Donnelly, 2008). Heterogeneity sampling is also known as diversity sampling (Saunders et al., 2016; Trochim & Donnelly, 2008). It includes all opinions or views from a group and is sampling for the widest variety (Trochim & Donnelly, 2008). Snowball sampling occurs when participants are selected for a study and then asked to identify others who may fit the criteria for study inclusion (Marshall & Rossman, 2016; Saunders et al., 2016; Trochim & Donnelly, 2008). Expert sampling was used in this study and participants were recruited based on their knowledge, and expertise of cryptocurrency as an alternative payment within their own organizations.

### **Sample Size**

A multiple-case study design is used when a researcher desires to perform a cross-case analysis to compare and contrast several cases on the same research topic and to analyze the data to confirm or dispute the findings between the cases (Bloomberg & Volpe, 2019). Yin (2018) asserted that researchers should conduct six to 10 individual case studies for the purposes of replication and compelling support to strengthen the research findings; however, other researchers such as Morse (2015) argue that the sample size is more subjective and relies on the disposition, longevity, and complexity of the phenomenon. Additionally, the experience, background, and analytic skills of the researcher, together with the robustness of the overall interview, can make a predetermined sample size superfluous if adequate saturation is achieved with a smaller number of individual cases (Morse, 2015). Vasileiou et al. (2018) concurred and maintained that sample size in qualitative research stereotypically tends to be modest in numbers due to the focused efforts of the researcher to select cases that are abundant in

information pertinent to the specific phenomenon being probed for academic study; as such, it was my goal to identify, recruit, and select at least six individual cases as participants for my research study.

As stated above, potential participants categorized as business leaders in cryptocurrency were identified using my professional network, and contact information was cross-checked using LinkedIn and online public directories to confirm that all contact information was publicly available. Purposive selection criteria were used to ensure that business leaders work for firms based in the United States and have intimate knowledge regarding the business strategy to adopt cryptocurrency as an alternative payment method based on their published biographies and experience. Once potential participants were contacted and agreed to participate, I obtained a signed informed consent form using the Walden University IRB template.

### **Data Saturation**

According to Marshall and Rossman (2016), little value is achieved when a researcher begins to hear and see the same patterns in data. This phenomenon, also known as data saturation, results when no new findings are occurring and theoretical sufficiency has been attained (Marshall & Rossman, 2016; Saunders et al., 2016). As participant interviews were conducted, I defined and formed categories of data for each individual case. (Marshall & Rossman, 2016). I expected that, due to the finite number of businesses that currently accepted cryptocurrency as an alternative payment method, data saturation would be reached with six individual cases. If this was not the case, I would again look to my professional network to identify further potential participants for

my research study until data saturation was achieved. Due to the COVID-19 pandemic, interviews were conducted using the Zoom online service, which had recording options available if the participant consented. A saturation grid was used as a visual tool to track the interview question topics by participants (Fusch & Ness, 2015) to more easily recognize when data saturation has been reached.

### **Ethical Research**

Ethics in research is defined by norms for conducting acceptable and unacceptable behavior with study participants through which we are morally and professionally bound and enforced by Institutional Review Boards (IRB) (Bloomberg & Volpe, 2019). Ethics are entrenched in the methodology, conduct, procedures, and perspectives regarding how a researcher designs the research effort, collects data and analyzes complex problems (Dawson et al., 2019; Yin, 2018). All researchers have an obligation to faithfully adhere by the strictest ethical standards in all aspects in the performance of their research endeavors, protect all human subjects, and abide by the dictates of beneficence which directs *primum non nocere* (first, do no harm) (Ayodele, 2019; HHS, 1979; Marshall & Rossman, 2016; Yin, 2018).

There are several components of ethical research that all researchers are obligated to heed. Voluntary participation in research efforts entails that all participants were willing and not under the influence of any type of coercion when participating in a research endeavor (Trochim & Donnelly, 2008; Yin, 2018). As such, I ensured that informed consent was obtained, without exception, from each and every participant. To ensure that all identified individuals were comfortable about their participation, I

informed each person about the objectives, procedures, and risks of the study and obtained a formal written consent form before any data collection began. In accordance with the Belmont Report (HHS, 1979), I also provided each participant with information regarding how to withdraw from the study at any time, if so desired, without repercussions or other negative ramifications or consequences. Participants were informed that they could review their responses provided during the study at any time. Participants were informed that there would be no incentives offered for this research inquiry.

Confidentiality represents the responsibility to protect the privacy rights of all individuals and groups participating in the study and to not disclose any identifying information to anyone that was not directly associated with the research inquiry (Colosi et al., 2019; Trochim & Donnelly, 2008). These measures also include protecting personal information from unauthorized access and use (Colosi et al., 2019) with intentionally established physical and technological protections, redaction, and the use of non-attributional codes for each participant's covert identification. Modern technology has created special considerations for contemporary research efforts. Disruptive technologies like artificial intelligence are evolving in a direction that has the potential to be greatly beneficial to society (Jia, 2020); however, these potent technologies affect societies, communities, and individuals from diverse angles and varying degrees, researchers must always take the necessary precautions from unauthorized access of sensitive research data, analysis, and related products that could jeopardize participant confidentiality and privacy (Jia, 2020).

I correctly labeled and safely and securely maintained all research data on USB portable media (i.e., thumb drive), which will be kept for five years after the study in my personal home safe. This safe is only accessible by me, and the combination was not shared with anyone. I did not discuss the participants' confidential and personal information, or the data collected with anyone outside of this study. Upon conclusion of the 5-year storage, all data on the USB thumb drive will be destroyed by electronic shredding, and the thumb drive will be entirely reformatted. Reformatting the thumb drive will completely wipe any attributional metadata remaining on the drive. While each research endeavor carries a set of distinct ethical requirements, all researchers are obligated to conduct each study to the highest moral, ethical, and professional standards (HHS, 1979) to the best of their abilities. I pledged to conduct myself in accordance with these standards, without exception.

### **Data Collection Instruments**

According to Yin (2018), interviews are critical sources of evidence for qualitative case studies. As such, semistructured interviews were the primary data gathering instrument used in this study. As a result of safety concerns predicated by the COVID-19 pandemic, in-person meetings cannot occur between the researcher and participants (Gruber et al., 2021). All interviews were conducted virtually over the Internet using Zoom online meeting applications, which also enabled high-quality interviews (Lynch & Mah, 2018; Sah et al., 2020; Sedgwick & Spiers, 2009). The Zoom application had the ability to record meetings as well, so all interviews were recorded with the expressed agreement and permission of each participant. To obtain agreement, I

individually and privately asked each participant if they agreed to be recorded and, if objections were noted, the interview was not recorded.

As the researcher for this study, I served as the primary data collector. I have received formal training as an interviewer as part of my past position as a certified (K-121, mild-moderate) special education teacher. I have conducted hundreds of interviews with children, parents, family members, and caregivers as part of the overall academic assessment process for special education services. Interviews are ultimately meant to uncover information and the perspectives of the participants on a chosen topic (Bloomberg & Volpe, 2019); therefore, interviewers must learn to interpret cues from the participants and alter the way the interview is being conducted. I was keenly observant of each participant's body language, eye contact, and facial expressions, as all are telling for an observant researcher. Semistructured interviews may also have a constrained outcome depending on how the questions are asked. For example, language constructs play a pivotal role in probative events so, I adjusted all elements such as tone, inflection, speed, volume, clarity, and eye contact, and limit the use of colloquialisms so that each participant encounters a pleasant, calm interview environment, and understands each question asked. I conducted myself with the utmost professionalism by frequently checking with the participant to ensure that they were comfortable so that an optimal outcome was achieved.

The use of protocols ensures that all interviews are conducted in the same manner so that reliability and validity are enhanced (Yin, 2018). To ensure the quality of established protocols, I conducted several pilot tests of the interview questions with

academic or professional colleagues prior to the commencement of data collection, as well as conducted member checking and transcript review with the study's actual participants after the data collection interviews were conducted.

### **Data Collection Technique**

My primary objective as a researcher was to establish a high level of trust and mutual respect with each participant so that an optimal level of professional comfort was achieved. I strived for an environment that emulated a relaxed conversation rather than an inquisition in order to get the best responses to the interview questions. While the desired face-to-face experience was not possible due to the COVID-19 pandemic, virtual interviews resulted in similar personal and information-rich experiences (Lynch & Mah, 2018; Sah et al., 2020; Sedgwick & Spiers, 2009). My goal as the researcher during an interview was to uncover robust information and perspectives from the participants relating to the established interview questions. Due to the extraordinary situation caused by COVID-19, unique interviewing solutions were deemed appropriate.

### **Interviews**

Interview planning can be an exhaustive and intricate endeavor. Participant selection, protocols, question development, session scheduling, recordings, and transcribing are just a few of many tasks that all researchers engage in when conducting qualitative studies (Yin, 2018). For this study, participants were selected using my professional network to identify business leaders who have implemented cryptocurrency as an alternative payment method. Interviews were carried out in 45- to 60-minute sessions with intermittent breaks as needed for both the researcher and participant to

combat fatigue. Participants were provided with the option to extend past the 60-minute increment if no objections and stamina persisted. According to Sah et al. (2020) and Sedwick and Spiers (2009), face-to-face interviews are preferable; however, due to the implications of COVID-19, all interviews were conducted using the virtual meeting applications Zoom to accommodate social distancing concerns. Telephonic interviews were also made available if the participant was unable to access a virtual meeting application.

Successful interviews normally began with several introductory questions as an icebreaker between the researcher and participant to ensure that the participant was at ease and comfortable (Trochim & Donnelly, 2008; Yin, 2018). I conducted all interviews beginning with a general upbeat greeting thanking each individual again for their participation. I also asked a few questions as an icebreaker to ensure that each person was feeling well and was prepared to start the interview. I then, once again, provided the background for the research inquiry and answered any questions that the participant had at that time. The restatement of the research inquiry background was vital so that I could articulate the study's origin and its importance to the field of business administration. I also wanted to establish myself as an authoritarian on the subject matter and achieve the confidence of the participant. After the introduction, ice-breaker questions, a restatement of the background was provided. Each participant was then asked all of the interview questions in a standardized way to ensure consistency of the data as well as adding to the reliability and validity of the study.

Interviews, especially virtual interviews, offer inherent flexibility and are tremendously accommodating to both the researcher and participant (Sah et al., 2020; Sedgwick & Spiers, 2009). According to Trochim and Donnelly (2008), one of the most problematic areas of research design is the ordering of the interview questions. Lengthy interview sessions can lead to participant fatigue and the dissipating quality of responsiveness, especially for the latent questions. (Trochim & Donnelly, 2008). Another issue that I expected during the virtual interview was a poor Internet connection resulting in less-than-optimal video and audio quality. I established a contingency plan to reschedule the interview in case the virtual interview got disrupted and could not continue on the prescribed date and time. I also anticipated that the participants might experience interruptions from family members, so I gently emphasized the need for a quiet space for the duration of the interview (Lynch & Mah, 2020). I reviewed both the need for a stable Internet connection as well as a quiet place for the interview via email with each participant one week before the scheduled interview and again the day before the interview. I acknowledged and thanked each participant for the time devoted to the interview, along with the mention of a future appointment to conduct member checking of the transcribed interview information. Once all interview data were transcribed, I sent an email to each participant with their respective interview transcription attached requesting member checking. Participants were provided seven days to respond with any changes to the transcript content. The email to the participants also included explicit instructions on how to review the transcripts and make any corrections necessary through the use of tracked changes. With a methodical research design, proper interview

planning, a robust contingency plan, and member checking, researchers are better positioned for research success and enhanced reliability and validation of the overall study (Houghton et al., 2013; Yin, 2018).

### **Secondary Data Sources**

In addition to the data derived from the semistructured interviews, secondary data sources were also available in relation to the research topic of cryptocurrency adoption. Cryptocurrency and Blockchain analysis organizations such as Chainalysis are emerging in the United States on a regular basis. These organizations provide data, software, services, and research to government agencies, exchanges, financial institutions, and insurance and cybersecurity companies globally and are a fantastic resource of reliable and valid data. For example, Chainalysis launched a detection tool for suspicious cryptocurrency transactions, which I used to validate business leaders' stated efforts to counter the concerns created by the currency (Chainalysis, n.d.). My efforts to obtain secondary data also include researching corporate annual reports, press releases, or other briefing minutes provided by the participants or through open-source research. Additionally, I scoured mass-media channels or contacted corporate public relations departments directly with requests to provide data-rich information for triangulation purposes. These resources, along with a rich supply of Internet and company website information, offered distinct and abundant secondary sources of data for the purposes of triangulation (Bevan et al., 2013).

### **Data Organization Technique**

All data and consent forms gathered as part of this research inquiry were organized and stored on my personal laptop via daily electronic reflective journals using Microsoft Word or Excel and NVivo software for unstructured data. NVivo software assisted me in organizing and analyzing unstructured data obtained from participant interviews and secondary sources of data. The NVivo software classified, categorized, and arranged information to illuminate relationships in the data. A standard file naming convention was used for all documents, files, and folders for organized access. My laptop was biometrically protected by the researcher's fingerprint for access and was protected from unauthorized access such as hacking using Norton 360 security software. The data was also be backed up daily onto an external hard drive that was stored in an office safe in the researcher's home. My home was protected with a security alarm and external dome video cameras, which were directly linked to a monitoring company for added security protection. The data will be safeguarded for five years in accordance with Walden University (2020) IRB guidance, at which point the physical data reports will be destroyed by crossbar shredding, and electronic data will be deleted and wiped from the researcher's personal computer and external hard drive and USB thumb drive. These measures will ensure the safeguarding of all research data and the confidentiality of the participants.

### **Data Analysis**

The most significant purpose of data analysis in a qualitative study is to identify and expose patterns in the data (Trochim & Donnelly, 2008). Yin (2018) described four

general strategies for data analysis: (a) relying on theoretical propositions, (b) working the data from the bottom up, (c) developing descriptions for the cases, and (d) examining the possible explanations. Theoretical propositions begin with the research design of the selected case study and subsequently form the proposed data collection strategy (Yin, 2018). Analyzing or working the data using an inductive approach allowed the themes and patterns to naturally emerge, which can often expose unexpected or novel concepts not previously considered (Yin, 2018). Developing description for cases uses a scaffolding approach to organize research data (Yin, 2018). It is often considered a contingency plan if researchers are having difficulty applying form to their study. The fourth strategy described by Yin (2018) is examining the data for possible explanations. This strategy was an amalgamation of the previous three strategies and encompasses formulating reasonable alternative descriptions of the selected case study (Yin, 2018).

For the purposes of this study, inductive analysis was selected using NVivo software to assist with coding and identifying themes. Data for this study began with participant interviews that were recorded and transcribed. For the interviews where participants do not permit audio recordings, copious notes were taken by the researcher and transcribed. The data was uploaded into NVivo software, where data analysis began with the establishment of codes. Codes are short phrases or expressions that capture a portion of the transcribed data and serves as the researcher's analytic lens for qualitative inquiry (Saldaña, 2016). Caution was heeded, however, when establishing codes so that they serve as an appropriate filter for the phenomenon being studied (Saldaña, 2016). According to Saldaña (2016), coding is rarely done right the first time. The researcher

must pay scrupulous attention to the language expressed by the participants during the interview in order to correctly capture their true reflections, or else recoding is likely to occur (Saldaña, 2016). The data were synthesized, divided, and grouped into categories once adequate coding was established. The categories were then compared and combined to determine if logical relationships exist, and patterns emerge. The data were analyzed using a content analysis method known as thematic analysis. This method of data analysis allowed the researcher to group the text, transcriptions, observation notes, recordings, and all other applicable data into themes or parking lots of categorizations (Bloomberg & Volpe, 2019; Saldaña, 2016; Trochim & Donnelly, 2008).

The grouping or theming of data can occur either inductively or deductively and serves as the crucial first step to organizing, understanding, and analyzing the data to see where patterns emerge (Bloomberg & Volpe, 2019). Inductive analysis occurs when the researcher begins with a shortlist of expected themes, but additional themes can emerge as the data is progressively and more thoroughly analyzed (Bloomberg & Volpe, 2019; Saldaña, 2016). Deductive analysis occurs when the researcher begins with a predefined, structured list of themes and places the data into only the categories on that list (Bloomberg & Volpe, 2019); No additional themes are added beyond the predefined list with deductive analysis. For this study, inductive analysis was used, and I began with initially expected themes based on the established interview questions. The initially expected themes are: (a) origins of business strategies, (b) cryptocurrency adoption obstacles, (c) technological safeguards, and (d) effectiveness of strategies. The coding themes were augmented depending on the participants' responses during the interviews,

and all data from all sources were organized in a database for organization purposes as well to produce a report of interpretations and conclusions derived from the data (Yin, 2018).

The next step of analyzing the data involved building a plausible explanation for the patterns that have emerged (Bloomberg & Volpe, 2019; Yin, 2018). It was here that I instituted a system of denoting the participants' perspectives. In other words, data was meaningless without context (Bloomberg & Volpe, 2019). The subsequent descriptions and interpretations represented the logic of the argument that I built as evidence to support the findings. The final step in data analysis was presenting the analysis and synthesis of the data. According to Bloomberg and Volpe (2019) and Yin (2018), the emphasis and value in qualitative research are in the understanding of the data. In this step of the research inquiry, I expressed how the data evolved, the patterns it formed, and the context of the findings. The patterns and findings were then overlaid onto the literature review on cryptocurrency and the diffusion of innovation theory to convey robust insights to readers and demonstrate a genuine and authentic value of the research that was conducted.

### **Reliability and Validity**

#### **Reliability**

Validity and reliability are critical to ensuring the data quality of a doctoral research study. Reliability in a quantitative research effort refers to the likelihood that another researcher would be able to replicate the predictions and results obtained by another researcher (Collingridge & Gantt, 2019). In qualitative research, reliability refers

to the adoption of accepted research methods used to collect and analyze data, and successful efforts result in a meaningful and illustrative description of the selected phenomena (Collingridge & Gantt, 2019). Morse (2015) believed that this aspect of quality and rigor has a direct association with the reliability of a study's future application, which is referred to as trustworthiness and dependability. Additionally, according to Yin's (2018) first principle, researchers who use methodological triangulation to converge on various lines of inquiry subsequently can establish lines of intersection between various sources of evidence to establish a more rigorous case study design, strengthen outcomes (Bekhet & Zauszniewski, 2012) and provide convincing conclusions.

Dependability is paramount to achieving a prominent and formidable research study. Member checking permits the participants of the research effort to read the transcripts of their interviews for accuracy (Houghton et al., 2013). Although participant feedback should not be solicited, there is value in ensuring that interviews were recorded verbatim and thematic coding of responses was clear (Houghton et al., 2013). Even though participants cannot influence the interpretation of their interview data, their review can be invaluable to ensure that data collection occurred correctly (Houghton et al., 2013). Member checking was conducted during this study via electronic correspondence such as email due to COVID-19 concerns. Once all interview data were transcribed, I sent an email to each participant with their respective interview transcription attached requesting member checking. Each participant also received explicit instructions on how to review the transcripts and make any corrections necessary

through the use of tracked changes. Participants were provided seven days to respond with any changes to the transcript content.

### **Validity**

Validity refers to whether or not the research endeavor measured what it intended to measure (Collingridge & Gantt, 2019). The validity of a study denotes the credibility of the processes and mechanisms used in the research effort and the accurateness and believability of information that was reported. Without validity, a research study does not promote a thorough understanding of the impact or context of the investigation (Collingridge & Gantt, 2019).

There are several sources of data quality issues that could negatively impact a research study. First, scholars who do not invest in prolonged engagement and persistent observation rob the study of sufficient time to learn about the participants, identify anomalies, and establish trust in the information that is gathered (Houghton et al., 2013). I ensured that I allocated sufficient time to establish initial contact with the study's potential participants, provide them with a robust background for the research inquiry, answer all questions and concerns that they had, and conduct thorough and thoughtful interviews. Second, researcher bias can influence investigations towards the desired result instead of actual events (Johnson, 1997; Yin, 2018). Since qualitative studies are less structured than quantitative research, selective observations and selective recordings can result when personal opinions and perspectives are permitted to influence the interpretation of the study's events (Johnson, 1997).

To thwart potential data quality issues, I took intentional steps to ensure research validity. Triangulation was used to establish relationships between various sources of research data and converge on numerous lines of inquiry (Houghton et al., 2013). By establishing lines of intersection with various and robust data sources, case study findings were strengthened and ultimately more credible (Bekhet & Zauszniewski, 2012).

Using members of my professional network, I employed additional rigors such as peer debriefing support and requested that an impartial subject matter expert review the credibility of my research findings, which is a best practice cited by Houghton et al. (2013). Expert peer review added to the validity of my research inquiry by establishing an agreement with the roadmap of the research effort and the logical steps taken to collect and interpret data. By seeking out external scholars for research review from my academic and professional network, the integrity and reliability of the study were also enhanced (Houghton et al., 2013).

Perhaps one of the most pertinent rigors of qualitative research efforts is reflexivity. Although personal bias should be avoided, the researcher is considered part of the overall research effort (Houghton et al., 2013). The protocols, procedures, and processes followed reflect directly on the credibility of the researcher and the associated level of self-awareness (Houghton et al., 2013). My perspectives were kept memorized in a reflection journal or diary for periodic rumination to aid in the subsequent decisions undertaken in the study, which is a best practice according to Houghton et al. (2013). I periodically sought confidential assistance from a fellow researcher to review my reflection journal as well as converse with me regarding my feelings, thoughts, and

actions within my research inquiry. According to Borraz et al. (2021), the emotional weight of academic research is perceived differently when shared. As such, another researcher's perspective helped to illuminate any biases that I may have inadvertently exerted within the confines of my research study.

### **Transition and Summary**

In Section 2, I included detailed information about the role of the researcher, including the relationship with the topic and bias mitigation efforts. Participant eligibility, selection criteria, and working relationship were also highlighted, along with the research methodology and design, which were justified and supported with a thorough literature review. I also encompassed a robust explanation regarding the crucial nature of ethics in research. Data collection instruments, including collection methods, storage, safeguarding, and destruction, were also discussed and analyzed in addition to the process behind the formulation of the interview questions. Finally, both reliability and validity were discussed to ensure that thorough details of my plans for data collection and the credibility of data interpretation were provided.

### Section 3: Application to Professional Practice and Implications for Change

#### **Introduction**

The purpose of this qualitative multiple-case study was to explore the strategies that business leaders use to address the alternative payment concerns perpetuated by cryptocurrency markets. Using semistructured interviews, I acquired information from six business leaders who employed effective strategies to address alternative payment concerns of cryptocurrency adoption. In this study, thematic analysis was used as the data analysis process for the various data sources. I also used methodical triangulation to establish validity and consistency for all of the data obtained during the course of this study. Qualitative thematic analysis was used to identify patterns and themes within the data and to determine the findings and conclusion of this study.

The research question for this study was “What strategies do business leaders use to address the alternative payment concerns perpetuated by cryptocurrency markets?” In this section, I describe the data collection method and the thematic analysis method applied in this study. Also, I present the findings of this study from the thematic analysis. Subsequent to the presentation of the findings, I impart insights on how the findings connect to the diffusion of innovation theory and how the findings apply to the business decisions to adopt cryptocurrency as an alternative payment method in the future. Lastly, the implications for social change are discussed, the recommendations for action, recommendations for further research, reflections, and finally, the conclusion.

## Presentation of Findings

### Participant Descriptions

The participants for this study consisted of six business leaders from varying sizes and types of companies. Six business leaders were interviewed; five identified as male and one as female. The participants were geographically dispersed within the United States, with one participant located in Washington D.C., two in Virginia, two in California, and one in Utah. The participants were between the ages of 39 to 54 years old, and all were college-educated. Two of the participants held juris doctorate degrees, two master's-level degrees, and two participants held a bachelor's degree. The participants' tenure with their current employer ranged from 3 to 30 years. Table 1 below is a summary of the participants' titles, company revenue, education level, company tenure, gender, and age.

**Table 2**

*Participant Demographics Summary*

Participant	Title	Company Revenue	Education Level	Company Tenure	Gender	Age
P-1	Owner	\$200K	Doctorate	7 years	M	41
P-2	C.E.O.	\$3B	Doctorate	20 years	M	54
P-3	C.E.O.	\$10M	Master's	3 years	M	44
P-4	Owner/C.E.O.	\$70K	Master's	10 years	M	40
P-5	C.E.O./Co-Founder	\$250M	Bachelor's	30 years	M	52
P-6	Owner	\$10K	Bachelor's	11 years	F	39

I obtained consent from each participant via email and used the Zoom video conferencing service to schedule each interview for a convenient time for each of the participants. I conducted the interviews remotely via Zoom from my private home office and recorded each interview using the Zoom audio recording function. I began each interview thanking each participant as well as expressing my sincere appreciation for volunteering to participate in my research study. I reviewed the consent form with each respective participant that was returned to me electronically via email and reminded each participant that the audio portion of the interview would be recorded with their expressed permission. I also stated that the interviews were confidential and that their identity and privacy would be protected by using a participant identification number instead of their name, company, or any other uniquely identifying information in the study. Each participant was also informed that all data would be destroyed after 5 years. I also stated that participation in my research study was voluntary, and each participant had the right to withdraw from the study at any point by informing me either verbally or in writing that they no longer wished to participate. Each participant was asked if they had any questions or concerns before the interview commenced, and each stated they had no questions or concerns. After each participant verbally stated they had no concerns, I began the interview. I observed each participant during the interview and took field notes to record their sentiment and to supplement the interview transcripts as part of the overall interview process. Below is a summary of the participants based on my notes and observations.

***Participant #1***

Participant #1 was a 40-year-old licensed attorney in the state of Virginia and Louisiana and holds a juris doctorate degree. His law firm was established in 2015 and is a full-service personal injury and civil law firm located in Virginia. He has been practicing law for over ten years and is the sole proprietor of his law firm, which grosses approximately \$200k (USD) per year. Participant #1 was solely responsible for the adoption of cryptocurrency as an alternative payment method for his clients. Participant #1 was interviewed from his private office after work hours and was calm and collected during the interview.

***Participant #2***

Participant #2 was a 54-year-old chief executive officer (C.E.O.) of one of the largest online retailers in the United States. Participant #2 holds a juris doctorate degree and has nearly 20 years of tenure with his company. He was an integral part of the growth of his company from a small start-up to a publicly traded company with over \$3 billion (USD) in sales and nearly 2,000 employees in 2021. Participant #2 also served on the company's board of directors and was responsible for leading his company in the adoption of cryptocurrency as an alternative payment method. Participant #2 was interviewed from his private office during a break from his normal work hours and was calm and collected during the interview.

***Participant #3***

Participant #3 was a 44-year-old C.E.O. of a small online retailer in the United States that focused on exceptionally designed goods from independent vendors around the world. He has served as C.E.O. since 2019 and was tasked with re-inventing and rebuilding the brand while focusing on profitability. Participant #3 has a master's degree and leads a team of 25 employees. The company's annual revenue is approximately \$10 million (USD) in sales. Although Participant #3 was not employed as C.E.O. at the time that his company initially adopted cryptocurrency as an alternative payment method, he was well-versed in the history of that decision. Participant #3 was interviewed from his private office during a break from his normal work hours and was calm and collected during the interview.

***Participant #4***

Participant #4 was a 40-year-old owner and C.E.O. of a small recording company in the United States and holds two master's degrees. He assumed the role of C.E.O. in 2012 with a commitment to give more people in the world access to a particular style of eclectic music. Participant #4 collaborates with music artists and distributors worldwide and leads a team of 35 part-time employees with annual sales of approximately \$70k (USD). He was jointly responsible for leading his company in the adoption of cryptocurrency as an alternative payment method. Participant #3 was interviewed from his home after work hours and was calm and collected during the interview.

***Participant #5***

Participant #5 was a 52-year-old C.E.O. and co-founder of a large online business established nearly 30 years ago in the United States. He holds a bachelor's degree. Currently, the company serves almost 400,000 customers annually, has 100 employees, and has \$250M (USD) in sales each year. Participant #5 was responsible for the adoption of cryptocurrency as an alternate payment method in 2013 and now accepts over ten different cryptocurrencies from a discerning client base. Participant #3 was interviewed from his home after work hours and was calm and collected during the interview.

***Participant #6***

Participant #6 was a 39-year-old sole proprietor of a small photography business in Virginia. She started her business in 2011 and has sales of approximately \$10k per year. Participant #6 has a bachelor's degree and was responsible for the adoption of cryptocurrency as an alternate payment method for her business in 2013. She was interviewed from her home during a break during her workday and was calm and collected during the interview.

**Thematic Data Analysis**

After each interview, I uploaded the Zoom recording to Sonix software for transcription. Sonix transcription software provided a verbatim transcription of each interview that I used along with my respective field notes to create a summary interview document for each participant to review. I summarized the participants' responses to each interview question and captured the information in a Microsoft Word document. I then emailed the respective summary to each participant to conduct member checking, and

each participant responded back via email to confirm the accuracy of the interpretation. One participant emailed back, validating the interview summary interpretation, and also provided an additional resource regarding applicable Bar Association guidance regarding cryptocurrency that was not revealed during the initial interview.

I uploaded each interview transcript into NVivo once I received the respective participant's confirmation of accuracy. As recommended by Silverman (2016) and Yin (2018), I began examining the transcripts to ascertain whether or not the data needed to be revised, transformed, or remodeled to conduct coding, identify concepts, patterns, and themes, and reach a conclusion. I performed initial coding that explored the structure and descriptions of the collected data as recommended by Saldaña (2016). I executed several queries in NVivo to identify the commonly used words and terms throughout the interview transcripts. I then reviewed the secondary data collected from various organizational documents to substantiate the data I gathered from the study's participants.

After the initial coding process, I thoroughly scrutinized all the data, I began the secondary-focused coding process. I first ran several queries in NVivo based on frequently occurring words that related to technology adoption and my conceptual framework – the diffusion of innovation theory. I queried words such as compatibility, complexity, cost, effectiveness, advantage, technology, etc. After I identified applicable and frequently occurring words, I created a node in NVivo and entered the codes that I selected for identification within the interview transcripts. Each transcript was then subsequently color-coded using NVivo software based on the code words, phrases, and topics that served as an appropriate filter for the participants' interview question

responses. I monitored these codes as I proceeded through the interview transcripts to ensure that no additions, deletions, or changes were needed to the selected codes. My field journal was also used during the coding process to record my thoughts and ideas for later use.

After all of the transcripts 'coding was completed, I began to review the codes to distinguish patterns and common themes between the participants 'interview data. Once I had an inventory of all of the patterns and themes, I constricted the list down to those themes that specifically addressed the research question for this study. Most succinctly, I identified themes that focused on the strategies that business leaders used to address the alternative payment concerns perpetuated by cryptocurrency markets. These themes and strategies were also assessed regarding their applicability to the diffusion of innovation theory and the literature review for this study.

The five constructs of the diffusion of innovation theory are (a) relative advantage, (b) compatibility with existing values and practices, (c) complexity, (d) trialability, and (e) observability (Rogers, 1995). Relative advantage and compatibility with existing values and practices drive innovators and early adopters to take technological risks to distinguish their organizations from their competition. Complexity is a hurdle that is frequently overcome with the education of staff and customers and, in the case of cryptocurrency adoption, through the use of a third-party settlement company to simplify the settlement process. Trialability relates to innovators and early adopters and their fervor to embark on trials of new technologies, never being quite sure if their customers and clients will latch on to the advancements. Observability is crucial in

determining if relative advantages of the new technology are, in fact, being realized (Rogers, 1995). Observability can also advance the diffusion effect and is considered a critical component of technology transfer (Rogers, 1995).

The emergent themes and the corresponding codes are shown in Table 3. Each theme identified as an element of this study was the result of coding the participants' interviews and review of secondary data sources through the lens of the diffusion of innovation theory. The following section provides a robust discussion, details, and direct quotations from the study's participants to support the emergent themes identified in this study.

**Table 1**

*Data Analysis Codes and Themes*

Themes and codes	<i>n</i> of participants	<i>n</i> of data excerpts
Theme 1. Commitment to Innovation as a Relative Advantage		
Effectiveness (Better, Faster, Cheaper)	6	23
Use of Advanced Technology	6	22
Theme 2. Cryptocurrency Compatibility within the Organization		
Alignment of Business Strategies	6	24
Fit of Technological Innovation	6	13
Social Impact	4	10
Theme 3. Overcoming Complexity of Cryptocurrency Adoption		
Barriers or Obstacles to Adoption	6	31
Employee and Customer Education	6	30
Safeguards from Nefarious Actors	3	11
Theme 4. Trialability and Observability of Innovative Technology		
Cost of Implementation	3	9
Cryptocurrency Payment Concerns	6	18
Customer Participation	5	22

### Emergent Themes

As a result of the qualitative thematic analysis, four key themes were identified that related to the research question: "What strategies do business leaders use to address

the alternative payment concerns perpetuated by cryptocurrency markets?” The themes identified provide business leaders with information regarding the commitment of innovation as a relative advantage, cryptocurrency compatibility within the organization, overcoming complexities of cryptocurrency adoption, trialability, and observability of innovative technology. The commitment of innovation as a relative advantage refers to the degree of superiority and attractiveness to customers over similar existing products or services (Rogers, 2003). A competitive advantage is commonly achieved by offering consumers greater value, either by lowering prices or by supplying improved benefits and services (Rogers, 2003). Cryptocurrency compatibility refers to how well the innovation fits with established ways within the organization of accomplishing the same goal or the needs of potential adopters of the technology (Rogers, 2003). Overcoming complexity refers to how easy the innovation is to understand and use by both employees and customers (Rogers, 2003). Trialability refers to the extent to which the cryptocurrency adoption decision is reversible or can be managed in stages (Rogers, 2003). Observability refers to the extent to which outcomes can be seen both internally and externally to the organization (Rogers, 2003) and is a crucial element to facilitate technology transfer. Following is a comprehensive discussion of the themes identified in this study accompanied with direct interview quotations and literature to support the discussion.

### **Theme 1. Using Technology as a Competitive Advantage in the Marketplace**

Businesses of all sizes seek to attain a degree of superiority, attractiveness, or differentiation from competitors. While there is a sundry of ways in which to achieve a competitive advantage in the marketplace, there are only two basic types: cost or

differentiation advantage (Phong & Hui, 2018). All participants in this study (6 out of 6) indicated that they sought to achieve a differentiation advantage by adopting cryptocurrency as an alternative payment method. All participants (6 out of 6) also indicated that they wanted to be considered as an organization that embraced advanced technology. For example, participant # 2 stated:

We were very intrigued by the underlying Blockchain technology and the ways that it could change the world. We've always viewed Bitcoin as the first killer application on Blockchain technology, but there are a lot more applications that are going to use Blockchain to be meaningful. Beyond cryptocurrency, we think that Blockchain technology has really useful applications in voting, supply chain management, and land titling.

Additionally, 4 out of 6 business leaders also desired to improve settlement times and reduce the transaction costs such as those associated with credit cards. For example, Participant #1 felt that the Blockchain was “great technology” that would provide clients who could not afford a retainer with a “pay-as-you-go” payment option. Bitcoin also provided his clients with an alternative payment method that reduced the settlement times for checks and reduced transactions fees that were inherent of credit cards.

Participant #2 stated that his organization had a “commitment to innovation” and that the entire senior management team was “enthusiastic” about offering Bitcoin as an alternative payment option and wanted to provide their customers with “another payment method that made it easy” to purchase items on their website. Additionally, by initially partnering with a third-party settlement company like ShapeShift and Coinbase, the

company was able to accept other cryptocurrencies other than Bitcoin as payment options.

Participant #5 had followed cryptocurrency for some time and found it “interesting” and “intriguing.” Starting in 2013, he and his senior leadership team had “experimented with several different currencies besides Bitcoin. Some were abandoned, and some were kept” as alternative payment options within their periods of trialability. His goal was to generate a “curiosity” with current and potential customers to gain a competitive advantage in his industry sector. What resulted was an ideological following of customers who were passionate about safeguarding their identities from big data and who preferred to have an anonymous way to do business. Participant #5’s company now accepts ten different cryptocurrencies with associated sales amounting to 8–9% of its annual revenue total of \$250M.

The other participants shared similar histories regarding their journeys to cryptocurrency adoption, with their primary goals being to become organizations that embraced technology while providing alternative payment methods to their customers and clients that afforded lower transaction costs and faster settlements. All participants had an excitement and passion for innovation, a willingness to embrace advanced technology, and a belief that cryptocurrency as an alternative payment method could create an improvement, advantage, or benefit for their customers and clients.

## **Theme 2. Cryptocurrency Compatibility with the Organization**

According to Rogers (1995), compatibility refers to the extent to which an innovation is perceived as being acceptable with prevailing values, prior experiences, and

needs of potential customers. An innovation must also be considered socially acceptable to be implemented. In the case of Participant #1, finding a business model for a law firm involving cryptocurrency was a challenge. Participant #1 stated that he did enormous amounts of research to “really understand the ethical rules that apply to attorneys who want to accept crypto, especially for trust transactions.” Specifically:

One reason that some law firms are hesitant to accept crypto payments is that not all state bar authorities have issued clear ethical guidance on the matter.

[Washington] D.C. has, for example, but Virginia has not. Some advocates are pushing for the Virginia State Bar to issue guidance, but so far, there does not seem to be much momentum in that direction. I am hearing that several firms are interested in pursuing crypto payments after they can be more confident it won't result in disciplinary action.

Additionally, Participant #1 needed a business model that did not require “some sort of a retail merchant refund policy,” which was not typical of most businesses that accept cryptocurrency. Participant #1 applied for an account with the third-party settlement company, Coinbase, and the requirement for a merchant code had been modified or eliminated, and his settlement account was approved. While his business model is somewhat atypical in general commercial settings involving cryptocurrency, working with a third-party settlement company like Coinbase resulted in an alignment to the company's business practices and the ability to accept cryptocurrency as an alternative payment method.

For Participant #2, the issues were centered around establishing internal corporate policies for converting cryptocurrency once it was received as payment from a customer.

According to Participant #2:

Initially, the corporate treasury department held 10% of the Bitcoin revenue, and 90% was converted to United States dollars (USD). Eventually, the policy was to keep 50% of Bitcoin and convert the other 50% to USD. Currently, [the organization] holds 100% of its Bitcoin revenue as Bitcoin.

Participant #2 also added that several of their suppliers accept Bitcoin as payment, which supported holding the Bitcoin revenue as actual Bitcoin.

Refund policies for Participants #2 and #5 proved to be another challenging organizational issue. Due to the volatility and price fluctuations of cryptocurrency, Participant #2's organization issued refunds for merchandise in USD instead of cryptocurrency to ensure that the equivalent amount was refunded compared to what was received as payment. Participant #5's company issued refunds back in the cryptocurrency that it received as payment. Participant #5 expressed that the refunds issued in cryptocurrency are necessary to support the ardent demands of his client base, who value anonymity regarding their purchasing activities.

For 5 out of 6 case studies examined, cryptocurrency as an alternative payment method was compatible with their organizations. The exception was with Participant #3. Cryptocurrency was initially adopted in his company to cater to their international customer base, which represented 30–35% of its annual revenue and also in response to the market hype and excitement around Bitcoin. A third-party settlement company,

BitPay, processed transactions involving cryptocurrency, which provided accounting reconciliations that were straightforward and simple. Unfortunately, according to Participant #3, the company experienced some significant issues:

In 2019 the organization began having some credibility issues as a company in the world and as a marketplace. It had sellers from all over the world selling on our website, and at times, the company had not always done a great job vetting these sellers. So, there were things that were sold that were maybe of lower quality.

There was [also] a fulfillment potential for fraud.

Additionally, there was a resulting perception that the company was linked to the Dark Web. It was not the impression the senior leadership wanted for the company. Subsequently, sales involving cryptocurrency dwindled to just “a handful of transactions a month,” so the decision was made to stop accepting cryptocurrency and undergo a radical transformation that would improve the reputation of the company. To date, Participant #3’s company still does not accept cryptocurrency as it is not yet considered compatible with the organization due to past events.

### **Theme 3. Overcoming Complexity of Cryptocurrency Adoption**

One of the objectives of cryptocurrency was to simplify transactions and remove the central settlement authority by allowing payments by a digital coin on a publicly visible network known as the Blockchain or peer-to-peer. What seems simple in principle, however, has presented several obstacles and barriers to companies in their efforts to adopt cryptocurrency.

In 4 out of 6 cases studied, employee and customer education were at the forefront of unraveling the complexity of cryptocurrency and creating business practices, policies, and procedures to accommodate the new alternative payment method. For the sole proprietorships, this involved enormous amounts of research on behalf of the owners (Participant #1, Participant #4, and Participant #6) in understanding the Blockchain, cryptocurrency, and how settlements would be handled with third-party settlement companies like BitPay, Coinbase, and PayPal. For example, Participant #1 stated: “I’ve had to do a lot of research and really understand the ethical rules that apply to attorneys who want to accept crypto, especially for the trust transactions.” For the C.E.O.s of larger organizations (Participant #2, Participant #3, and Participant #5), research and education involved their corporate board members as well as their employees.

All participants stated that the complexity of fraud prevention was less with cryptocurrency due to the safeguards built into the Blockchain. Although the participants of large companies in this study had the resources to maintain a sizable fraud detection department (Participant #2 and Participant #5), they stated that fraud was not a problem with cryptocurrencies because the settlements were completed within minutes. Both C.E.O.s stated that they spend most of their resources on credit card fraud prevention, not cryptocurrency.

Slow regulatory responses from the U.S. Treasury’s Internal Revenue Service (I.R.S.) and Financial Crimes Enforcement Network (FinCEN) have also not helped companies exploit the benefits of cryptocurrency and have largely provided only consumer warnings and penalties for illegal activities associated with the currency

(Didenko & Buckley, 2019). There remains a lack of resources, discussions, and comprehensive analyses regarding how business leaders can implement and use cryptocurrencies to expand trading and business growth on a more comprehensive and even global level. As such, the potential benefits that virtual currencies can lend to business strategies remains partially obscured.

#### **Theme 4. Trialability and Observability of Innovative Technology**

Within the diffusion of innovation theory, as it relates to this study, trialability refers to the level of effort necessary to experiment with the innovation of cryptocurrency within a contemporary business. Commonly evaluated elements include costs, reversibility, organization culture change, and usability (Sonnenwald et al., 2001).

Observability refers to the visible outcomes of innovation adoption and encompasses both internal and external phenomena (Rogers, 2003). Both trialability and observability are considered before an organization makes a full commitment to adopt the innovation.

In 5 out of 6 interviews conducted for this study, the participants responded that the trialability of cryptocurrency as an alternative payment method presented very few barriers or obstacles. In fact, the participants described the process as “a relatively easy thing to do,” “effortless,” and “easy to integrate.” Participant #3 stated that the decision to stop accepting cryptocurrency was also not difficult when his company halted all cryptocurrency payments in 2019. In other words, the trialability was reversible, without any inconvenience. In all cases, a third-party settlement company such as BitPay, Coinbase, and PayPal was used to complete the customer payment transactions, and the

business leaders felt that using these settlement companies reduced their overall risk of cryptocurrency adoption.

Observability via customer participation and related revenue was most prominent in Participant #2 and Participant #5's companies. Participant #2 stated cryptocurrency revenue amounted to approximately \$50K per month and Participant #5 stated that his cryptocurrency revenue was 8–9% of his total annual revenue to \$250M. The other business leaders of the sole proprietorships (Participant #1, Participant #4, and Participant #6) reported negligible customer participation and associated revenues. Also, none of the participants in this study indicated that they ran targeted marketing campaigns highlighting their acceptance of cryptocurrency as an alternative payment method. All cases within this study were considered stealth adoptions whereby information about the cryptocurrency adoption was spread by word-of-mouth or blogs by existing customers and employees of the companies, which may have contributed to the low customer participation rates.

### **Connections to Theory**

The findings from this multiple-case study demonstrate that the constructs of technology adoption identified within the diffusion of innovation theory (Rogers, 1962) manifested in the business leaders' adoption strategies of cryptocurrency. Although this theory began in the communications discipline (Rogers, 1962), researchers and practitioners have applied the theory to study the diffusion of technologies in many fields. The result of this diffusion is that people, as part of more extensive social systems, formally adopt an innovative idea, behavior, or product (Min et al., 2019; Presthus &

O'Malley, 2017; Rogers, 1962; Roussou et al., 2019). The relevance of the diffusion of innovation theory to this study is that it is the foundational premise to explain business leaders' behaviors and strategies to adopt cryptocurrencies as an alternative payment method in the modern global economy.

Rogers (1995) pinpointed five constructs that serve as the catalyst for the diffusion of innovation: (a) relative advantage, (b) compatibility with existing values and practices, (c) complexity, (d) trialability, and (e) observability. Regarding relative advantage, in 6 out of 6 cases, the business owners embraced the technology of cryptocurrency and believed that it would provide a competitive advantage for their business. During the interviews, sentiments such as "great technology," "commitment to innovation," "enthusiastic," "interesting," and "intriguing" were mentioned by the participants. Additionally, 4 out of 6 business leaders also desired to improve settlement times and reduce the transaction costs such as those associated with credit cards, thus creating a cost advantage for both the business and customers. Relative advantage was clearly prominent in Theme 1: Using Technology as a Competitive Advantage in the Marketplace.

Regarding compatibility, in 5 out of 6 cases, cryptocurrency adoption was compatible with the business mission, vision, and goals and aligned with Theme 2: Cryptocurrency Compatibility with the Organization. For example, one company was described by their previous C.E.O. in a press release that the company was "pro-freedom, including the freedom of individuals to communicate information about value and scarcity without relying on a medium created through the fiat of unaccountable

government mandarins.” In 1 out of 6 cases, the adoption of cryptocurrency was deemed not compatible with the organization due to issues with vendor merchandise quality and perceived associations with the Dark Web.

Complexity was experienced by all (6 out of 6) business leaders, whether they were sole proprietorships or part of a large corporation. Education and training were essential to not only understanding cryptocurrency but also in understanding how the currency fit into their organizational culture. None of the adoptions occurred without this preparation which was evident in Theme 3: Overcoming Complexity of Cryptocurrency Adoption.

Regarding trialability and observability, in 2 out of 6 cases, cryptocurrency generated a notable amount of revenue for the businesses classified as large corporations. In 3 out of 6 cases, cryptocurrency adoption did not generate any significant revenue for sole proprietor businesses. Although the adoption was favorably received by business associates and customers, very few customers took advantage of this payment option. In 1 out of 6 cases, the cryptocurrency adoption trial was considered a failed undertaking and abandoned. It is important to note that none of the participants employed an aggressive marketing campaign to promulgate the use of cryptocurrency as an alternative payment method. This behavior is counterintuitive to the research by Wonglimpiyarat & Yuberk (2005), which found that the high demand for ten successful innovations resulted from intensive marketing campaigns and effective linkages with industries as part of their overall business strategies. As demonstrated in Theme 4: Trialability and Observability of Innovative Technology, however, all participants established a trial period for the

adoption of cryptocurrency and employed methods to observe the success or failure of the adoption.

The results of this study reinforced the appropriateness of the diffusion of innovation theory as a conceptual framework and how it applies to strategies for cryptocurrency adoptions in contemporary businesses. The five theoretical constructs of the theory manifested within the realities of the context of the adoption and use of cryptocurrencies and through summative validity demonstrated how business leaders may likely apply these constructs in conceptualizing and planning for the adoption and use of cryptocurrencies in the future (Lee & Hubona, 2009).

### **Applications to Professional Practice**

The purpose of this qualitative, multiple-case study was to explore the strategies that business leaders use to respond to the alternative payment concerns perpetuated by cryptocurrency markets. The findings from this study are applicable to business leaders who aspire to adopt cryptocurrency in the future as an alternative payment method. In the following paragraphs, I conveyed how and why the findings are relevant to improved business practices regarding cryptocurrency adoption. The applications to professional practice include:

- identifying and understanding what relative advantages can be gained from cryptocurrency adoption.
- determining if the complexity of cryptocurrency as an alternative payment method is compatible with a business.

- establishing a trial period for cryptocurrency adoption to determine the success or failure of the trial.

The first application to professional practice is for business leaders to identify and understand the relative advantages of cryptocurrency adoption. All of the business leaders (6 out of 6) that were interviewed expressed that cryptocurrency adoption was undertaken in part as a response to the excitement surrounding Bitcoin. While many innovators possess this same passion for advanced technology, it is prudent to understand what relative advantages cryptocurrency can provide for an organization. For example, according to Presthus and O'Malley, the profile of the average Bitcoin user is 32.1 years of age, male (95.2%), full-time employment (44.7%), non-religious (61.8%), and a libertarian political association (44.3%). Most Bitcoin early adopters embrace cryptocurrency out of technical curiosity and not for the potential monetary gain (Presthus & O'Malley, 2017). If this consumer group is not an integral part of a business' client base, further research and efforts should be had to determine if courting this group is in alignment with an established or future business strategy.

The second application to professional practice is determining if the complexity of cryptocurrency as an alternative payment method is compatible with a business. Determining the compatibility of cryptocurrency requires a comprehensive evaluation of the organization to include the degree to which the innovation is perceived as being consistent with prevailing values, prior experiences, and needs or demands of potential adopters or customers (Rogers, 1995). An innovation must also be considered socially acceptable to be implemented (Rogers, 1995). The cultural mindset should be heeded as

well. In the case studies that were examined, all business leaders stated that education and knowledge about cryptocurrency for both employees and customers were essential.

According to Participant #5, “There was a learning curve for not just our development team, but also our customer support team understanding the nuances of paying with crypto, and the fact that you don't get an instant payment.” Depending on the type of organization in question, technical education and training regarding cryptocurrency may or may not be a suitable endeavor.

Finally, the last application to professional practice is establishing a trial period for cryptocurrency adoption to determine the success or failure of the trial. There can be major deterrents toward adoption, according to Presthus and O’Malley (2017), for the non-users of Bitcoin. For example, the switching costs between fiat currency and Bitcoin and the perceived non-value of using the currency can greatly influence the target customer base during a trial period (Presthus & O’Malley, 2017). For example, Participant #5 stated,

We put it out there to see what would happen with it and how interested or not interested our customers would be, and we were very pleasantly surprised with the response. Almost immediately, we started getting a handful of sales the first day. We then started getting some attention in a few of the online forums, and it snowballed from there.

Conversely, Participant #1 stated, “No one's ever taken advantage of this [crypto payment option], but it's something that I offer, and I wish people would [use it]. I've often thought about offering discounts to get people to [use it].” For both of these companies,

trialability and observability are dichotomous in determining the success of cryptocurrency adoption. Business leaders should ask themselves — Can a trial be successful if no one participates? Of course, a business leader can be successful at establishing cryptocurrency as a payment option, but if no one uses it, observability is null.

### **Implications for Social Change**

The results of this study may be helpful for business leaders to facilitate social change by understanding the diverse uses of cryptocurrencies that are influencing global economies. Business leaders can also use the information presented in this study and, along with their power and influence, financially and politically support global economic reform for cryptocurrencies. The information derived from this study's literature review also illuminated the growing phenomenon of the Dark Web and associated shadow economies (Shillito, 2019), which is harming society, and the need for further government action to impede its expanded influence. Finally, the results of this study may also catalyze social change by encouraging more business leaders to adopt cryptocurrency as an alternative payment method so that the world's most disenfranchised, impoverished, and credit-challenged individuals who are unbanked and disqualified for credit cards, keep more of their earnings, and subsequently be afforded access to more goods and services (DeVries, 2016; McCallum, 2015) that they so desperately need.

### Recommendations for Action

Four themes emerged from this study on strategies for cryptocurrency adoption in contemporary business. Table 4 contains the recommendations for action based on the emergent themes of this study.

**Table 4**

*Recommendations for Action*

Recommendation	Related Theme
Create business models to encourage more cryptocurrency transaction-based outcomes versus investment-based outcomes.	1
Collaborate with global partners.	1
Shape the future of cryptocurrency.	2
Create education and training programs regarding cryptocurrency for employees and customers.	3

The following recommendations may assist business leaders to enhance or improve the results of their cryptocurrency adoptions as well as the entire ecosystem by enhancing their knowledge as well as their cooperative behaviors on a global basis.

Below is an explanation of the suggested actions for business leaders.

#### **Create Business Models to Encourage more Cryptocurrency Transaction-based Outcomes versus Investment-based Outcomes**

The first recommendation for action calls for the creation of business models that encourage transaction-based outcomes versus investment-based outcomes for cryptocurrency. Currently, many Bitcoins and alternative coins (a.k.a. altcoins) are held

for investment purposes and are referred to as digital gold (Kaur et al., 2021). Many people might remember when the first image representation emerged that presented Bitcoin as a gold coin with a “B” stamped on the front. This representation was created for more reasons than to just sell magazines and other publications. This particular meme emerged because Bitcoin, as an investment, behaved much like gold in 2019 (Kaur et al., 2021) and was part of many investment portfolios. Investments, stereotypically, are held for various timeframes as short, medium, and long-term investments (Bedi & Nashier, 2020). To date, within the United States, Bitcoin and other cryptocurrencies are rarely used as transactional currency (Bedi & Nashier, 2020) for things like buying a cup of coffee, dinner at your favorite restaurant, or movie tickets. This model, however, is changing. On September 27, 2021, the President of El Salvador, Nayib Bukele, issued a decree making Bitcoin an official currency and legal tender within the country. Article 7 of the law stated that all businesses in El Salvador must accept Bitcoin as payment for goods and services when presented by a customer (McDonald, 2021). To jump-start this effort, President Bukele issued every citizen of El Salvador the equivalent of \$30 USD in Bitcoin. The government also built a network of 200 Bitcoin automatic teller machines (ATMs), established a digital Bitcoin wallet application called Chivo, and offered permanent residency to anyone who invested three Bitcoins or more in El Salvador (McDonald, 2021). Many might call President Bukele’s efforts aggressive, dynamic, or even radical. Even though hardships occurred early in his efforts which were caused by hackers and protesters and malfunctioning ATMs, it is still too early to tell if his efforts will succeed in El Salvador.

This information is not presented as a pro or a con stance for El Salvador's efforts. It is merely to demonstrate that disruptive innovations often follow a radical path of hardship and even initial failure before success is observed. It is these types of radical efforts that will be needed to begin the transition to transaction-based ecosystems for cryptocurrency if the currency is to evolve into routine, transaction-based phenomena for all people. Participant #5 also addressed the issue of transaction-based events stating,

[Cryptocurrency transactions] don't work quickly enough. The smaller [cryptocurrencies] have tried to get around that and have better faster confirmations, but if Bitcoin or any of these cryptocurrencies are ever going to really make a dent in actual commerce, that they have to be more scalable.

Despite all of the triumphs and strengths, scalability remains the foremost challenge that impedes the comprehensive adoption of Blockchain in some areas of the world (Singh et al., 2020). Compared to non-Blockchain systems such as Visa and PayPal, Blockchain systems have minimal throughput and latency performance. For example, the throughput of Bitcoin and Ethereum Blockchains are 3–4 and 15 transactions per second (TPS), respectively (Sanka & Cheung, 2021). In comparison, Visa and PayPal achieve 1667 and 193 TPS, respectively (Sanka & Cheung, 2021). In other words, for cryptocurrency to evolve as an acceptable transactional currency, people must be provided the mechanism at the point of sale (POS) to purchase cryptocurrency easily and quickly by converting standard fiat currency to digital at the current speed afforded by systems such as Mastercard, Visa, and PayPal (Sanka & Cheung, 2021).

Mechanisms must also be in place to allow consumers to rapidly execute digital payment for goods and services without the need for intermediaries.

### **Collaborate with Global Partners**

The second recommendation for action is for businesses to collaborate with global partners that can propagate legitimate markets. Many countries around the world are now participating in cryptocurrency evolution, including emerging markets. According to the 2021 Global Crypto Adoption Index performed by Chainalysis (2021), Vietnamese are the most open to crypto trading and spending, accompanied by other Southeast Asian countries such as India and Pakistan (Chainalysis, 2021). Ukraine also makes a strong showing along with Kenya and Nigeria (Chainalysis, 2021). Two countries from Latin America, Venezuela, and Argentina, break the top ten, but the world's most powerful nation with the biggest economy, the United States, fell to the bottom half of the list (Chainalysis, 2021).

1. Vietnam
2. India
3. Pakistan
4. Ukraine
5. Kenya
6. Nigeria
7. Venezuela
8. United States
9. Togo

## 10. Argentina

The data published by Chainalysis (2021) includes cryptocurrency transactions in all markets, both legal and illegal transactions such as those conducted on the Dark Web; therefore, caution must be heeded in order to foster economic relationships with countries that actively combat shadow economy activities that relate to illegal drugs, human trafficking, terrorism, and identity theft.

To demonstrate the extent of shadow economies, Berdiev et al. (2018) investigated the growing size of underground shadow economies and the clandestine environment that keeps them hidden from main national economies. Many experts believe that the overall size of shadow economies constitutes nearly 30% of the world's gross domestic product (GDP). While this number represents a worldwide average, the size of shadow economies from country to country varies greatly.

Berdiev et al. (2018) examined the size of shadow economies in relation to the level of economic freedom in over 100 countries. The variables examined were the relationship to the size of the government, legal system, property rights, money stability, trade freedom, and regulations for credit, labor, and business. The results suggested that increases in economic freedom significantly reduced the size of the shadow economy in the respective country. Berdiev et al. (2018) also concluded that economic freedom, not political freedom was most effective at reducing underground shadow activities.

Participants in the study felt freer to participate in a market environment with institutions that advocated and supported strong private property rights and that did not encumber private citizens to absurd levels of taxation and regulations. In other words, countries

with economic freedom encouraged people to participate with merchants openly without the need to go underground.

### **Shape the Future of Cryptocurrency**

The third recommendation for action is to shape the future of cryptocurrency. The United States Treasury's Financial Crimes Enforcement Network (FinCEN) is the first federal agency to address the regulation of cryptocurrency (Singh, 2015). Singh (2015) explained that under FinCEN's Bank Secrecy Act (BSA), statutory conditions attempt to address money laundering by requiring the reporting of certain transactions using banks and other financial institutions (Singh, 2015). U.S. federal regulations are minimal and primarily address penalties for illegal transactions; as such, regulations are not focused on cryptocurrencies as a common medium of exchange that can create an economic environment of growth.

It is important to note that FinCEN has also recognized the benefits of cryptocurrency to the public and has officially stated that it does not want to stifle Bitcoin's potential to improve the lives of poverty-stricken individuals (Singh, 2015). As such, FinCEN's position on Bitcoin could possibly provide business leaders with the assurance that the currency is likely to be long-lived, thus reducing the business risk of adopting the currency as an alternative payment (Singh, 2015). FinCEN may also be the appropriate conduit or springboard to shape the future of cryptocurrency into one that is more accommodating and user-friendly to the general public.

## **Create Education and Training Programs Regarding Cryptocurrency for Employees and Customers**

In a qualitative multiple-case study analysis, Clohessy and Acton (2019) explored the potential of the Blockchain to transform global markets in developed countries. The researchers studied 20 companies in Ireland to determine the influential factors regarding the decision on whether or not to adopt the Blockchain. Clohessy and Acton (2019) found that three significant themes emerged during their study regarding Blockchain adoption: senior leadership support, organizational readiness, and company size. Additionally, the researchers found that the potential favorable impact of technological advancements also played a significant part in the adoption decision.

Clohessy and Acton (2019) determined that executive-level support of IT innovation was a significant driver for initiatives such as Blockchain adoption. The continued commitment of resources and long-term vision were vital elements to ensure the integration of cutting-edge technology such as the Blockchain. Additionally, organizational readiness, such as the presence of employee training and knowledge, adequate financial infrastructure, and contemporary human resource departments, also aided in the adoption of IT innovations. Clohessy and Acton (2019) also concluded that large organizations with over 250 employees were also more likely to adopt the Blockchain due to its “complex and diverse facilities” that were absent in most small and medium-sized enterprises.

Wonglimpiyarat and Yuberck (2005) also demonstrated that innovation diffusion does not occur by chance or without the knowledge of how to manage innovations with

consumers. Their findings may also explain the relatively slow commercial adoption rates for Bitcoin and the poor marketing and socialization efforts that have been undertaken to acclimate individuals to an unconventional, alternative virtual currency.

### **Recommendations for Further Research**

This study contained several limitations that could demonstrate a variety of future research topics. The first limitation identified was that I had to rely on the interview responses provided by the business leaders identified for this study. By not obtaining the views of pertinent non-management employees with similar levels of knowledge and experience of cryptocurrency adoption, significant perspectives may have been missed as part of my data collection efforts. Further research involving tenured employees may be warranted to ensure that all viewpoints, events, and experiences were considered during the period of cryptocurrency adoption.

The second limitation identified was the limited number of businesses that currently accept cryptocurrency as an alternative payment method. Because this currency is considered advanced technology and not yet mainstream, there was a limited number of business leaders that could be interviewed for this study. As cryptocurrency adoption continues to expand, further research involving a larger sampling of business leaders could be warranted to explore evolving challenges to established business strategies for cryptocurrency adoption.

### **Reflections**

As mentioned previously in the earlier sections of this study, my prior experience and knowledge of cryptocurrency were primarily focused on law enforcement from the

viewpoint of combating the illegal drug trade and financial crimes. I had extensive knowledge of the Dark Web, but my knowledge of cryptocurrency adoption in the private sector was very constrained, with only a cursory exposure to adoptions within small, medium, and large-size organizations. I was aware of my biases and took exceptional care not to influence the responses from the participants of this study.

The personal challenges that I faced during my doctoral journey were extensive. I learned the value of self-discipline and sacrifice and how much I could accomplish with very little sleep. I quickly realized that attaining my doctoral degree would likely be one of the most demanding and ambitious ordeals of my life but also the most rewarding. I have grown not only as an academic scholar but as a human being who began life in this world with very little. The knowledge that I have attained has opened my eyes and my mind to the global phenomenon of cryptocurrency and what is possible with advanced technology. I am grateful to be present for its evolution and to witness the plethora of possibilities using Blockchain technology in the future.

### **Conclusion**

Throughout my academic journey, to understand the business strategies of cryptocurrency adoption, I have uncovered information that will hopefully assist other business leaders in the future. It is my hope that the findings from this study will provide guidance and foundational knowledge for businesses that will serve as the blueprint for a successful cryptocurrency adoption effort. By using the diffusion of innovation theory as my conceptual framework, business leaders can now form a logical and calculated path that addresses relative advantage, compatibility, complexity, trialability, and

observability. It is my hope that this study will provide clarity and contribute to the adoption of even more advanced technologies that can improve company revenues, country economies, and enrich the lives of many people globally.

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## Appendix A: Interview Protocol

Date: \_\_\_\_\_

Researcher Name: \_\_\_\_\_

Participant Name: \_\_\_\_\_

Organization: \_\_\_\_\_

Virtual Interview Method: Zoom/Skype/Other: \_\_\_\_\_

**A. Introduction**

Initial greetings and introductions between the researcher and participant to include the exchanging names, preferred names, and need for any special accommodations.

**B. Purpose of the Interview**

Provide participants with an explanation and purpose of the study.

**C. Confidentiality**

Explain the terms of informed consent and terms of confidentiality and ask participants if they have any questions or concerns.

**D. Expectations**

Explain the use of electronic recording via Zoom or Skype as well as handwritten notes during the interview session.

Review the format of the initial interview and the timing expectations of the interview session.

Explain the process and timeframe for following up with the participants after the initial interview session concludes to obtain additional information (if required) and member checking.

**E. Participants**

The populations and participants to be interviewed will include six business leaders from an entity within the United States in which cryptocurrency was adopted as an alternative payment method and is currently being used within the business. All participants must have a tenure of at least one year at their organization, and have intimate knowledge of why cryptocurrency was adopted, and how it contributed to the overall business strategy.

**F. Interview Length**

Interviews will last approximately 60 minutes. Participants will be offered a break if the interview extends further.

**G. Central Research Question**

What strategies do business leaders use to address the alternative payment concerns perpetuated by cryptocurrency markets?

**H. Sociodemographic Questions**

1. What company are you currently employed?
2. How many years have you been with the company?
3. What position do you currently hold at the company?

**I. Interview Questions**

1. How did you develop the strategies to use cryptocurrency for the settlement of business transactions?
2. What strategies did you implement to counteract centralized banking system barriers (i.e., fees and creditworthiness determination) so that all your target markets can solicit your company for needed goods and services?

3. What key obstacles did you face in the process of adopting cryptocurrency transactions as a payment method?
4. How did you address and overcome the key barriers to establishing cryptocurrency as an alternative payment method?
5. How can you, as a business leader, assess the effectiveness of the strategies your organization developed to address the alternative payment concerns perpetuated by cryptocurrency markets?
6. What technological safeguards do you use to prohibit illegal cryptocurrency transactions?
7. What other information would you like to add regarding the strategies that your organization uses to address the alternative payment concerns perpetuated by cryptocurrency markets?
8. Is there anything further information that you would like to add at this time?

### **J. Closing**

Thank each participant for their time and effort during the interview and request permission to follow-up for additional information, if necessary, and member checking.

## Appendix B: Consent Form

You are invited to take part in a research study about the business strategies for cryptocurrency adoption. The researcher is inviting business leaders from organizations within the United States in which cryptocurrency was adopted as an alternative payment method and is currently being used within the business to be in the study. The business leaders must have a tenure of at least one year at their organization, and have intimate knowledge of why cryptocurrency was adopted, and how the adoption contributed to the overall business strategy. This form is part of a process called “informed consent” to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Jacqueline Rodriguez who is a doctoral candidate at Walden University.

### **Background Information:**

The purpose of this study is to explore the strategies that business leaders use to respond to the alternative payment concerns perpetuated by cryptocurrency markets. The business impact is to reveal the strategies that influenced business leaders to adopt the alternate payment method and enlighten more business leaders by the outcomes of early adoption to develop strategies to assist in the future adoption of cryptocurrencies while addressing the concerns as a legitimate payment option for goods and services.

### **Procedures:**

This study involves the following steps:

- take part in a confidential, virtually recorded interview (phone option available) for approximately 60 minutes
- review a typed transcript of your interview to make corrections if needed (email option available) (10 minutes)
- speak with the researcher one more time after the interview to hear the researcher’s interpretations and share your feedback (this is called member checking and it takes 20-30 minutes, phone option available).

Here are some sample questions:

- How did you develop the strategies to use cryptocurrency for the settlement of business transactions?
- What strategies did you implement to counteract centralized banking system barriers (i.e., fees and creditworthiness determination) so that all your target markets can solicit your company for needed goods and services?

### **Voluntary Nature of the Study:**

Research should only be done with those who freely volunteer. So, everyone involved will respect your decision to join or not. You will be treated the same by the researcher and other persons at Walden University whether or not you join the study. If you decide to join the study now, you can still change your mind later. You may also stop at any time. The researcher seeks six volunteers for this study.

**Risks and Benefits of Being in the Study:**

Being in this study could involve some risk of the minor discomforts that can be encountered in daily life, such as stress during the course of the interview. With the protections in place, this study would pose minimal risk to your wellbeing.

This study offers no direct benefits to individual volunteers. The social impact aim of this study is to benefit society by invoking social change by providing education and information regarding the growing illegal and immoral uses of cryptocurrencies that are harming society globally so that business leaders can use their power and influence financially as well as politically to support economic reform and regulation of the currency. This study may also catalyze social change by encouraging more business leaders to adopt cryptocurrency as a viable alternative payment method so that the world's most disenfranchised, impoverished, and credit-challenged individuals can be afforded the access to goods and services that they so desperately need.

**Payment:**

There will be no payment provided for participation in this study.

**Privacy:**

The researcher is required to protect your privacy. Your identity will be kept confidential and anonymous within the limits of the law. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. If the researcher were to share this dataset with another researcher in the future, the researcher is required to remove all names and identifying details before sharing; this would not involve another round of obtaining informed consent. Data will be kept secure by database encryption on a USB storage device which will be stored in a personal safe. Data will be kept for a period of at least 5 years, as required by the Walden University.

**Contacts and Questions:**

You can ask questions of the researcher by email at [jacqueline.rodriquez1@waldenu.edu](mailto:jacqueline.rodriquez1@waldenu.edu) or by phone at 703-855-1045. If you want to talk privately about your rights as a participant or any negative parts of the study, you can call Walden University's Research Participant Advocate at 612-312-1210. Walden University's approval number for this study is **08-11-21-0998180** and it expires on **August 10, 2022**.

You might wish to retain this consent form for your records. You may ask the researcher or Walden University for a copy at any time using the contact info above.

**Obtaining Your Consent**

If you feel you understand the study and wish to volunteer, please indicate your consent by signing this form below and returning electronically to the researcher via email at [jacqueline.rodriquez1@waldenu.edu](mailto:jacqueline.rodriquez1@waldenu.edu).

Printed Name of Participant

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Date of consent

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Participant's Signature

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Researcher's Signature

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