Hedging Your Bets: The Prospects of Cryptocurrency Use in Online Gambling

A Mixed-Methods Study

Liina Lehtonen, Nicolas Werle
Abstract

Since its initial inception, cryptocurrency has hit the world with both intrigue and skepticism. It was acting as an alternative form of currency that people could use that required no regulative authority to back it. As such, people had the option to make purchases in anonymous manners, leading to what most would consider unethical behaviours, and ultimately resulted in cryptocurrency gaining a poor reputation. However, specific trends in society have helped cryptocurrency growth to continue. A societal loss of trust in the traditional banking system and the positive perception towards the blockchain technology, which is a peer-to-peer system that cryptocurrencies, such as Bitcoin, operate on are two such trends. Furthermore, recent years have witnessed exponential increases in the prices of cryptocurrencies, such as Bitcoin. This has led to widespread stories of people getting rich through cryptocurrency ownership, having been “wise-enough” to buy in on the cryptocurrency trend early enough to reap in the rewards of such a decision. And as a result, leading to more people wanting to be the next big success story and buying in on the cryptocurrency trend. This growing trend has also gained the attention of several multi-national companies, such as Expedia, Subway and Microsoft, who have begun accepting cryptocurrency as a form of payment. Even though specific cases have seen this strategy implemented successfully, the volatility of cryptocurrency still poses a risk that has hindered the ability of cryptocurrency to become a widespread payment option.

Given the current trend surrounding cryptocurrency, this thesis serves the purpose is to investigate another alternative option for cryptocurrency use. That option being the potential for cryptocurrency to be used as an alternative payment option in the online gambling industry. Where it has been used as a payment option in other areas, it would be interesting to identify whether there is potential for the cryptocurrency to be adopted and used in this particular industry as well. In order to investigate this phenomenon from both the consumer and industry point-of-views, this thesis used a mixed-methods study, which consisted of a qualitative study and quantitative study. Our qualitative study focused on the industry side of the phenomena. To carry it out, we conducted a series of semi-structured interviews with managers of a large online gambling company in order to gain deeper knowledge on their perspectives regarding their perceptions towards how cryptocurrency adoption would affect the online gambling industry. Based on the information gained from the interviews, specific themes were identified and further analyzed through a thematic analysis. Those themes included blockchain in online gambling, holding cryptocurrency, regulation and the reputation of cryptocurrency. Our results indicated that managers did not believe the industry was ready to adopt cryptocurrency due to specific regulatory factors, but that it had future potential, mainly regarding its association to blockchain. Our quantitative study focused on interpreting the perceptions of online gamblers regarding cryptocurrency use in online gambling. Specifically, identifying what would motivate them to use cryptocurrency in online gambling and if they were willing to accept it as a payment option. Based on the results obtained through a survey we distributed, we used linear regression to identify if online gamblers were willing to accept cryptocurrency. The resulting outcome was a moderate level of rejection towards cryptocurrency acceptance. The linear regression model also allowed us to interpret which predictor variables held the greatest level of importance towards predicting cryptocurrency acceptance. Those specific variables included cryptocurrency anonymity, usability, ownership, and belief in the future of cryptocurrency.

When comparing the results from both studies through triangulation, we were able to conclude that both consumers and the industry were not ready to fully accept cryptocurrency usage in online gambling. However, both sides indicated positive outlooks towards its future potential as a payment method.
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1. Introduction

The purpose of our research is to discover if there is a consensus between online gamblers and the online gambling industry itself pertaining to the practicality of adopting and using cryptocurrency in the online gambling industry. We begin by elaborating on the problem background of the research to give an indication towards its relevance. This is followed by an introduction to the theoretical background of our research, which was developed through our literature review and also provided us insight into the research gap that was present that our research aims to fill. This chapter concludes with our research question being introduced and explanation regarding the purpose that drives this research.

1.1 Choice of Subject

The choice of topic for this thesis was a result of the interest the authors held towards the subject of cryptocurrency. Since it is a new and rising technology, there is a lot of interest to learn more about the potential cryptocurrency has to offer. The authors decided to link the subject of cryptocurrency with the online gambling industry for different reasons. First, one of the authors had practical knowledge and work experience within the online gambling industry. Secondly, the online gambling industry is already influenced by cryptocurrency, as some companies accept cryptocurrency as a payment method. Furthermore, the industry is highly competitive, which might encourage a number of online gambling companies to consider adopting a new payment method – cryptocurrency – to gain competitive advantage. Third, there is little in terms of previous research that provides any sort of linkage between cryptocurrency use and this particular industry, leaving the possibility open for this study to provide some original research. And finally, this particular combination seemed like an interesting challenge to undertake. Though, as mentioned, one of the authors had previous practical knowledge regarding the industry of choice and a genuine interest in the concept surrounding cryptocurrency, this whole subject was completely new for the second author. However, since this particular thesis project was going to provide the author with brand new knowledge and insight, especially towards an innovative technology such as cryptocurrency, the endeavor was appealing.

Both authors are Master’s students studying in the Business Development and Internationalization program at Umeå University. Since the nature of the thesis focused on an innovative technology, such as cryptocurrency and investigated its perceived potential in a market that conveyed potential for further technological development, the choice of topic aligned with the educational background of the authors. In essence, the focus was to understand the disruptive capability of cryptocurrency adoption in the online gambling industry from both a consumer and company perspective. Results from our findings could give an indication as to whether this disruptive capability could match or even overthrow traditional online payment methods, such as credit cards and online debit, at some point in the future. The online gambling industry is just one of many industries that operate in the online environment. It provides this research with a unique perspective since the business model of an online gambling platform is different from other forms of e-commerce. Yet, the results from research conducted in this industry could provide information relating to the future potential of cryptocurrency as an online form of payment in other sectors of e-commerce as well.
1.2 Problem Background

The concept of digital currency (cryptocurrency) has been around since the mid-1990’s (Kraus, 2017, p. 1). These currencies have been regulated through third-party entities, such as banks and governments alike. If a transaction using a digital currency were to be made, that transaction would be required to be executed through one of these third-party entities; usually incurring high transaction fees (Baur et al., 2016, p. 66). It was not until 2008 that an alternative option was introduced by an anonymous founder, or group of founders, using the pseudonym Satoshi Nakamoto (Coeckelbergh & Reijers, 2016, p. 172). This alternative option being the cryptocurrency known as Bitcoin. Bitcoin is a peer-to-peer electronic cash system that eliminates the need for a financial intermediary and allows users to make direct and relatively anonymous transactions through the internet, and ultimately, lowering the incurred fees associated with making transactions through a regulatory third-party considerably (Polasik et al., 2015, p. 10).

Bitcoin operates through a ledger known as *blockchain*, which records every transaction made and is viewable by anyone. Blockchain is widely considered an innovative technology that will transform the landscape of the financial sector and other sectors alike. As such, even established central banking systems are highly interested in obtaining blockchain technology as a source to streamline their own operations (Popper, 2016). Furthermore, blockchain technology has been cited as having the potential to drastically reduce instances of fraud and corruption in the financial industry (Bentov et al., 2014, p. 34). The underlying concept surrounding this is the idea of how trust can be transformed within the financial industry as a result of blockchain technology. Coeckelbergh and Reijers (2016, p. 176) argue that blockchain technology reduces fraud and corruption by inducing a new form of social relation into the financial industry that is completely rigid in nature. Control of these transaction processes are transferred from human entities, who are susceptible to conducting fraudulent actions, to the blockchain technology which is coded to enforce ethical standards and not deviate from them. As such, the social relation regarding trust is shifting away from trusting people in the system to trusting the system itself.

These procedural shifts in the financial industry and the potential their underlying benefits provide have given rise to new opportunities to be taken advantage of. This is evident in the number of new cryptocurrencies becoming available. Since Bitcoin’s inception into the market, the availability of unregulated cryptocurrencies has risen exponentially, up to 250 variant forms of cryptocurrencies being available in 2014 (Polasik et al., 2015, p. 14). In 2018, some of the largest cryptocurrency websites have listed market prices of 1,600 alternative coins. Such alternative cryptocurrencies include the likes of Liteoin, Ripple and NEO.

Despite the positive characteristics related to cryptocurrencies regarding their potential to transform the way the financial industry operates, there are also many concerns pertaining to its development. It is important to, therefore, take both views into account. One such concern is related to the level anonymity cryptocurrency users are provided. Since transactions can be made without personal information being traced, that leaves the possibility open for cryptocurrencies to be a preferred option amongst illegal operations such as the drug trade and terrorism. This also relates to a loophole that can be exploited within the blockchain technologies. Even though blockchain enforces proper conduct of monetary transfers, it lacks the human element of intuition regarding what the funds being transferred are going to be used towards (Coeckelbergh & Reijers,
The fact that cryptocurrencies are unregulated, meaning they are not backed by any bank or government entity also makes them attractive components for terrorist financing (Reda, 2017, p. 20). Furthermore, while cryptocurrencies such as Bitcoin are accepted by many developed countries in the world, there are also a number of countries and government entities that are vetoing (fully or partially) the use of cryptocurrencies in their financial systems. Countries such as China and Mexico have implemented regulations that restrict the use of cryptocurrencies within their geographic boundaries, while other countries such as Iceland and Vietnam have outright banned their use. Such behaviour towards cryptocurrencies has the ability to cause some skepticism towards the notion as to whether cryptocurrencies can remain viable monetary options (Hendrickson et al., 2016, p. 930).

With the rise of cryptocurrencies and the current trend revolving around their increasing popularity, one would assume that consumer and merchant interest in this payment alternative has increased in kind. In 2013, during its relatively early years, the number of Bitcoin users was around 10,000. That included a few hundred merchants who accepted it as a form of payment. The vast majority of those merchants being small start-up businesses operating in the technology sector (Doguet, 2013, p. 1136). That number has risen since, however, there is speculation that given its high rate of appreciation, Bitcoin users may be reluctant to use it for micro purchases. Instead it is seen as a more valuable investment tool than a purchase option (Bloomberg Technology, 2017).

The main problem that we discovered was that there is very little available in terms of previous research that looks into identifying the drivers that exist to influence consumers to use cryptocurrency as a form of payment method. This problem is especially prevalent within the online gambling industry. Where there is some research on this particular topic relating to the e-commerce industry, there is very little to be found revolving around the online gambling industry. By expanding the research horizon to other sectors of the online marketplace, one could generate a holistic view regarding the future potential of cryptocurrency. Online gambling hosts a different consumer base than most other online marketplaces, which can help establish if the drivers of cryptocurrency use discovered in previous research studies are significant throughout any consumer group or if they are specific to certain sectors. As such, our research focused specifically on the online gambling, yet keeping in mind the results of previous studies. Having an understanding regarding what would motivate the use of cryptocurrencies by consumers within this industry could provide useful insight for companies operating in it to establish if it is viable to accept payment methods in the form of cryptocurrency. Furthermore, obtaining an understanding towards how companies in this industry perceive the viability of cryptocurrency use in online gambling could show a potential relation between the consumer perception and the industry perception of this particular technology. This leads into our next section in which we utilize relevant theories to gain a deeper understanding towards our research problem.

1.3 Theoretical Background and Research Gap

Given the innovative nature of cryptocurrency, the research focused around the theoretical concepts of Diffusion of Innovation, Disruptive Innovation and Consumer Behaviour. Work by Rogers (2003 & 2012) and Presthus & O’Malley (2017) were key elements to our research into concepts relating to diffusion of innovation and previous research by Christensen et al. (1995 &
2015) was useful to our research regarding disruptive technology. Our research into consumer was separated into various ideas: uncertainty, loss aversion and behaviours of online gamblers. Tversky and Kahneman (1974 & 1992) provided detailed work towards how the concept of uncertainty could be applied to our research project. Previous research by Thaler et al. (1995, 1997) provided a basis for how loss aversion could also be applied. Gainsbury et al. (2013) provided research that was very useful towards understanding behavioural traits of online gamblers. Furthermore, we were able to apply behavioural models to our research project that were developed by Ajzen (1975, 1980, 1991) and Davis et al. (1980, 1989) that proved very useful.

We believed these specific theoretical concepts had the potential to explain occurrences within the research we were conducting, as well as predicting outcomes. The reason being is that the first two concepts focus around the growth of new technologies and the potential for them to be sustained which relates well with cryptocurrency use in online marketplaces. For example, studies show that cryptocurrency use as a payment method is growing rapidly and traditional payment methods (i.e. credit cards) are beginning to lose market share to these new innovative payment methods (Baur et al., 2015, p. 64). We also believed that consumer behaviour theory should be incorporated into the research. The reason being is that for companies to determine the viability of sustaining and utilizing a particular technology, they need to understand the tendencies of their customers. In the case of this thesis, it was important to understand the tendencies of online gamblers concerning their purchase habits. That is to investigate specific drivers and the perceived benefits surrounding the use of cryptocurrency that would motivate online gamblers to use it as a payment method over other options.

During our review of empirical and theoretical works, we identified several gaps in the research field. First of all, cryptocurrency is a relatively new subject, and many of its aspects are still unexplored. Given that cryptocurrency use is still in its infancy stage, there is little in terms of previous research towards company perceptions towards its adoption, more specifically in the online gambling industry. One such study that provided some insight towards cryptocurrency adoption by e-commerce merchants was conducted by Polasik et al. (2018). Their research focused on Bitcoin and its role in the e-commerce industry as both a payment and investment option and its perceived implications in e-commerce from the view-points of online merchants who already adopted it as such. Given the parallels, their study helped act as a core reference point for comparison to the outcomes of our study, specifically regarding perceptions of cryptocurrency adoption by online gambling companies. Furthermore, prior research does not offer a clear overview of the characteristics of cryptocurrency users, whether what drives consumers to choose cryptocurrency as a payment method. In the context of online gambling industry, there is no research that focuses on what drives consumers to choose a specific form of payment. Due to the mentioned gaps, prior research combining both cryptocurrency usage and the online gambling industry, incorporating both company and consumer perspectives, does not exist. We aimed to contribute to the research field by providing results that help companies and researchers understand the consumer and industry perspectives regarding the topic of cryptocurrency. The research focused on companies and consumers within the online gambling industry, but we believe that the empirical results can deliver useful insights for e-commerce companies in other industries as well.
1.4 Research Questions

With a growing trend associated with cryptocurrency use and the lack of previous research focusing on consumer motivation towards using cryptocurrencies as a form of payment method and the willingness of companies (specifically online gambling companies) to accept cryptocurrency, our research questions are as follows:

1. “How do online gambling companies perceive accepting cryptocurrency as a potential payment option in their industry?”

2. “What drives consumers within the online gambling industry to use cryptocurrencies, such as Bitcoin, as a form of payment over other traditional payment options available?”

3. “Is there a common consensus between companies operating in the online gambling industry and their customers (online gamblers) as to whether cryptocurrency does have potential to be a viable payment option?”

1.5 Research Purpose

The main purpose of this thesis was to discover if there is a common consensus between online gamblers and online gambling companies pertaining to the practicality of adopting and using cryptocurrency in the online gambling industry. To accomplish this, it was necessary to gain a deeper understanding towards how companies in the online gambling industry perceive cryptocurrency as a potential form of monetary income. Furthermore, we also needed to understand how consumers in this industry, online gamblers, perceive cryptocurrency as an option to not only place wagers with, but to earn winnings with as well. We identified four elements that the research focused on: trust, security usability and anonymity. First, we investigated how trust affects the consumers’ decision to choose cryptocurrency as a form of payment. The second element focused on the influence of security, the third element examined the influence of usability and the last investigated element was the nature of anonymity and its influence of cryptocurrency use. We used the chosen theories throughout the research process to deepen our insights, and to reflect on our findings. We used the consumer behaviour theory to analyze the behaviour of online gamblers and investigate what kind of impact it poses on the adoption of cryptocurrency. By reflecting our results with the diffusion of innovation theory, we aimed to forecast the potential growth of cryptocurrency usage in the online gambling industry. This also connected the study to the disruptive innovation theory; if our findings show that continued growth is expected, then the potential of cryptocurrency to disrupt becomes more relevant. Furthermore, we examined how uncertainty affects the online gamblers when it comes to choosing a form of online payment.

In order to fulfill the purpose of the study, we conducted a mixed-methods study. This consisted of a qualitative study, which involved interviewing managers working in the online gambling industry in order to gain further insight on their perceptions regarding the topic. It also consisted of a quantitative study that utilized a survey targeted towards online gamblers in order to gain insight on their perceptions regarding cryptocurrency use in online gambling. As a result, this thesis provides empirical evidence towards understanding if online gambling companies are
receptive to the idea of implementing cryptocurrency into their systems, and what drives consumers to choose cryptocurrency as a payment method in online gambling. The results may provide insight for online gambling companies, as well as other e-commerce enterprises, towards developing their payment method options in order to gain a competitive advantage, and therefore contribute to higher profits in the future.
2. Scientific Methodology

This methodology chapter focuses on explaining the underlying assumptions and points of departure of this thesis project. Clarification of the research philosophy that is followed through this thesis is presented along with relevant ontological, epistemological and axiological assumptions accompanying our research philosophy. This leads into the argument we make regarding the research design we chose to establish within this project.

2.1 Research Philosophy

Research philosophy is the system of beliefs and assumptions regarding the development of knowledge (Collis & Hussey, 2014). It establishes the notion that researchers will make numerous assumptions throughout the stages of their research studies. The defined assumptions that are made by the researcher relate to realities encountered during the research process (ontological assumptions), human knowledge (epistemological assumptions) and the extent in which the values of the researcher influence the research process (axiological assumptions) (Saunders et al., 2016, p. 124). According to Saunders et al. (2016, p. 135) there exists five different epistemological research philosophies within business research that a researcher will adopt to form the philosophical background of their study. Those differing philosophies include positivism, critical realism, interpretivism, postmodernism and pragmatism.

2.2 Ontology

Ontology refers to the assumptions regarding the nature of reality and shapes the way in which the researcher views the research. As such, it determines how researchers view the external environment, which, therefore has an influence towards the choice of research (Saunders et al., 2016, p. 127). Ontology consists of two differing stances that have their own views towards nature of reality. Those two stances include objectivism and subjectivism (Saunders et al., 2009, p. 110). Objectivism assumes the standpoint towards the natural sciences in which the social reality that is researched is external to the reality of the social actors. From an ontological standpoint, objectivism aligns itself to realism, in which it considers social entities to be like physical entities of the physical world that exist independently of how people think of them. Subjectivism, on the other hand, views the notion of social phenomena as being created through the perceptions of the social actors associated with the particular phenomena (Saunders et al., 2009, p. 111). In other words, the underlying belief is that reality is socially constructed, and each person has their own sense of reality, leading to the possibility of multiple realities (Collis & Hussey, 2014, p. 47).

Our research embraced the subjectivist standpoint since our primary focus was to understand the prospects of cryptocurrency use in the online gambling industry from the company point-of-view. In this case, we believed the social actors are affecting the reality surrounding them. Furthermore, we were looking to understand the behavioural tendencies of online gamblers when it comes to being offered cryptocurrency as an alternative payment option. We believed the elements that we
were testing to understand these behavioural tendencies; trust, security and usability, were all aspects that are defined by the social actors. Since these aspects were individually defined by each social actor through their own capabilities and understanding of these specific aspects, the possibility for several differing assumptions towards the development of the phenomena could exist.

2.3 Epistemology

*Epistemology* is the assumption regarding what constitutes as acceptable, valid and legitimate knowledge, and how knowledge can be communicated to others (Collis & Hussey, 2014, p. 47). A central issue within epistemological considerations is whether the world should be studied according to the same principles, procedures and ethos as the natural sciences (Bryman, 2012, p. 27). As such, there are various epistemological research philosophies that can be followed. The three main epistemological research philosophies being positivism, interpretivism and realism. Beyond those three philosophies, there exists another that can be explored, and that is pragmatism.

2.3.1 Positivism

The positivist approach relates to a philosophical stance within the natural sciences and rests on the assumption that social reality is singular and objective (Saunders et al., 2016, 135). That is to say that the positivist philosophy is focused on the discovery of theories based on empirical research. As such, these theories provide a basis for explanation, permit the anticipation of phenomena, predict the occurrence of said phenomena and, as a result, allow the phenomena to be controlled (Collis & Hussey, 2014, p. 44). According to Bryman (2012, p. 28) there exists a code of principles that are linked to the positivist approach. Such principles relate to *phenomenalism*, which dictates that only knowledge gained from the senses can be warranted as knowledge. Furthermore, the research must be conducted in a manner that is value free and must follow either a deductive or inductive approach; however, with the deductive approach being the more commonly used approach under this consideration.

Collis and Hussey (2014, p. 45) do however stipulate that there exist a number of criticisms towards the positivist approach. One of the main criticisms rests with the notion that many believe that it is fundamentally impossible to separate people from their own social contexts and that understanding people is not a possibility without examining the perceptions of those people. Other criticisms include the idea that value free research is not possible, and researchers bring their own values to the research and that the concept of single measure research is misleading.

2.3.2 Interpretivism

The interpretivist approach was developed as a response to the aforementioned criticisms of positivism. This stance indicates that physical phenomena and humans are separate entities due to the idea that humans have the capability to create meaning. As such, interpretivism argues that humans and their social worlds cannot be studied in the same manner as physical phenomena, leading to the notion that social science research needs to be different from natural sciences research (Saunders et al., 2016, p. 140). In this case, social reality is in fact affected by the act of
investigating it (Collis and Hussey, 2014, p. 45). The purpose of research conducted under the interpretivist viewpoint was to develop new and broader understandings and interpretations of the social world. In doing so, interpretivist research looks to collect data that is considered meaningful to its research participants (Saunders et al., 2016, p. 141).

2.3.3. Realism

A third philosophical standpoint similar to positivism that relates to the natural sciences is realism. This particular standpoint stipulates that what the sense show us is to be seen as the truth. Therefore, reality and the human mind are two independent entities (Saunders et al., 2009, 114). There exist two forms of realism within the realm of research. Those include direct realism and critical realism. Direct realism is a one-step process that follows the notion that what you see is what you get. The senses portray reality. On the other hand, critical realism goes a step further beyond direct realism by undertaking a procedure of mental processing in order to develop the ability to explain what is being experienced (Saunders et al., 2016, p. 138-139).

2.3.4. Pragmatism

An alternative research philosophy that has emerged alongside the more conventional philosophies is pragmatism. Since positivism and interpretivism represent the two extremes of philosophical assumptions, pragmatism undertakes the stance of integrating methods from each philosophical assumption based on their usefulness to the study at hand (Collis & Hussey, 2015, p. 54). Therefore, a pragmatist sees the practical benefits associated with doing and the philosophy surrounding the study is driven by the research problem and the research question (Tashakkori & Teddlie, 2010, p. 96). Its focus lies within meaning, more so the meaning of the consequences of an idea than the idea itself (Scott, 2016, p. 555). Furthermore, pragmatism establishes the idea that no single point of view can provide the whole picture and that interpreting the world can be done so from multiple angles (Saunders et al., 2016, p. 144). In this case, previous research, such as that conducted by Webb has deciphered salient features associated with pragmatism (2007, p. 1068-1069). The first relates to realism. From a pragmatic viewpoint, there exists a world independent of perception which reconciles with the belief that there are real things that exist that go unperceived, yet still follow the regular laws of nature. Secondly, Webb stipulates that skepticism is not a requirement in order to pursue absolute truth. The third feature stipulates that pragmatists understand that every belief is subject to being possibly imperfect. Pragmatists consider well warranted beliefs to set the basis for further inquiries, yet are still subject to potential future critical scrutiny themselves (Webb, 2007, p. 1069). The final feature establishes that knowledge of the world is obtained through natural means. As such, neither scientific knowledge, nor common sense is considered privileged (Webb, 2007, p. 1069).

Our argument towards pursuing a pragmatic approach lied within the context that it was our research questions that were driving our research philosophy. Our first research question revolved around understanding the perceptions of online gambling companies towards the availability of cryptocurrency in their industry, and we, therefore, argue that the knowledge to be gained was too complex to be subjected to simply theory. We needed to take an investigative approach that allowed us to further explore the context of what our findings provided us. As such, this portion of the study was approached using a qualitative research method. Our second research question
could be measured numerically, and therefore, could be approached through methods derived through the natural sciences. Its basis allowed us to quantifiably analyze what variables would pose a contribution towards a perceived behaviour. One such option was to use statistical testing to analyze our quantitative data through logistic regression analysis. Since our research incorporated both methods of data collection and analysis, a mixed-methods approach was used. As described by Scott (2016, p. 55) the pragmatic paradigm sets the underlying philosophical framework for a mixed-methods research. Both research questions were connected by an overarching question that looked to define whether there is a common consensus towards the viability of cryptocurrency in the online gambling industry by both groups, which was set by our pragmatic approach. This was accomplished by triangulating the results derived from both studies undertaken in this thesis.

2.4 Research Approach

Research can have different approaches: deductive, inductive, or abductive (Saunders et al., 2016, p. 145). Deduction is the dominant research approach in the natural sciences, and it owes much to what people think of as scientific research (Saunders et al., 2016, p. 146). Deduction seeks to explain causal relationships between concepts and variables, develop a number of hypotheses, test them, and specify precisely the conditions under which the theory is likely to hold (Saunders et al., 2016, p. 146). With the deductive stance, the research strategy is designed to test the theory, and data collection is used to evaluate hypotheses or propositions related to an existing theory (Saunders et al., 2016, p. 145). The theory will be either verified or falsified. The research concepts need to be operationalized in a way that enables facts to be measured, and the results must be generalizable (Saunders et al., 2016, p. 146-147).

Induction was developed after the emergence of the social sciences, when researchers found the deductive cause-effect link between particular variables insufficient in order to understand the way in which humans interpreted their social world (Saunders et al., 2016, p. 147). With the inductive stance, there is a tone of finality about the choice of theory and definition of the hypothesis (Saunders et al., 2016, p. 147). With the inductive approach, research begins by collecting data to explore a phenomenon in order to generate or build theory (Saunders et al., 2016, p. 145). Research using the inductive approach is likely to be concerned with the context in which events take place, and a small sample of subjects might be more appropriate than a large number (Saunders et al., 2016, p. 147). Qualitative studies are often conducted with the inductive research approach.

The last research approach is abduction. Instead of following pure deduction or induction, abduction combines both approaches while practicing the constant comparative method (Suddaby, 2006, p. 639). Compared to deduction and induction, one major difference is the role of the framework. In studies relying on abduction, the original framework is successively modified due to a result of unanticipated findings and theoretical insights gained during the process (Dubois & Gadde, 2002, p. 559). Research following the abductive stance begins with the observation of a ‘surprising fact’ and then finds out a probable theory of how this could have occurred (Saunders et al., 2016, p. 148). Dubois and Gadde (2002, p. 559) argue that the abductive approach is fruitful if the researcher aims to discover new things – other relationships and other variables. Identifying
themes, explaining patterns, and generating a new theory or modifying an existing one are characteristics of the abductive approach (Saunders et al., 2016, p. 148).

In line with our decision to rely on pragmatism, our study followed the abductive approach. Compared to deduction and induction, abduction was more viable for this research since we were not focusing purely on theory verification and falsification, or theory generation. The data collection was based on mixed-methods consisting of qualitative interviews and a quantitative survey, and the results consisted of numerical and non-numerical data. We began our research by observing a ‘surprising fact’ – the rise of cryptocurrency – and continued by identifying themes and patterns in order to test hypotheses and generate new theory.

2.5 Research Design

Research design is the general plan of how the research question will be answered, and it demonstrates the elements of the particular study (Saunders et al., 2016, p. 163). It contains clear objectives derived from the research question, specifies the sources from which the data will be collected, and proposes how to collect and analyze the data (Saunders et al., 2016, p. 163).

The first methodological choice is whether to follow quantitative, qualitative, or mixed-methods research design (Saunders et al., 2016, p. 164). From a broad perspective, quantitative and qualitative methodologies can be differentiated through their associations to philosophical assumptions, research approaches, and strategies (Saunders et al., 2016, p. 166). Another way to differentiate the methodologies is to distinguish between numeric data and non-numeric data (Saunders et al., 2016, p. 165). However, many business and management research designs combine both quantitative and qualitative elements, and mixed-methods in a number of ways (Saunders et al., 2016, p. 165).

In a qualitative study, the researcher generates new hypotheses and theories from the collected data (Johnson & Christensen, 2008, p. 34). The research approach in qualitative studies is often inductive, but there are many exceptions (Saunders et al., 2016, p. 168). Qualitative research can be expressed as a research strategy which produces surprises, new insights, and changes of direction due to the emphasis on a relatively open-ended approach (Bryman, 2006, p. 111). Qualitative research relies on the collection of qualitative (non-numerical) data such as words and pictures, and it focuses on wide, deep-angle lens, examining the breadth and depth of phenomena to learn more about them (Johnson & Christensen, 2008, p. 33-34). It provides particularistic findings, representation of insider viewpoints, and may have multiple perspectives (Johnson & Christensen, 2008, p. 34). Qualitative data collection methods include for example in-depth interviews, participant observations, and open-ended questions (Johnson & Christensen, 2008, p. 34).

Quantitative studies usually adopt a more formal, structured and logical approach to a research inquiry (Scott, 2016, p. 555). This method is usually associated with a deductive approach where the purpose is to use data to test theory (Saunders et al., 2016, p. 166). Quantitative research relies on the collection of quantitative data such as numerical data, and it focuses on a narrow-angle lens, testing specific hypotheses and providing generalizable findings and representation of objective
outsider viewpoint (Johnson & Christensen, 2008, p. 33-34). Historically, there has been a big emphasis on quantitative research in science, and “hard” sciences such as mathematics and physics lend themselves especially well to quantification (Guba & Lincoln, 1994, p. 105). Quantitative studies are associated with experimental and survey research strategies, which consist of questionnaires, structured interviews, or structured observation (Saunders et al., 2016, p. 168).

Mixed-methods research is the branch of multiple methods research that combines different data collection techniques and analytical procedures (Saunders et al., 2016, p. 169). The research approach may be any of the three alternatives: deductive, inductive, or abductive (Saunders et al., 2016, p. 170). Research that relies on mixed-methods has a multi-lens focus, multiple objectives, and multiple data collection forms (Johnson & Christensen, 2008, p. 34). Scientific method of a mixed study is confirmatory or exploratory, and results provide insider and outsider viewpoints (Johnson & Christensen, 2008, p. 34). Bryman (2006, p. 110) argues that mixed-methods research offers such a wealth of data that researchers may discover uses of the ensuing findings that they had not anticipated. Researchers may employ a study with an original purpose like “diversity of views” but find out that the qualitative findings help to explain some of the uncovered relationships through an analysis of survey data (Bryman, 2006, p. 110).

Due to a number of different aspects, conducting a mixed-methods study was the most suitable option in our case. We examined how managers within the online gambling industry perceive accepting cryptocurrency as a payment method by conducting qualitative interviews, which provided non-numerical data. Besides that, we examined what drives online gamblers to use cryptocurrency as a payment method by conducting a quantitative survey, which results consisted of numerical data. A mixed-methods study allows researchers to answer a broader and more complete range of research questions (Johnson & Onwuegbuzie, 2004, p. 21). We believed that using multiple data collection forms was the most beneficial way to conduct this study; researching the topic from different angles allowed us to add insights and understanding that would possibly be missed if only a single method was used (Johnson & Onwuegbuzie, 2004, p. 21). By using this approach, we could obtain information that gave us insight into the viewpoints of both the online gamblers and the online gambling companies relating to the potential of cryptocurrency. The decision to use mixed-methods was in accordance to pragmatism, which establishes the idea that interpreting the world can be done from multiple angles – single perspective cannot provide the whole picture (Saunders et al., 2016, p. 144). Conducting a mixed-methods study was also in line with the abductive stance, which combines both deductive and inductive approaches while practicing the constant comparative method (Suddaby, 2006, p. 639).

Our study relied on the concurrent mixed-methods research design, which involved the separate use of different methods within a single phase of data collection and analysis (Saunders et al., 2016, p. 170). This allowed the interpretation of results together and provided a richer and more encompassing response to the research questions than a mono method design (Saunders et al., 2016, p. 170). Since we gathered qualitative and quantitative data in the initial phase of the research process in order to see how the data sets support each other, we used a concurrent triangulation design (Saunders et al., 2016, p. 170). Triangulation involves using more than one source of data and method of collection in order to confirm the validity, credibility or authenticity of data, analysis and interpretation (Saunders et al., 2016, p. 207). Using triangulation provides important opportunities; it allows researchers to be more confident about the results, and it may stimulate the
creation of inventive methods or new ways of capturing a problem (Jick, 1979, p. 698). Collecting different kinds of data bearing on the same phenomenon may also improve the accuracy of researchers’ judgements (Jick, 1979, p. 602). The effectiveness of triangulation is based on the premise that the weaknesses of each single method will be compensated by the counter-balancing strengths of another method (Jick, 1979, p. 604; Johnson & Christensen, 2008).

2.6 Preconceptions

When conducting research, a researcher must take into consideration the conceptual context of their study and the underlying expectations, beliefs and theories that follow. Once preconceptions are made of the previous values, beliefs and experience held by the researcher and form how the researcher imagines they interact with the phenomena being studied (Bickman & Rog, 1998, p. 77).

No research is value free and it is important to classify one’s own values and suppress them to the best of your ability when conducting research in order sustain a study that is not bounded by the subjectivities of the researcher (Bryman & Bell, 2003, p. 27). As stated by Bickman and Rog (1998, p. 77-78) there are various elements that can define one’s preconceptions. Those include the previous knowledge and expertise of the researcher, and existing theoretical and exploratory studies.

The existing knowledge and expertise the researcher brings to the study is treated as a bias and needs to be suppressed within the context of performing the research. It can be used to derive insights from the results, but not more (Bickman & Rog, 1998, p. 78). Existing theoretical and exploratory work consists of published and unpublished work in the field of the study (Locke et al., 1993, p. 48-49). It is important for a researcher to maintain a critical point-of-view when reviewing existing literature to minimize the extent to which one allows it distorting the frame of the research. Failure in doing so can lead to one overlooking important elements that conceptualize the study and the preceding results (Becker, 1986).

As both authors of this thesis are business students at Umeå University, preconceptions could be presented in the form of what we had learned regarding the relevant business theories used in the context of this thesis. Most notably regarding the concepts of disruptive innovation and consumer behaviour; both of which we had learned about from previous classes in our program, and therefore, possessed some previously acquires knowledge regarding these themes. Furthermore, one of the researchers had experience working in the online gambling industry, which is one of the reasons this industry was chosen for this particular study. Therefore, it was very important that we remained as objective as possible when carrying out the study as not to implement any biased opinion into the study. The theme of cryptocurrency was chosen due to fascination to its future potential and lure towards learning more about its disruptive potential. One author had a little experience trading in cryptocurrency, while the other author had no experience what-so-ever in dealing with it. The context of this research could be viewed as a learning experience for the authors regarding the subject of cryptocurrency, yet, we must remain objective and let the results of the study speak for themselves.
2.7 Literature Search

A critical literature review is a constructively critical analysis that argues what the published literature indicates is, and is not known about one or more research questions (Wallace & Wray, 2011, p. 151). The critical literature review should provide a reasonably detailed, constructively critical analysis of the most important literature that is related to the research question (Saunders et al., 2016, p. 73). We started the literature review with a wide perspective to get an overview of what is published, and what is relevant for our study. As Saunders et al. (2016, p. 73) highlight, the literature review process consists of continuous evaluating, refining, revising and updating.

During the literature review, we aimed to assure the high quality of this study by being consciously constructive and ensuring that our judgements are backed up by what we have found (Wallace & Wray, 2011, p. 152). We examined different theories and concepts by reading and evaluating several publications of each topic, which helped us to find the most valid and relevant sources for you study. It is important to assess what is significant to a particular research and decide whether or not to include it (Saunders et al., 2016, p. 73). We searched literature on the Umeå University library database and Google Scholar, and our objective was to use sources principally from peer-reviewed articles. Since some of our theories and concepts, such as disruptive innovation and consumer behaviour, look back to a long history of research, we based our theoretical framework on widely recognized authors and theories. Nevertheless, some of our thesis topics, such as cryptocurrency, represent relatively young fields of research. We aimed to combine and connect them into other theoretical concepts.

The purpose of our literature review was to cover the study by the most important, relevant and current sources. In order to examine the current trends and serve the purpose of this study in the most optimal way, the scientific literature was enriched by a small number of non-scientific sources such as statistical data and studies that bring theory closer to practice.

Some of our key search terms:
- bass diffusion model
- Bitcoin
- Blockchain
- cryptocurrency
- cryptocurrency users
- concept of trust
- consumer behaviour
- decentralized institutions
- decision making
- diffusion innovation
- digital cash
- digital currency
- disruptive innovation
- early adopters
- formal institutions
- loss aversion
- online gamblers behaviour
- online gambling
- online payments
- planned behaviour
- reasoned action
- risk taking
- technology acceptance model
- transaction costs
- uncertainty
3. Theoretical Framework

The theoretical framework consists of a presentation of relevant theories and studies. We start the framework by presenting the concept of cryptocurrency, as it creates the basis of the context in this research. Since the trend of cryptocurrency use is still relatively new and is on the rise, we connect the concept around the theoretical concepts of diffusion of innovation, disruptive innovation, and uncertainty. We continue with the concept of online gambling and the consumer behaviour. Furthermore, we present theoretical models for application and provide a conceptual model that consists of the chosen concepts and theories, and their connections.

3.1 Cryptocurrency

Cryptocurrency may seem as a complex concept, which can be viewed from a number of angles. In order to understand this concept, we provide a general overview of cryptocurrency first. In the following chapters we examine concepts relating to blockchain technology and connect cryptocurrency and its features to different theories.

The concept of “untraceable payments” was first introduced by Chaum in 1983. Chaum’s proposal (1983, p. 203) includes a new kind of cryptography, blind signatures, which allow realization of untraceable payments systems offering improved auditability, control and increased personal privacy. Many extensions and variations of the concept were introduced throughout the 1990s, but none of them achieved significant deployment (Bonneau et al., 2015, p. 105). The first and the largest cryptocurrency, Bitcoin, was introduced as a peer-to-peer electronic cash system in 2008 under the pseudonym Satoshi Nakamoto. Nakamoto (2008, p. 1) states that this electronic payment system is based on cryptographic proof instead of trust, allowing any two willing parties make transactions directly with each other without the need for a trusted third party. People may associate the word Bitcoin only with the digital currency, but it is used to denote another thing as well. It also refers to the underlying blockchain technology, the system’s protocol (Vigna & Casey, 2015, p. 8-9). In this part, we solely focus on Bitcoin as a currency, and examine the technology in the next chapter.

Simply, Bitcoin is a way of buying and selling things on the internet (Swan, 2015, p. 3). Bitcoins can be purchased, sold and exchanged for other currencies at specific currency exchanges (Antonopoulos, 2014, p. 1). Bitcoins are stored in digital wallets, which automatically generate an address as well as public and private keys when a new user establishes a wallet (Swan, 2015, p. 97). A Bitcoin address can be compared to an email address; people with your email address can send you emails, and people with your public-key wallet address can send you Bitcoins (Swan, 2015, p. 97). Bitcoin is digital, decentralized and partially anonymous currency, which is not backed up by government or other legal authorities (Grinberg, 2011, p. 160). Bitcoins are highly liquid, have low transaction costs, and can be used to make quick online payments as well as micropayments (Grinberg, 2011, p. 161). The value chain of Bitcoin is composed of several different constituencies: software developers, miners, exchanges, merchant processing services, e-wallet companies, and users or consumers (Swan, 2015, p. 3). Most of Bitcoin’s characteristics can be applied to other cryptocurrencies, known as altcoins (Bonneau et al., 2015, p. 114). Most
of the altcoins have forked Bitcoin’s code base and differ very slightly from Bitcoin, although there are some notable exceptions and innovations with independent designs (Antonopoulos, 2014, p. 223). Not to make this paper too complicated, we focused on Bitcoin and altcoins alike in our research.

Cryptocurrencies are created as a reward for mining. Mining is computational processing work, in which users offer their computing power to verify and record payments into the public ledger (Swan, 2015). The security of the public ledger, blockchain, is established by a chain of cryptographic puzzles, and each miner that solves a puzzle is allowed to record a set of transactions, and to receive a reward in cryptocurrencies (Eyal & Gün Sirer, 2014). Upon solving the puzzle, the miner publishes a block which consists of a proof-of-work that a solution was provided along with all observed transactions that have happened since the last solution was announced, and a reference to the previous block (Böhme et al., 2015, p. 217). As the number of miners in the network grows, Bitcoin automatically increases the puzzle difficulty to ensure that the blocks are created at a predetermined time (Grinberg, 2011, p. 163). The time interval between two blocks is approximately ten minutes. The mining power a miner has correlates with the chances to solve the puzzle first, which is why miners tend to operate in pools. Nowadays, effective mining requires hardware, that is specialized in solving the mathematical puzzles, and access to low-cost electricity (Böhme et al., 2015, p. 218). According to Böhme et al. (2015, p. 218), miners’ computational efforts have remarkable costs; the computerized proof-of-work calculations consume more than 173 megawatts of electricity continuously, which is approximately $178 million per year at average residential electricity prices in the United States. However, Bitcoin mining is not going to continue forever. The protocol halves the rate at which new Bitcoins are created every 4 years and limits the total number of Bitcoins to 21 million (Antonopoulos, 2014, p. 2). The number of Bitcoins in circulation follows a predictable curve, and the limit of 21 million will be reached by the year 2140 (Antonopoulos, 2014, p. 2). After the limit has been reached, no further Bitcoins can be created (Böhme et al., 2015, p. 218).

Cryptocurrency, especially Bitcoin, has become well-known for its price volatility. In December 2017, price for one Bitcoin rocketed above $19,000, but dropped sharply soon after (CoinMarketCap, 2018). The total market capitalization reached a peak of $795 billion in January 2018 but has also experienced a significant downturn since then (CoinMarketCap, 2018). The image below presents the total cryptocurrency market capitalization 2013 through March 2018, and it visualizes well how rapidly the market grew in 2017.

![Figure 1: Total Cryptocurrency Market Capitalization (CoinMarketCap, 2018)](image-url)
The comments of regulators, either positive or negative, often have a significant impact on the price fluctuations. In 2013, Bitcoin rose 800% in three months after U.S. regulators made welcoming comments about digital-currency technology (Casey & Vigna, 2015, p. 108). According to Grinberg (2011, p. 175), Bitcoin is influenced by irrational bubbles, and irrational or rational loss of confidence, which may collapse demand. Grinberg (2011, p. 175) states that reasons for decrease in confidence can be unexpected changes in the inflation rate imposed by the software developers or others, a government crackdown, the creation of superior competing altcoins, a deflationary spiral, or technical problems. Vigna and Casey (2015, p. 107) argue that Bitcoin's instability is a direct result of its fluctuation versus other currencies. Bitcoin lacks a predictable pattern against other measures of value, which makes it much more difficult for investors to design a hedging strategy that would guard against loss of value in Bitcoin holdings (Vigna & Casey, 2015, p. 107).

Bitcoin rouses interest as a virtual currency with potential to disrupt existing payment systems, or even monetary systems (Böhme et al., 2015, p. 214). Control of currency is one of the most powerful tools a government reigns, and cryptocurrency as a tool for monetary exchange has the potential to be an important force in finance (Vigna & Casey, 2015, p. 10). Nevertheless, Bitcoin and other cryptocurrencies have flaws and risks. Cryptocurrency has faced security issues, such as a collapse of one major Bitcoin exchange in 2014 (Iansiti & Lakhani, 2017). Besides government regulations and privacy challenges for personal records, public perception sets another barrier to further adoption; many people associate cryptocurrency with money-laundering, drug-related, and other illegal activity (Swan, 2015). In a wider perspective, some fear that following Bitcoin’s model – the mechanism for incentivizing computer owners to maintain and manage the public ledger – could encourage a politically disruptive concentration of computing power (Vigna & Casey, 2015, p. 7). Collusion of oversized miner pools controlling the majority of mining power could lead to a collapse of the decentralized currency (Bonneau et al., 2015; Böhme et al., 2015; Eyal & Gün Sirer, 2014).

3.1.1 Blockchain

Blockchain is the technology behind Bitcoin and other cryptocurrencies, and it is also invented by a person or a group known as Satoshi Nakamoto. Blockchain is the public ledger that includes all Bitcoin transactions that have ever been made, and it grows constantly as miners add new blocks to it in a chronological order to record the most recent transactions (Swan, 2015). The development and maintenance of blockchain is open, distributed, and shared; the core software is maintained by a team of volunteers (miners) around the world (Iansiti & Lakhani, 2017). The transaction records are monitored by everyone, and owned or controlled by no one (Swan, 2015, p. 1). Anyone is able to track a particular transaction on blockchain by using a web application called blockchain explorer (Antonopoulos, 2014, p. 15). Blockchain explorer allows anyone to search for addresses, transactions and blocks, and to see the relationships and flows between them (Antonopoulos, 2014, p. 15). There are several blockchain explorers, such as blockchain.info and blockexplorer.com.

The blockchain structure can be visualized as a vertical stack of blocks layered on top of each other, where the first block, known as a genesis block, is the foundation (Antonopoulos, 2014, p. 163). Each block is identified by a hash, and referenced to a previous block, which is its parent (Antonopoulos, 2014, p. 163-164). A block has only one parent, but it can temporarily have
multiple children; this situation occurs during a *blockchain fork*, when different blocks are discovered almost simultaneously by different miners (Antonopoulos, 2014, p. 164). Forks occur as temporary inconsistencies between versions of the blockchain, and they are resolved as more blocks are added to one of the forks (Antonopoulos, 2014, p. 204). When a new block of transactions has been created and added to the blockchain, other miners must confirm the legitimacy of it by comparing data from the underlying transactions to the hashed data within it (Vigna & Casey, 2015, p. 130-131). This protocol is called *Nakamoto consensus*, and it may be the most crucial feature of the blockchain technology (Bonneau et al., 2015, p. 106). Anyone can attempt to add to the chain by collecting pending transactions and forming them into a block; however, if a block includes invalid transactions or is malformed, all other miners are expected to decline it and continue working until they have a solution for a valid block (Bonneau et al., 2015, p. 106-107).

Generally, the blockchain technology is associated with cryptocurrencies, but it can be used for numerous different applications. Firms are already using blockchain to track items through complex supply chains, and institutions such as Bank of America and the New York Stock Exchange are testing the technology as a replacement for paper-based, manual transaction processing in trade finance, foreign exchange and other areas (Iansiti & Lakhani, 2017). There also exists the potential for blockchain technology to create new social contracts that promote the expansion of sustainable development (Faber & Hadders, 2016). The argument relating to this resides in the notion that the decentralized nature of blockchain enhances true interpersonal connections between people who are driven to truly solve social issues. Something that is viewed as lacking in the current business models of those institutions that currently hold power around the issue at hand, such as governments (Giungato et al., 2015, p. 8). Other uses for blockchain technology outside of the financial industry can be found in the cloud environment. Any data object created in the cloud environment has its history and subsequent operations recorded by the clouds data structure mechanism “data provenance”. Given the amount of recorded data in the cloud, the security of the data provenance is of major importance. Blockchain technology is currently used by the company Provchain, which has the capability to protect against the alteration of recorded data in the cloud and also enhances the transparency and accountability of such data (Miraz & Ali, 2017, p. 4). These are just a few examples pertaining to extended use of the blockchain technology beyond the cryptocurrency environment, yet there is a wealth of further potential uses of blockchain that have the potential to improve global issues.

### 3.2 Diffusion of Innovation

As discussed by Connolly and Kick (2015, p. 3) *Diffusion of Innovation Theory (DIT)* helps identify an innovation’s adoption over time. It views *innovation* and *imitation* as important determinants in new technology adoption. In order for DIT to identify the primary drivers to technology adoption, it explores both the *innovation effect* and the *imitation effect*. The innovation effect refers to an influence on a potential user to adopt a technology ahead of others as a means to enjoy the benefits of said technology. The imitation effect refers to the influence factors that lead users to explore the option of sharing the benefits of said technology with others (Lee et al., 2013, p. 773).
The concept of innovation diffusion is broken down into five decision phases in which an adopter goes through. The first phase is the knowledge phase in which the adopter becomes aware of the innovation and its functionality. This is followed by the persuasion phase when the adopter weighs the desirable effects with undesirable effects of the innovation in order to establish an option on it. In the next phase, the decision phase, the adopter decides whether to adopt or reject the innovation. The final two phases are contingent on the adopter choosing to accept the innovation. In the Implementation phase the adopter puts the innovation to use. This may be done exactly to the specifications of the innovation, or some form of modification to the innovation may be made. In the final phase, Confirmation phase, the adopter looks to reassure themselves on the decision made towards the adoption of the innovation (Enfield et al., 2012, p. 190).

Since innovation diffusion is often associated with the new technologies, this is visualized through an S-curve that is divided into five groups: Innovators, Early Adopters, Early Majority, Late Majority and Laggards (Wonglimpiyarat, 2016, p. 2). Everett Rogers was the professor who first proposed the theory in 1962 and was the one who categorized each cohort with a set percentage level. The first cohort, Innovators, who typically the most adventurous and capable to deal with uncertainty, are the first 2.5% of adopters of the innovation. Followed by the innovators are the Early Adopters who consist of the next 13.5% of the population to adopt the innovation. This group is established to discreetly use new innovative ideas that help boost the success rate of the innovation and are therefore a good cohort to target in order to have the innovation diffused as quick as possible (Enfield et al., 2012, p. 191). It is within these two cohorts that the highest degree of opinion leadership is prevalent. The next cohort, Early Majority, makes up the next 34% of people to adopt the innovation. This cohort usually adopts the innovation willingly and tend to put an emphasis on peer-to-peer communication. The last two cohorts are typically skeptical of adopting the innovation. The Late Majority, who make up the next 34% of adopters usually adopt it out of necessity. Finally, the Laggards, who represent the last 16% of the population to adopt the new technology are considered traditionalists and are usually suspicious of the new technology (Enfield et al., 2012, p. 191). The acceptance of the innovation by these three cohorts is fully based on the information they disseminate from the first two cohorts (Rogers, 2012, p. 991). Figure 1 portrays the process of innovation diffusion.
Therefore, what has become apparent is that for an innovation to become diffused, it needs to be able to reach the critical mass (Rogers, 2003). The critical mass being the minimal group of start-up subscribers that is required for an innovation to become self-sustaining and further developed (Baraldi, 2012, p. 376). What makes the concept of critical mass important within this theoretical context is that even though new innovations tend to express useful benefits, most are rejected by their users (Prethus & O’Malley, 2017, p. 92). For an innovation to become diffused, it needs to pass through the four stages of the diffusion model. Firstly, there needs to be a sense of innovation present (identifying if the new idea is unique or just a copy of something previous). Secondly, the innovation needs to be communicated through the proper channels. This pertains to identifying to whom and through what medium will provide the greatest spread of information regarding the innovation in question. Thirdly, the time aspect of the innovation needs to be put into consideration. Essentially, looking at what point of the S-curve is it at and does its current standpoint make sense. And finally, the innovation needs to be adopted by members of a social system (Prethus & O’Malley, 2017, p. 95). Furthermore, as discussed by Rogers (2002, p. 990), to enhance the probability of successful growth, the innovation needs to possess certain characteristics. It needs to display relative advantage. That is, it provides benefits beyond what the technologies it supersedes are able to provide. Next, it needs to be compatible with the usability characteristics of its potential adopters. Innovations that are compatible with its potential adopters also need to consider the complexity of their use. An innovation that is too complex for potential adopters to understand could be hindered in its growth since people tend to reject what they do not understand. The final two characteristics that need to be included are trialability and observability. Therefore, the innovation needs to have a certain degree to which it can be experimented with and the possibility of those results being available to be reviewed by others. As a result, innovations that are considered to have a higher degree of relative advantage, compatibility, trialability, observability and a lower degree of complexity are expected to be adopted more rapidly than other innovations within the same field (Rogers, 2002, p. 990).

Relating this back to the five groups of the diffusion of innovation process, it is therefore important for the innovation to be widely accepted within the innovator and early adopter cohorts for it to have a chance of becoming successful. Rogers (2002, p. 990) further elaborates on diffusion as being a social process in which peer-to-peer interaction is a driving point towards the spread of an innovation. He establishes that people are more inclined to evaluate innovation based on reviews by their peers instead of actual scientific research. And therefore, mass media channels and interpersonal channels of communication are essential to the spread of knowledge regarding a new innovation and the formation and changing of an innovation respectively.

We included the diffusion of innovation theory within the theoretical context our thesis by looking at to what extent cryptocurrencies as innovative online payment methods have become diffused. It was important to get an idea of what point of the S-curve cryptocurrencies currently lie, and what cohorts of users are currently using them. In doing so, we could further understand to what degree of continued growth of cryptocurrency usage could be expected in the online payment environment. This also complimented our research towards identifying the important drivers to cryptocurrency usage as a form of online payment. Since cryptocurrencies are still relatively new and have only just recently become a possible payment method, we expected them to currently only be used within the innovators or early adopter cohorts at this point of time.
3.3 Disruptive Innovation

The term of disruptive technologies was first introduced by Bower and Christensen (1995), and the theory of disruptive innovation (Christensen, 1997) has experienced a rapid growth in recent years. Disruptive innovation is a game-changer; it attacks an existing business and offers great opportunities for a new profit growth (Assink, 2006, p. 217). The more radical the innovation is, the more challenging it is to estimate its potential and market acceptance (Assink, 2006, p. 217).

Disruption refers to a process where a smaller firm with fewer resources is able to successfully challenge incumbent firms (Christensen et al., 2015). Incumbents focus on improving their existing products and services for their most demanding and profitable customers, while entrants target overlooked segments and try to gain a foothold by delivering more suitable functionality often at a lower price (Christensen et al., 2015, p. 4). Often, disruptive technologies do not offer the attributes that mainstream customers value (Bower & Christensen, 1995, p. 44) and incumbents have a tendency of not responding vigorously because they chase higher profitability in more demanding segments (Christensen et al., 2015, p. 4). Mainstream customers are not willing to use disruptive technology in the applications they know and understand, so disruptive technologies tend to be used and valued only in new markets or new applications at first (Bower & Christensen, 1995, p. 45). Disruption occurs, when mainstream customers start adopting the entrants’ offerings in volume (Christensen et al., 2015).

The concept of disruptive innovation was highly relevant to our study because Bitcoin, as well as other cryptocurrencies, have potentially disruptive attributes. Bonneau et al. (2015, p. 104) argue that Bitcoin fills an important niche by providing a virtual currency system without any third parties or pre-assumed identities among the participants. Bitcoin is growing fast and increasingly important in contexts such as foreign currency, asset trading and instant payments, where the present financial system has limitations (Iansiti & Lakhani, 2017). It is also a great alternative currency for “gold bugs” who want to hold currencies fully backed by commodities (Grinberg, 2011, p. 206). Many factors indicate that the niche has been growing, and cryptocurrency has become more mainstream in recent years, even though the market has been extremely volatile. Cryptocurrency market capitalization increased from $17 billion to $700 billion in 2017 (CoinMarketCap, 2018), and at the time of writing it is $380 billions. Large number of merchants accept Bitcoin as a form of payment; notable merchants include for example Microsoft and Expedia.

The potential of cryptocurrency to disrupt the existing global economy evolves from the blockchain technology it is based on. Blockchain technology solves the double-spending problem without the need for a trusted third party such as a bank or government entity (Nakamoto, 2008). Before Bitcoin and the blockchain technology were published in 2009, digital cash was like any other infinitely imitable digital asset, and there was no way to confirm that a certain amount of digital cash had not been spent without a central intermediary (Swan, 2015, p. 2). Due to blockchain technology, cryptocurrency makes it possible for decentralized markets and exchanges to exist, and it has the ability to eliminate the need for intermediaries in complex financial transactions (Brito et al., 2014, p. 146). According to Swan (2015), the modern world can be understood through computing paradigms; first, there were the mainframe and PC paradigms, and then the mobile and social networking paradigms. The emerging paradigm for this decade could
be the *connected world of computing* relying on blockchain cryptography (Swan, 2015). Iansiti and Lakhani (2017) support the view by arguing that that besides reducing the transaction costs significantly, blockchain technology could reshape the economy if it is widely adopted. Blockchain technology could be used as the economic overlay in the connected world of multiservice computing that consists of smartphones, tablets, laptops, wearable computing, smart home, smart car, and other devices (Swan, 2015). The economy that the blockchain technology enables is not just the movement of money; it is the transfer of information and the effective allocation of resources (Swan, 2015).

The disruptive potential of cryptocurrency towards economic and power relations is notable especially in emerging countries. Brito and Castillo (2014) argue that Bitcoin has the potential to increase the life quality of the world’s poorest by improving access to basic financial services. According to an estimate, 64% of adults in emerging countries do not have access to formal financial services, and every fifth adult is unbanked in high-income countries (Ardic et al., 2011). Vigna and Casey (2015) state that the benefits of cryptocurrency might seem less remarkable for people in developed countries, but the situation is different in emerging countries; cryptocurrency has the potential to bring millions of unbanked people to the modern, globalized world.

### 3.4 Online Gambling

Online gambling, or Internet gambling, includes sports betting, poker, casino games, and some smaller divisions such as online bingo and lottery. The market has grown substantially since the first online casinos were launched in the 1990s. Currently, the market can be characterized by the presence of several firms competing to gain market dominance (Technavio, 2017). The key players are 888 Holdings, bet-at-home.com, GVC Holdings, Ladbrokes Coral Group, MGM Resorts, and Unibet Group (Technavio, 2017). According to an estimate, the global online gambling market had a volume of $37.91 billion in 2015, and the number is forecasted to increase to $59.79 billion in 2020 (Statista, 2018). Perhaps the major reason for that is the development of technology; Griffiths and Parke (2002) argue that technology has always played a role in the development of gambling practices. Easy accessibility and high event frequency attract people to online gamble; slot machines have an event frequency of every few seconds, whereas lotteries may have an event frequency of once a week (Griffiths, 2003, p. 565). Online gambling is global, accessible, and available 24-hours a day – theoretically, people can gamble all day, every day of the year (Griffiths & Parke, 2002, p. 313). In all likelihood, the development of smartphones has accelerated the popularity of online gambling even more; fast and high-quality portable devices have made online gambling convenient regardless of the location.

Online gambling is regulated, restricted or banned in many countries. However, legalization of online gambling increases employment opportunities and benefits governments in the form of taxes, which drives many countries to reduce restrictions (Technavio, 2017). According to Technavio’s (2017) global online gambling market research, the industry will increase at a compound annual growth rate of more than 9% by the year 2021. Technavio’s (2017) market research states, that the latest trend gaining momentum in the online gambling market is increasing usage of Bitcoins as a payment method, as it is considered as a better option for online transactions. Currency conversion charges and the risk of significant currency devaluation can be eliminated by
using Bitcoins as currency (Technavio, 2017). Global, growing market with an increasing rate of Bitcoin usage provided a promising basis for our study, which is why we decided to conduct the research in this particular industry.

3.5 Consumer Behaviour

Consumer behaviour theory is the study towards understanding what motivates and drives someone to take a particular action (Woodside & Magehee, 2010, p. 418). It helps clarifying a perspective concerning the any specific target consumer group. Marsden (2001, p. 11) further elaborates on consumer behaviour as being regulated by a binary set of categories: nature/culture, rational/emotional, individual/environment, stimulus/response, masculine/feminine etc. This implies that consumer behaviour can be understood from several different angles, with each category having its own self-regulating element. For example, answering the question whether the consumer is acting out of rational thinking or if they are basing their decision out of pure emotion. As such, the existence of two opposite poles within decision/behavioural categories brings to light the fact that in order for one form of behaviour to exist, the behavioural element on the opposite extremity must be completely suppressed (Marsden, 2001, p. 12).

3.5.2 Uncertainty

Uncertainty describes a situation that involves unknown or ambiguous probabilities. According to Knight (1921), uncertainty is distinct from risk, where specific probability can be assigned to each outcome. Alchian (1950, p. 212) states that under uncertainty, each action that can be chosen is identified with several potential outcomes, not with a unique outcome. Uncertainty arises from imperfect foresight and human inability to solve complex problems that contain a host of variables even when there is a definable optimum (Alchian, 1950, p. 212). Because uncertainty is nearly inevitable in economic activities, trust is important in economic models. Informal unwritten guarantees are preconditions for trade and production (Akerlof, 1970, p. 500).

Formal institutions, such as banks and governments, operate as trusted third-parties who lower the uncertainty and complexity in economic activities. After the Internet was invented, eventually the institutions started operating also online. For example, online marketplaces such as Amazon and eBay are online institutions, trusted third-parties. Tversky and Kahneman (1974, p. 1) argue that people rely on a limited number of heuristic principles in order to reduce the complexity of assessing likelihoods and predicting values to simpler judgemental operations. When people face with a complex problem, they try to simplify the representation and the evaluation of prospects by employing a variety of heuristic procedures (Tversky & Kahneman, 1992a, p. 317). For example, people often use heuristic procedures when they try to figure out if a seller on eBay is trustworthy or not. Generally, the heuristics are quite useful, but sometimes they lead to crucial and systematic errors (Tversky & Kahneman, 1974, p. 1). Besides possible problems with heuristic procedures, a formulation of a problem may affect people’s decisions in an irrational way. Tversky and Kahneman (1992b, p. 457) state that the relative attractiveness of options varies when the same decision problem is framed in different ways. The decision frame that a decision-maker adopts is controlled by the formulation of the problem, and by the person’s habits, norms, and characteristics (Tversky & Kahneman, 1992b, p. 453). Seemingly inconsequential changes in the formulation of
choice problems may cause significant shifts of preference and occur decision problems in which people violate the requirements of consistency and coherence (Tversky & Kahneman, 1992b).

Uncertainty was a relevant concept in this study, because blockchain is the first technology that is able to lower uncertainty. Uncertainties, such as issues with identification and transaction visibility may cause different types of fraud. A blockchain researcher, Bettina Warburg (2016), states that until the invention of blockchain, political and economic institutions were the only tools that had the ability to reduce uncertainty. Blockchain technology allows the creation of shared reality across non-trusting entities because everyone is able to monitor and validate the chain by themselves (Warburg, 2016). Iansiti and Lakhani (2017) argue that with blockchain, it is possible to imagine a world where every agreement, every payment, every task, and every process would have a digital record and signature that could be identified, validated, stored, and shared. Blockchain can be used for identity management, asset tracking, and reneging on deals, and it has the same efficiency as monopoly without creating a centralized authority (Warburg, 2016). Along with transactions, blockchain may be used for registry and inventory system for the recording, tracking, transacting, and monitoring of hard and intangible assets in every area of economics, finance, and money (Swan, 2015). According to Iansiti and Lakhani (2017), there is a strong possibility that blockchain will affect businesses regardless of the context – the question is when.

Uncertainty can be linked to this study from another perspective as well. Cumulative prospect theory (Tversky & Kahneman, 1992a) applies to uncertain as well as risky prospects with any number of outcomes, and it allows different weighting functions for gains and for losses. The curvature of the weighting function explains the characteristic reflection pattern of attitudes towards risky prospects; for example, the popularity of lotteries and insurance evolves from underweighting of small probabilities (Tversky & Kahneman, 1992a, p. 316). Furthermore, underweighting of high probabilities contributes to the prevalence of risk aversion in choices between probable gains and sure factors, and to the prevalence of risk seeking in choices between probable and sure losses (Tversky & Kahneman, 1992a, p. 316). Different opinions and beliefs towards cryptocurrency often seem to be somewhat polarized; there are enthusiastic supporters as well as fierce critics. The cryptocurrency industry and its future are generally risky and uncertain with rapid peaks and falls. Underweighting and overweighting uncertain prospects may be one factor causing the fuss.

3.5.2 Loss Aversion

Loss aversion is a concept derived from the psychology of decision making which refers to the idea that people are more sensitive to decreases in their wellbeing as opposed to increases (Thaler & Benartzi, 1995, p. 73). The reaction towards losses is found to be twice as strong in relation to reactions associated with gains (Thaler et al., 1997, 648). Another concept related to the psychology of decision making is mental accounting, which refers to the methods individuals use to evaluate financial outcomes. When combining both loss aversion and mental accounting, one enters a state of myopic loss aversion. Thaler et al. (1997, p. 659) discovered that the application of myopic loss aversion actually produced irrational decision making that lead to a decreased level of desired outcome. They did this through a study in which they had subjects make investment decisions of two separate investment options under differing time horizons and information allocation. The outcome of the study showed that the subjects who were compelled to invest under
non-myopic decision framing (i.e. had to commit to long-term investments and received little feedback) produced better results. The concurring explanation was that this particular manipulation eliminated the sense of loss experienced by this one group of subjects compared to the group of subjects that were provided frequent information. As such, the subjects who invested under non-myopic decision making were more susceptible to make riskier investment decisions, which eventually lead to a higher return. The subjects who invested under myopic decision making due to the amount of information and feedback they received opted for the safer investment decisions that lead to a guaranteed, yet lower, return.

The relation between loss aversion and the research being conducted in this thesis is to what extent do online gamblers utilize myopic decision framing during their gambling experience. Another way to look at this is would the inclusion of cryptocurrency use in online gambling make a gambler more loss averse. Since cryptocurrency is not a physical currency that never comes into physical contact with its owner, one could assume that the sense of loss (or gain) would be less profound in relation to other monetary options. Therefore, would such a phenomenon have any effect on a gamblers decision to wager in cryptocurrency?

3.6.3 Online Gamblers

Wherein this thesis focuses on the decision factors towards the use of cryptocurrency as a form of payment within online gambling platforms, we needed to understand the behavioural characteristics of online gamblers. In this case, “online gamblers” are known as “the consumers”. With this in mind, it was also important to distinguish the differences in characteristics between traditional gamblers (those who gamble at casinos) and online gamblers. In their research, Carver and McCarty describe online gamblers more likely to be younger, male, better educated and employed in higher paid, managerial or professional jobs than traditional gamblers (2013, p. 340). Online gamblers were also found to have a greater desire for control than other groups of gamblers. This is correlated to the findings that online gamblers show lower levels of superstitious beliefs than traditional gamblers (Mowen et al., 2013, p. 1266). Other behavioural traits found online gamblers to be more willing to take risks, more self-centered, impulsive, and had a greater degree of desire for sensation seeking (Carver and McCarty, 2013, p. 349). These findings align with other studies conducted on the same subject, however, there seems to be a disconnect in one specific area: the stereotypical image of an online gambler.

Given the nature of online gamblers as being individuals who conduct their trade in the seclusion of their own homes, most would attribute this cohort of gamblers to be introverted individuals. This was found to be the case in studies conducted by Mowen et al. (2013, p. 1267) and Cotte and Latour (2009, p. 746). The study conducted by Mowen et al. identified introversion as being the highest relation to online gambling compared to any other form of gambling. Cotte and Latour’s study found that traditional gamblers perceived social connectedness as a vital component to their gambling experience. However, online gamblers viewed the lack of social connectedness as a positive aspect to their own gambling experience. This correlated with another one of their findings pertaining to anonymity as an important benefit of online gambling (Cotte & Latour, 2009, p. 746). Gainsbury et al. (2013, p. 36) also found that privacy was a key factor that influenced the participation in online gambling. Carver and McCarty’s study was surprising in nature given that it indicated the opposite. Their study was unable to prove any increased level of introvert tendencies in online gamblers compared to other cohorts of gamblers (2013, p. 349). These
differing opinions in findings could be related to the idea that online gamblers are present in a wider capacity amongst all age cohorts of gamblers. Whereas the majority of online gamblers tend to be younger, between the ages 18-44, there is still a sizeable number of online gamblers in the 45+ age cohort. On the other hand, the vast majority of traditional casino gamblers are represented in the 45+ age cohort (Carver & McCarty, 2013, p. 345). It could be implied that those younger online gamblers are more susceptible to extrovert behaviours compared to their older counterparts. This could be a potential reason that may have caused for Carver and McCarty’s study to be unable to conclude that online gamblers exhibit introvert traits compared to other types of gamblers.

Another element in which incorporating consumer behaviour theory into our research could be useful was that it could provide an understanding towards how online gamblers perceive the use of cryptocurrencies as a payment method instead of other traditional payment methods. One area of research that could be related to this was the impulsive tendencies of online gamblers. Impulsiveness can be categorized into two forms: impulsive behaviour and impulsive buying behaviour (Kreil, 2016, p. 20). Impulsive behaviour being the consumer preference for a smaller, more immediate reward over a larger, later reward even though conventional thinking would assume the larger reward as being the preferred reward (Kreil, 2016, p. 20). Impulsivity is also highly viewed as a behaviour that engages in an activity without planning or considering the potential consequences of engaging in said activity (Berrault & Varescon, 2016, p. 42). Impulsive buying behaviour is linked directly to the purchase process. It is the sudden, hedonically complex purchasing behaviour which supersedes any thoughtful consideration of information and choice of alternatives (Kacen & Lee, 2002, p. 163). The idea here was to identify if using cryptocurrencies increased impulsive buying (in the case of this study, buying would mean wagering) amongst online gamblers. And if so, would this deter online gamblers from using cryptocurrency to set wagers knowing that it would likely result in them spending more than they would conventionally. Linking this back to the research of Carver and McCarty, it was concluded that online gamblers were the most impulsive of any type of gambler (2013, p. 346).

3.7 Theoretical Models for Application

This portion outlines various models that could be applied to compliment the theories previously described. We identified three theoretical models from our research related to consumer behaviour that could be applied to this study. Those being: Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB) and Technology Acceptance Model (TAM).

3.7.1 Theory of Reasoned Action

Theory of Reasoned Action (TRA) is a psychology-based model developed by Icek Ajzen in 1980 and is based on the idea that individuals make rational decisions based on the information made available to them (Davis et al., 1989, p. 983). It has the capability to predict behaviours that are straightforward (Bellau et al., 2007, p. 246). In other words, behaviours that are under volitional control. Volitional control being the cognitive process in which one commits to a certain course of action and strives towards accomplishing that task (Bellau et al., 2007, p. 246). Such behavioural control is viewed as an antecedent to behavioural intentions. These behavioural intentions are directly linked to beliefs regarding the likelihood of undertaking a particular behaviour will lead
to a specific outcome. Beliefs are a person’s subjective probability that performing a target behaviour will result in a specific consequence. There are two forms of beliefs that can lead to an individual’s behavioural intention. **Behavioural beliefs** (also referred to as **salient beliefs**) have the capacity to influence one’s **attitude** towards performing a specific behaviour. On the other hand, nominative beliefs influence one’s **subjective norms** towards performing a behaviour (Madden et al., 1992, p. 3). **Attitude** refers to an individual’s positive or negative evaluation of performing a specific behaviour. **Subjective norms** refer to the social pressures affiliated towards an individual’s decision to perform or not perform a specific behaviour (Fishbein & Ajzen, 1980, p. 7). Furthermore, Fishbein and Ajzen (1975) explain that there are variables external to the model that can affect behavioural intention on the basis that attitudes and subjective norms are affected. Identified conditions that can affect the relationship between intentions and behaviours include demographics, traditional attitudes and personality traits (Bellau et al., 2007, p. 246).

Davis et al. (1989, p. 984) state that it is also important to recognize that TRA is a general model that does not specify any particular beliefs to a certain behaviour. In the case of research, it is important for the researcher to identify salient beliefs within their research subjects and apply those specific beliefs to TRA in order for its findings to be valid. An underlying strength regarding TRA is that it sets a barrier between external factors directly influencing behaviours. That is to say, that external forces can only indirectly influence behaviour by influencing one’s attitudes and subjective norms (Davis et al., 1989, p. 984). The following figure provides a visualization of TRA as conceptualized by Fishbein and Ajzen.

![Figure 3: Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975)](image)

### 3.7.2 Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) is a model developed by Icek Ajzen as an extension of the theory of reasoned action. It incorporates a third predictor of intention, **perceived behavioural control (PBC)**, into the model. Perceived behavioural control is the perception by an individual towards how easy or difficult performing a specific behaviour is expected to be (Ajzen, 1991, p. 196). In the TPB model, PBC is an exogenous variable that has a direct effect on behaviour, as well as an indirect effect through behavioural intentions (Madden et al., 1992, p. 4). The model was developed as a means to understand behavioural intentions of individuals who do not have full volitional control (Kreil, 2016, p. 12). To accomplish this, beliefs regarding possession of required resources and opportunities for performing a particular behaviour are included. The idea behind this is that the greater the amount of resources and opportunities one believes are in their possession, the greater the likelihood they will experience a higher degree of perceived behavioural
control over a behaviour (Madden et al., 1992, p. 4). In contrast, when people feel they have little in terms of the resources required to accomplish the behaviour, their intention in performing the behaviour may be low, despite having favourable attitudes/subjective norms pertaining to the performance of the behaviour.

Figure 4: Theory of Planned Behaviour (TPB) (Ajzen, 1991)

3.7.3 Technology Acceptance Model

The Technology Acceptance Model (TAM) was developed by Fred Davis in 1986 as an adaption to the theory of reasoned action. Its initial primary function was to analyze information technology acceptance within various mediums. It sets a basis for identifying the impact of external factors on internal beliefs, attitudes and intentions (Davis et al., 1989, p. 985). Throughout the years, the model has been adapted to include technology acceptance analysis and not purely information technology acceptance. Therefore, the basis of this model is to decipher the decision-making process by which users may or may not adopt and implement a particular technology (Folkinshteyn & Lennon, 2016, p. 220). In the case of this study, the technology being analyzed was cryptocurrency.

The two determinants of TAM are Perceived Usefulness and Perceived Ease of Use. Perceived usefulness is the factor that relates to a person’s belief that the technology will enhance their job performance or another aspect of their life. Perceived ease of use is the factor related to the person’s belief that use of said technology will be effortless. Within the TAM perceived ease of use has a direct impact on perceived usefulness (Hutchinson, 2017, p. 40). If the user feels that the reward of using the technology outweighs the risk of using it and they feel that they understand how to use it properly they will enter the mindset of considering adopting it for use. The final step is contingent on social interaction or peer-to-peer communication. When a potential user in the consideration stage establishes certainty regarding the benefits of using the technology through interaction with their peers, they will engage in using the technology (Folkinshteyn & Lennon, 2016, p. 222). In similar correspondence to TRA, TAM suggests that technology use is determined by behavioural intention. However, it differs in the context in which behavioural intention is determined in conjunction of both the potential user’s attitude towards using the technology and the perceived usefulness of the technology (Davis et al., 1989, p. 985) Therefore, TAM reinforces the fact that a user’s intention to adopt a technology is not only dependent on their perception of the technology itself, but perceptions they gain from the external environment as well (Li & Wang, 2017, p. 52).
3.8 Theoretical Framework for the Mixed-Methods Study

This thesis consisted of two separate studies that focused on deriving deeper insight towards the potential for cryptocurrency use in the online gambling industry. The first study was a qualitative study that relied on interviewing managers from the online gambling industry. The interviews utilized concepts we acquired from theories related to concepts such as innovative and disruptive technology and consumer behaviour to gain insight how managers in the industry cryptocurrency usage in online gambling from multiple angles. This related to the general perceptions the managers had regarding cryptocurrency and blockchain, their perceptions towards what kind of effects would occur around cryptocurrency adoption in online gambling and their perceptions towards the possibility and likelihood of online gamblers adopting cryptocurrency for use in online gambling. The results from the qualitative study were analyzed through thematic analysis, which allowed for specific information that was deemed to be important for the purpose of the study to be collected. Through the thematic analysis meanings relating to the perceptions of the managers were organized and helped draw conclusions to the results of the study.

The quantitative study focused on the perceptions of online gamblers regarding cryptocurrency use. The quantitative study relied on collecting data from a survey that we developed and distributed to groups on online gamblers. The central idea behind the survey was to understand the perceptions of online gamblers when it comes to cryptocurrency usage and how they view the potential for cryptocurrency in online gambling. Furthermore, it incorporated questions relating to the specific drivers of cryptocurrency use that we identified earlier. Through triangulation the results from both studies were then compared to see if there was an overall common consensus regarding cryptocurrency adoption in online gambling.

3.8.1 Conceptual Model

We created a conceptual model to incorporate the theories and models that were included into the background of this study due their relevance. The model is divided into two areas: consumer perceptions (online gamblers) and company perceptions (online gambling companies). The area focusing on consumer perceptions begins identifying certain drivers that can influence behaviour towards the use of cryptocurrency. Those drivers were identified through previous research studies.
relating to cryptocurrency and include trust, security, usability, and anonymity. The model then incorporated elements of diffusion of innovation and consumer behaviour theory. It takes into consideration internal beliefs of consumers related to their perception of innovative technology. This can help provide some insight into what cohort of adopter group online gamblers tend to reside in. Using these elements to predict behaviour towards a certain action in conjunction with the stated drivers of cryptocurrency use, the model shows whether there are specific factors that lead to accepting cryptocurrency usage or rejecting it among online gamblers. The company perspective resides on the other hemisphere of the model. By conducting interviews with managers in the online gambling industry, information could be gained that clarifies the perceptions of cryptocurrency as a potential form of payment in this industry. This relates to perceptions of cryptocurrency as an innovative and disruptive technology and its potential growth in the future. From there, clarification could be made on a majority consensus of cryptocurrency acceptance or rejection from the industry point-of-view. The model is conceptualized in the following figure:

![Figure 6: Conceptual Model of Cryptocurrency Potential in the Online Gambling Industry](image)

The following sections present further detail on the key elements of the conceptual model. It begins with left side of the model (consumer focus) by elaborating on the four presented drivers of cryptocurrency use. The final section focuses on the right side of the model (industry focus) and explains factors that could influence decisions from the industry perspective towards cryptocurrency adoption.

### 3.8.2 Trust as a Driver

Trust is difficult to generalize since it encompasses many variables that differ amongst everyone. Yet, it is an important precondition towards people adopting electronic services and is crucial towards the success towards any online initiative (Beldad et al., 201, p. 857). Trust is conceptualized as a two-way road in which it is seen as the expectation towards the behaviour of a trade partner and as the catalyst towards accepting and exposing vulnerability (Beldad et al. 2010, p. 258). As earlier stated, the traditional model of currency transaction involves the inclusion of a third-party entity; usually a financial institution such as a bank. Therefore, trust must be maintained not only between the payee and the payer for the transaction to occur, but it must also be established with the intermediary as well. More times than not, these financial institutions, can be
trusted to complete the transaction without partaking in any fraudulent activities themselves, but that is not always the case. After the 2009 financial crisis, public trust in the financial sector dropped, which paved way for the creation of cryptocurrencies (Polasik et al., 2015, p. 17). Since cryptocurrencies are decentralized and governed by their creators and the peer-to-peer network on the blockchain, trust is no longer needed in a third-party entity for the transaction to occur. Therefore, it streamlines the entire process (Rao, 2014, p. 7). However, the anonymity feature associated with cryptocurrency does have the ability to reduce trust in the network. Therefore, measures need to be taken to create the right balance of trust and anonymity (Rao, 2014, p. 13).

This can be accomplished through a Fair Exchange Protocol, which is a three-step transaction. This includes the commitment transaction, refund transaction and claim transaction. This protocol then establishes three phases of the transaction. First there is the secret setup phase, in which the two parties generate keys and exchange those keys to be used in later transaction to avoid breach of privacy. In the second phase, transaction setup phase, both parties can verify each other’s signatures to establish trust amongst each other and thus commit to the cryptocurrency exchange. The final phase, money claim phase, the end user can claim only the cryptocurrency denomination affiliated to them (Rao, 2014, p. 14).

Relying the notion of trust back to the online gambling industry, we had to consider the relevant importance it holds within online gamblers. For one, looking into whether online gamblers show tendencies to trust in the structure setup around cryptocurrencies and if they also trust the online gambling company they are dealing with. Gainsbury et al. (2013, p. 236) state that the ability for an online gambling company to uphold trust in its customers goes a long way towards maintaining customer loyalty. As such, we were looking to see if trust in cryptocurrency and trust in the system had a profound impact on online gamblers being open to using cryptocurrency.

As a result, the hypothesis (H1) we developed for this driver was: Trust is an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry. If we will discover through our study that this is not the case and there is no significant relationship between trust and cryptocurrency adoption by online gamblers, the null hypothesis (H10): Trust is not an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry will be recognized.

3.8.3 Security as a Driver

Perceived security is a major issue related to customer satisfaction when undertaking an online experience in which monetary transactions occurs (Meuter et al., 2003, p. 904). This is further evident in the online gambling industry where online gamblers not only indicate security revolving around monetary transactions as an important factor, but also emphasize security issues around fair play and cheating as well (Gainsbury et al., 2013, p. 237). This relates to concerns online gamblers pose regarding instances in which online gambling companies have not paid winnings, stolen deposits and personal details and cheated players with rigged games (Gainsbury et al., 2012, p. 1396). The implementation of new technology and practices that mitigate the potential of these actions occurring could potentially go a long way in increasing consumer confidence in participating in online gambling activities. It does not go unnoticed that the idea of promoting the
action of gambling has unethical merits, but in this scenario, we were discussing the notion of greater security for those who partake in online gambling activities.

The concept of utilizing cryptocurrency as a payment form that can increase security for those who partake in online gambling activities is centered around the smart contract which is utilized in blockchain technology. Delmolino et al. (2016, p. 79) define the smart contract as “a user-defined program that specifies the rules governing transactions, and is enforced by a network of peers”. In other words, it is a computer program that conveys the contents of a contractual agreement and operates to implement that content in a manner that leverages efficiency, security and impartiality towards the execution of the agreement (Idelberger et al., 2016, p. 167). Smart contracts are programmable through blockchain platforms such as Ethereum which support transactions of the altcoin Ethereum and particl.io which support Bitcoin transactions (BitcoinMagazine, N.D.). These platforms generate the programming language to write smart contracts. The smart contract consists of a program code, storage file and account balance. Simply put, when a transaction occurs between two or more parties, a smart contract is created by posting the corresponding program code of the transaction to the blockchain. Once the contract is fixed, the code cannot be changed. The agreed upon rules and transaction balance by the involved parties pertaining to the transaction are stored in the smart contracts storage file. The contract is then reviewed by peers in the blockchain network to ensure its logic is sound before the transaction is executed (Delmolino et al., 2016, p. 82). The smart contract in itself acts as the legal intermediary, thus neglecting the need for legal entities such as lawyers to be involved, which can be costly. This is enforced through protocols related to promises made by the involved parties for the transaction to take place. These protocols are embedded into the smart contract which automatically enforces them (Marino & Juels, 2016, p. 152). The benefit of well-designed contracts rest in the notion that they systematically deter parties from behaving opportunistically toward their contracting counterparts. It drives the probability of contract breaches toward near zero as it is much more difficult and costly for someone to breach a smart contract (Marino & Juels, 2016, p. 151-152).

In terms of the construct of this research, we were looking to discover if online gamblers perceive the security measures associated with cryptocurrency technology as sufficient alternatives. In effect, do these perceived increased security measures entice online gamblers enough to adopt and use cryptocurrency over other traditional payment methods. As such, our hypothesis developed for this particular driver (H2) was security is an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry. Subsequently, if no significant relationship will be discovered the null hypothesis (H20) security is not an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry will be recognized.

3.8.4 Anonymity as a Driver

Since cryptocurrency is unregulated and not backed by any government or state, it provides a level of anonymity that tends to be viewed favorably amongst its users (Madey, 2017, p. 25). However, to say full anonymity is guaranteed through the use of cryptocurrency would not be accurate. But it does maintain levels of privacy in transactions that are not widespread in transactions made through other mediums such as credit cards. For instance, when a transaction is made, it is entered into the blockchain, which can be viewed publicly, to be reviewed and accepted or denied as a
valid transaction. The details of these transactions do not reveal the identities of the payee and payer. They only reveal the public addresses of the transactors, which are only used to identify cryptocurrency ownership. In some situations, at a private level, the identity of the payee may be known to the payer, thus full anonymity is not guaranteed. But the identities of both parties will not be made publicly visible on blockchain (Rizos, 2016, p. 3).

In relation to the online gambler consumer group, studies have shown that online gamblers prefer increased privacy and anonymity compared to traditional casino gamblers. Gainsbury et al. (2012, p. 1396) determined that increased privacy and anonymity was an important influencing factor for people to engage in online gambling over other forms of gambling. A later study by Gainsbury et al. (2013, p. 236) also found increased privacy to be a key factor towards people adopting online gambling. To link this to cryptocurrency, we developed a third hypothesis (H3) anonymity is an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry. If no significant relationship between anonymity and cryptocurrency adoption by online gamblers will be discovered, the null hypothesis (H30) anonymity was not an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry will be recognized.

3.8.5 Usability as a Driver

Given the intricacies associated with using cryptocurrencies, one could assume that usability may be a factor associated towards the adoption of the technology. This may act as an obstacle towards future adoption since one would need to first understand how the technology works before implementing it. Once the technicalities of using cryptocurrencies are understood, one can reap the benefit from their use. An example would relate to the immediate nature of the transaction of cryptocurrencies. Through the use of cryptocurrency, the transactions are nearly immediate, usually taking no more than ten minutes for the transaction to be approved or rejected. This could be viewed as a benefit to those who chose to adopt it as a payment method. Therefore, we were looking into how the notion of usability of cryptocurrency effects one’s decision to adopt it. Essentially, whether the technical intricacies of cryptocurrency use would deter its adoption or if the associated benefits would entice people to give it a shot. This lead to our final hypothesis relating to drivers of cryptocurrency use (H4) usability is an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry. If the study indicates no significant relationship between cryptocurrency usability and a willingness to adopt cryptocurrency by online gamblers, the null hypothesis (H40) usability was not an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry will be recognized.

3.8.6 Considerations Towards Industry Adoption of Cryptocurrency

The current state of online payment methods is situated around the use of credit cards, debit cards or third-party payment processing companies such as PayPal. Consumer behaviour trends show a large majority percentage of consumer preference towards using credit cards to make online purchases. However, this has an effect on the online merchants since the credit card companies
take a percentage of the sale through the form of transaction fees (Turpin, 2014, p. 336). Unlike credit card payments, in which chargebacks may occur due to alleged fraudulent card activity, payments made in cryptocurrency are irreversible (Munk, 2018). Thus, adding a level of security to the online merchants knowing that the payment is truly finalized without the risk of fraud overturning the transaction. Another added benefit surrounding cryptocurrency, more notably Bitcoin, is its capability to enable micropayments due to its low transaction costs. Normally, credit cards charge a transaction fee in the range of 2 to 4% to the merchants. Transaction fees associated with cryptocurrency payments are a fraction of that (Monk, 2018). Since micropayments are payments made at very low sums, usually less than a dollar, they are traditionally illogical for merchants to accept since the amount received from a transaction is less than the transaction fee incurred, thus inducing a loss on the sale. However, the significant decrease in transaction costs associated with cryptocurrencies makes it more likely for online merchants to accept micropayments and thus extending their reach to various customer segments. Cost savings can also be indirectly incurred by merchants who accept cryptocurrency due to its payment structure in relation to credit cards. Since credit card companies charge varying transaction fees to merchants based on their structure (i.e. rewards cards in comparison to normal credit cards), the merchants have to accept the type of credit card used by the customer irrelevant to the fees that will be incurred. Since cryptocurrency has no prohibitive structure in place, online merchants can actually pass those costs along to the customers (Turpin, 2014, p. 351).

However, it is important to mention that there remain obstacles in place that may hinder online merchants from currently accepting cryptocurrency. One major obstacle is the price fluctuation of cryptocurrencies such as Bitcoin. The price of Bitcoin is quite volatile, which creates some uncertainty surrounding its viability. This is most likely related to the novelty of cryptocurrencies, which currently sees a lack of widespread adoption by consumers, which in turn establishes a lack of adoption by merchants. The aforementioned benefits of cryptocurrencies are expected to influence more consumer adoption of the technology, which will likely result in lower levels of volatility (Turpin, 2014, p. 345). Another obstacle is the uncertainty around regulations imposed on cryptocurrencies. Therefore, this creates apprehension amongst merchants to accept the currency if regulations in their economies are hostile towards it, thus making it worthless to possess. Therefore, the legal status of cryptocurrency needs to be more clearly understood before online merchants make the decision to accept cryptocurrencies. However, this issue is not as prevalent with online retailers that sell virtual goods; for example, online casinos and video games (Turpin, 2014, p. 343). From this context, we were looking to understand the perceptions from the industry end as to whether online gambling companies perceive the benefits revolving around accepting cryptocurrencies as outweighing the uncertainties.

3.9 Review of the Hypotheses

To test the portion of our conceptual model that relied on the quantitative study, we developed five hypotheses (see Table 1). H1 to H4, along with their null hypotheses, were focused on the consumer side of the model and relate to perceived impact the aforementioned influencers of cryptocurrency use have towards consumer intention of using cryptocurrency as a payment method in online gambling. These first four hypotheses were tested using regression analysis to see the relationship between these drivers and intended use of cryptocurrency in online gambling. H5,
along with its null hypothesis, is focused on the overall perception online gamblers have towards cryptocurrency use as an online payment method.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Trust is an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry.</td>
</tr>
<tr>
<td>H1₀</td>
<td>Trust is not an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry.</td>
</tr>
<tr>
<td>H2</td>
<td>Security is an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry.</td>
</tr>
<tr>
<td>H2₀</td>
<td>Security is not an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry.</td>
</tr>
<tr>
<td>H3</td>
<td>Anonymity is an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry.</td>
</tr>
<tr>
<td>H3₀</td>
<td>Anonymity is not an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry.</td>
</tr>
<tr>
<td>H4</td>
<td>Usability is an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry.</td>
</tr>
<tr>
<td>H4₀</td>
<td>Usability is not an important predictor towards consumers’ (online gamblers) intentions towards using cryptocurrency as a payment method in the online gambling industry.</td>
</tr>
<tr>
<td>H5</td>
<td>Online gamblers are accepting towards using cryptocurrency as an online payment option.</td>
</tr>
<tr>
<td>H5₀</td>
<td>Online gamblers are apathetic towards using cryptocurrency as an online payment option.</td>
</tr>
</tbody>
</table>
4. Practical Methodology

The focus of this chapter is to explain the data collection methods utilized within this thesis study. Since this research undertook a mixed-methods study, descriptions of both qualitative and quantitative data collection methods are provided. The qualitative research focused on the company perspectives, whereas the quantitative research focused on the consumer perspective. This is followed by an analysis of the collected data along with an exposition regarding the ethical considerations surrounding this research project.

4.1 Data Collection

Since the research conducted utilized a mixed-methods study, both quantitative and qualitative research methods were used to collect the data. There exist two forms of data that could be collected for the purpose of research. Those types of data include primary data and secondary data. Primary data is data that is created by the researcher through their own research, whereas secondary data is data that is collected by the researcher from existing sources (Quinlan, 2011, p. 240). Whereas primary data has its benefits given that its providing original knowledge, it can be costly and time consuming to acquire. Zikmund et al. (2013, p. 160) state that secondary data has the benefit of being readily available. This can be viewed as being very useful in cases when it is not possible to collect primary data (i.e. restricted time constraints, lack of funds, unreachable sample for the study). Furthermore, secondary data tends to come from datasets which provide high quality outcomes due the rigorous sampling procedures they have gone through, in turn providing high-quality secondary data (Bryman & Bell, 2015, p. 322) However, Zikmund et al. (2013, p. 161) stipulate that secondary data does come with some disadvantages. One specific problem associated with using secondary data is that it does not necessarily satisfy the research needs of the researcher because it was not designed specifically for their research. As such, it could cause more work for the researcher to properly formulate the data then it would to procure primary data due to the researcher having no control over the data quality and the variables that define the data (Bryman & Bell, 2015, p. 329). Given the relative originality of the research topic for this particular study, the bulk of the collect data was primary data.

4.2 Qualitative Data Collection

The qualitative portion of this research study used interviews with managers working in a large online gambling company as the main source of data collection. To adhere to the wishes of the company, which wished to remain anonymous based on concerns related to the transmission of sensitive strategic data, the name of the company was withheld from this thesis. Henceforth, the partner company is referred to as Company X. Due to time, distance and cost constraints, the interviews were conducted over Skype. By conducting the interviews over Skype, maintaining advantageous elements related to in-person interviews such as emotional or facial cues and interpretations was still possible. According to Zikmund et al. (2013, p. 141) there exists various types of interviews that can be conducted. The four main types of interviews are the structured interview, unstructured interview, semi-structured interview and the group interview (May, 2011,
Structured interviews are related to survey research due their rigidity and focus solely on the initial answer of the interviewee with no room for further interpretation. These interviews enable comparability between answers and any differences found between answers can be deemed to be real ones (May, 2011, p. 132). A second form of interview, the unstructured interview, represents the polar opposite of the structured interview. In this case, the interviews are conducted in such a manner that the central focus is on understanding the point-of-view of the subject and their own frames of reference. As such, this form of interview has an open-ended character in contrast to the close-ended character of the structured interviews (May, 2011, p. 136). The third form of interview, the semi-structured interview, incorporates a mixed style that uses techniques from both the structured and unstructured interview styles. This type of interview is conducted by asking various open-ended questions that are sectioned-off into specific categories. In this case the interviewer can probe further into the initial answer of the respondent in order to gain a deeper understanding and clarification to their response (Zikmund et al., 2013, p. 150). This form of interview also allows for the perceptions of the subjects to be understood and compared (May, 2011, p. 135). The last form of interview, the group interview, is used as a technique to collect data that explores understanding group norms and dynamics through group discussions (May, 2011, p. 137).

Since one of the goals of this study was to understand how companies in the online gambling industry perceive the use of cryptocurrency within its operational structure, a series of semi-structured interviews were conducted. These semi-structured interviews utilized open-ended questions, which were questions that allowed the respondent to explain their own feelings, understanding and beliefs towards a specific subject (Collis & Hussey, 2014, p. 212). The reasoning behind this choice of interview structure lied within the notion that the perceptions of the interviewees was an important context to the study. As the focus was on the perceptions of the interviewees, it was important that they not be limited to answering a set of questions as found in a structured interview. Furthermore, as a method to increase the credibility of the qualitative data collected, the interviews were conducted with managers of a company operating in the online gambling industry. By focusing attention towards interviewing managers from this company, insights could be obtained from individuals who have a direct impact on the strategic business decisions that are made for the company. As such, the credibility of the study and the qualitative findings could be increased as the information being gathered is coming from expert sources. Saunders (2016, p. 402) argues that without focus, an interview will lack direction and purpose which can be detrimental to the study. A useful tool that can bring structure and focus into a semi-structured interview is an interview guide. The development of the interview guide used for this research is explained in the following section.

4.2.1 Designing the Interview Guide

Creating an interview guide requires careful preparation which induces credibility into the research (Saunders et al., 2016, p. 401). This begins with projecting knowledge regarding the research topic and then branching out to becoming more acquainted with the participating organization along with the differing cultural customs that we may come in contact with while conducting the interviews. Since the organization this qualitative research was focusing on has divisions operating in various countries, we had to carefully consider the cultural customs associated with the country of origin in which our interviewee operated in.
As stated by Magnusson and Marecek (2015, p. 46) the main purpose of the interview guide was to act as a memory aid in order to ensure a well-balanced and consistent interview process through each interview conducted. Creating a semi-structured interview relied on the development of open-ended questions to be asked. Good interview questions of this nature produce answers that encourage reflections of experience and address the main topics of the research (Magnusson & Marecek, 2015, p. 57). These motivate participants to provide answers that elicit a conversational tone that will drive the flow of the interview and improve the interviewer-participant relationship. As such, the meaning of the answers will be enhanced (Magnusson & Marecek, 2015, p. 46-47).

Furthermore, certain topics brought up during interviews can be considered sensitive to the participant, and therefore, the wording should be carefully constructed ahead of time to make the interview process as stress-free for the participant as possible. Questions relating that could be considered sensitive should be left until the last portion of the interview (Magnusson & Marecek, 2015, p. 57). This is very important because, as stated, the goal of conducting semi-structured interviews is to obtain information from participants in a manner that they provide answers relating to their experiences in their own words and in their own way (Magnusson & Marecek, 2015, p. 46).

One needs to consider the sequence in which the interview questions will constructed in order to develop an interview guide that encompasses the aforementioned aspects. Beginning the interview with an introduction of the researchers and establishing the terms of the interview help towards developing the conversational tone for the interview (Magnusson & Marecek, 2015, p. 56). Following it up with some simple background questions will help ease the participant into the interview process. The body of the guide should be constructed in a way that the interview questions be categorized into themes pertaining to the research topic (Zikmund et al., 2013, p 150). Doing so will ensure each topic is fully covered before moving on to the next (Magnusson & Marecek, 2015, p. 56). It is also important that the main questions should also include follow-up questions (probes). This will allow for fuller interpretations pertaining to the answers of the main questions which can produce valuable and complex data (Quinlan, 2011, p. 293). The final portion of the interview guide should also provide the participant the opportunity to reflect on their answers and give any additional information that they feel may have been left out. In addition, it is recommended to give the participant the chance to ask the interviewers any further questions they may have regarding the study (Magnusson & Marecek, 2015, p. 57). This helps to ensure full interpretation and understanding of the answers is met and further builds upon the interviewer-participant relationship.

Based on the information derived from the literature pertaining to the development of the interview guide, the predetermined questions that were included in the interviews for this study were grouped into sections that correspond to the theme of that particular question. The incorporation of themes within the interview guide can also increase validity to the overall study. If the interviewee is provided information beforehand regarding the themes that will be discussed in the interview, it gives them the opportunity prepare and to collect corresponding documentation that can lead to more detailed answers during the interview (Saunders et al., 2016, p. 402). As such, the interview guide developed for this study was sent out to each of the participants in advance of the interview dates.
The themes corresponding to the different sections of the interview were based on the interviewees’ knowledge of cryptocurrency and the online gambling industry, their perceptions towards the strategic fit between cryptocurrency and the online gambling industry, their views on cryptocurrency as a disruptive innovation, and their perceptions concerning the behaviours of online gamblers. These themes were developed based on their relevance to the research topic and the related theories encompassing this research.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2</td>
<td>Introductory Questions</td>
</tr>
<tr>
<td>3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14</td>
<td>Linking Cryptocurrency and Innovative Technology to Online Gambling</td>
</tr>
<tr>
<td>15, 16, 17</td>
<td>Online Gambling Industry</td>
</tr>
<tr>
<td>18, 19</td>
<td>Linking Cryptocurrency (as a disruptive technology) and the Online Gambling Industry</td>
</tr>
<tr>
<td>20, 21, 22, 23, 24</td>
<td>Managerial Perceptions of Customer-Base Adopting Cryptocurrency</td>
</tr>
<tr>
<td>25, 26, 27</td>
<td>Closing and Feedback Questions</td>
</tr>
</tbody>
</table>

Table 2: Interview Questions and their Corresponding Themes

4.2.2 Qualitative Sampling Technique and Access

As stated by Zikmund et al. (2013, p. 386) researching an entire population is a near impossible task, especially in research studies that are only conducted for a short period of time. Therefore, to obtain results that are still valid and accurate, a sample of the population can be studied. Sampling is the act of selecting participants from a population to participate in the study and provides an alternative when it would be too expensive, too time consuming, or impracticable to survey the entire population (Saunders et al., 2016, p. 274). Since most populations are too large to include everyone in a study, samples are required to act as a representation of the population. A representation sample refers to the degree in which the sample drawn from a population represents that population (Quinlan, 2011, p. 209). There exist two forms of sampling in research: probability and non-probability sampling (May, 2011, p. 99).

Probability sampling is a form of sampling that is drawn by a sampling frame, which is a list of elements from which a sample of subjects may be drawn (Zikmund et al., 2013, p. 388). In this situation, each potential subject has an equal probability of being selected for the study. To include participants in the study, specific sampling techniques, which enable researchers to decrease the amount of data that needs to be collected by considering only data from a sub-group instead of all possible cases, need to be used (Saunders et al., 2016, p. 272). Techniques associated with probability sampling include simple random sampling, systematic sampling, stratified sampling and cluster sampling (Quinlan, 2011, p. 210).

The other form of sampling, non-probability sampling, is used when the use of a sample frame is not possible and the selection of subjects for the study is, to a degree, based on subjective judgement (Saunders et al., 2016, p. 295). As such, the probability of any given member of a
population being chosen as a subject for a study is unknown (Zikmund et al. 2013, p. 392). Furthermore, non-probability sampling is used to represent a population, but cannot be considered representative of the population given that its focus relies on a small number of cases to specify a phenomenon (Quinlan, 2011, p. 213). Various techniques exist when using non-probability sampling. Those include convenience sampling, judgement sampling, quota sampling and snowball sampling (Quinlan, 2011, p. 214). Since this particular research was conducted as a mixed-methods study, different sampling strategies were used between our qualitative research and quantitative research.

The qualitative portion of this thesis utilized non-probability sampling to invite interview participants into the research. The sampling technique that was utilized was convenience sampling. As Saunders (2016, p. 304) explains, samples chosen under the convenience sample technique can still meet the selection criteria that is relevant to the research aim. Saunders et al. (2016, p. 304) also mention that convenience sampling is a research technique in which the researcher includes participants whom are easily available to include. The argument behind this choice of sampling resided in the fact that to answer the first research question: “How do online gambling companies perceive accepting cryptocurrency as a potential form of payment?”, information regarding perceptions of managers in the online gambling industry needed to be collected. By interviewing a set number of managers in this industry, the research could comprehensively illustrate the phenomena in question. Given that one of the researchers of this thesis had work experience and connections in the online gambling industry, the convenience sampling technique was used. The expectation of interviewing these managers was to obtain industry relevant insights towards the potential cryptocurrency could have as a disruptor towards traditional payment methods.

4.2.3 Conducting the Interviews

A total of five interviews were conducted over a three-week period beginning April 2, 2018 and running until April 23, 2018. Due to geographical limitations, the interviews took place over Skype. As mentioned by Quinlan (2011, p. 295-296), since these were online interviews, we needed to establish with the participants that they were capable and willing to conduct the interviews online. This was managed through the letter of informed consent (Appendix 1) we distributed to our interviewees in the weeks before the interviews took place. Such communication had been established and consent had been given by our participants to have the interviews conducted over Skype. Furthermore, since the interviews required transcribing, a method to record the interviews was required. It was also important that the participants were informed that the interviews would be recorded for the sole purpose of transcribing. Transcribing interviews is a helpful method since it has the capabilities of correcting the natural limitations of our memories, which may skew what we believe we hear as a response from an interviewee. Furthermore, transcribing allows for a more detailed, repeated and thorough examination of the interviewees answers. As such, the chances of the analysis being influenced by the researcher’s values or bias are mitigated (Bryman & Bell, 2003, p. 253).
<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Length of Interview</th>
<th>Method of Interview</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviewee 1</td>
<td>0:43:48</td>
<td>Skype</td>
<td>02/04/2018</td>
</tr>
<tr>
<td>Interviewee 2</td>
<td>0:33:26</td>
<td>Skype</td>
<td>11/04/2018</td>
</tr>
<tr>
<td>Interviewee 3</td>
<td>0:28:31</td>
<td>Skype</td>
<td>11/04/2018</td>
</tr>
<tr>
<td>Interviewee 4</td>
<td>0:33:05</td>
<td>Skype</td>
<td>12/04/2018</td>
</tr>
<tr>
<td>Interviewee 5</td>
<td>0:41:17</td>
<td>Skype</td>
<td>23/04/2018</td>
</tr>
</tbody>
</table>

Table 3: List of Interviews

4.2.4 Transcribing

Transcribing interviews is a helpful method since it has the capabilities of correcting the natural limitations of our memories, which may skew what we believe we hear as a response from an interviewee. Furthermore, transcribing allows for a more detailed, repeated and thorough examination of the interviewees answers. As such, the chances of the analysis being influenced by the researcher’s values or bias are mitigated (Bryman & Bell, 2003, p. 253). It is also important to note that there is the possibility that some interviewees would not want to have their interviews being recorded. If that is the case, Bryman and Bell (2003, p. 353) recommend continuing with the interview without the recording device and to take noted instead. The notes can then be cross-checked with the interviewee to gauge accuracy. To still conduct an interview without the assistance of a recording device still allows for the possibility to gain useful information (Bryman & Bell, 2003, p. 353).

4.2.5 Pilot Interview

In order to obtain data of high quality from the interviews, pretests and a pilot interview were required. Pretests are very informal mock interviews that can be set up with friends and colleagues to role-play a participant of the study. The purpose of the pretest is focused on discovering elements of the interview that are unclear. That can refer to unambiguous language or wording and the meanings of questions (Magnusson & Marecek, 2015, p. 71). The pilot interview differs from the pretests in the context that it takes place with an actual research participant. All informed consent and ethical rules apply to the pilot interview (Magnusson & Marecek, 2015, p. 71). The purpose of the pilot tests is to hone the interview guide and questions further to a level in which the set of items involved within the interview are easily understood by the participants. In other words, the feedback from the pilot interview should correlate to what the other research participants would find as important to the interview process. Following the advice of Magnusson and Marecek, we performed a couple pretests and a pilot interview. The pretests were conducted on a couple of friends, in order to hone the language and understanding of the interview. The pilot test was conducted during our first interview and set as the basis for improving the interview guide further by implementing revisions based on the feedback of the first participant.

The pilot interview was conducted on April 2, 2018 with our first participant. This particular interview was helpful in terms of allowing us to pinpoint questions that were not very clear to the participant and required some restructuring. From this process, we became aware of a few questions that the participant did not understand from the initial dialogue that required us to reword for future interviews. In addition, the pilot interview process provided us with some insight
into including a couple more questions in future interviews. One new question that arose from the pilot interview was “Do you perceive innovation and/or the adoption of disruptive technology to be vital to the long-term growth of the company?” This question allowed us to generate more insight into the beliefs the managers held towards the alleged importance of innovation within their industry. When cross referencing with their perceptions surrounding cryptocurrency, we could identify a theme towards whether they perceive cryptocurrency as an important disruptive innovation or if they felt other forms of innovation were more important. Another question that was developed during the pilot interview was “Do you believe disruptive technology, such as cryptocurrency, has the potential to entice traditional gamblers (casino gamblers) to try out online gambling?” This question was created to discuss the thought process around what motivations exist that could persuade traditional gamblers to try out online gambling.

Towards the end of the pilot interview, our participant provided some feedback that he felt would strengthen the process. The participant suggested that asking some questions around the use of cryptocurrency in online poker would be a beneficial addition to the study. The participant’s insight originated from the idea that cryptocurrency is already being used in online poker platforms. The participant mentioned that friends [of the participant] play online poker using cryptocurrency and that cryptocurrency use in online poker “has experienced a bit of a ping [growth] lately”. What was also interesting was the participant’s views towards online poker. “The whole dynamic [cryptocurrency use in online poker] is different. The unregulated sites that offer cryptocurrency are a bit dodgier [untrustworthy]. And the whole poker thing when it comes to online gambling is off doing its own thing.” This suggested to us that the behavioural tendencies of online poker players differed from those of other online gamblers and led us to adding the question “Do you believe any specific group of online gamblers would be more receptive towards using cryptocurrency in online gambling?”

4.3 Qualitative Data Analysis

Saunders et al. (2016, p. 570) state that the nature of qualitative analysis incorporates two aspects. Those include the approach taken to the analysis and the interactive nature of qualitative research. The approach to the analysis is either deductive or inductive and qualitative data analysis can be conducted in different ways depending on which research approach is taken. As previously mentioned, this research took an inductive approach. As such, data was collected and then explored to identify any underlying meaning to the data that could help us understand the perceptions of the participants. The interactive nature of the research allows important themes, and relationships to become recognized as they emerge from the data collection and analysis (Saunders et al. 2016, p. 571).

The initial stage of the analysis of the qualitative data was to transcribe the data. That was to take words, thoughts, meanings, and information derived from the interviews and putting them into written form. This took careful planning, since according to Saunders et al. (2016, p. 572) it takes six to seven hours of data transcription for every hour of interview material. They also note that it is helpful to begin transcribing the data as soon as possible after the interview, given that information and expressions gained from the interview are still clear in the memory of the researcher.
Once the information from the interviews had been transcribed, we needed to undertake a particular analysis technique. In the case of this thesis, we decided to conduct a thematic analysis. Thematic analysis is a method for identifying, analyzing, organizing, describing, and reporting themes found in a data set and interprets various aspects of the research topic (Braun & Clark, 2006, p. 79). Thematic analysis also has the benefit of being flexible. It sets no specific allegiance to any given epistemological viewpoint and can be conducted under both deductive or inductive approaches (Nowell et al., 2012, p. 2).

Nowell et al. (2012, p. 4) and Braun & Clark (2006, p. 87) both remark that proper conducting of thematic analysis is ensured through a six-phase process that also involves moving back and forth between phases. The first phase, familiarizing yourself with the data, entails gaining an understanding of your data set. Furthermore, this phase includes triangulation of different data collection techniques. The second phase, generating initial codes, involves coding the data through a coding framework. The third phase comprises of searching for themes which entails arranging the coded data into themes. The fourth phase is essentially a review of the themes to ensure they are relevant to the collected data. In the fifth phase, defining and naming themes, the researcher refines the specifics to each theme and generates a clear definition and name for each theme. The final phase of the process, producing the report, makes a final analysis of the findings and links them back to the research question and literature review to eventually establish the report of the qualitative data analysis.

4.4 Quantitative Data Collection

The quantitative data for this thesis project was collected by using the survey strategy. Survey is the most-widely used social science data-gathering technique, and it can take forms of different questionnaires, phone interviews and Internet opinion polls (Neuman, 2014, p. 316). Most surveys ask many questions at once, which allows the researcher to gather descriptive information and test multiple hypotheses in a single survey (Neuman, 2014, p. 317). Survey strategy is perceived as authoritative by people in general and is easy to explain as well as to understand (Saunders et al., 2016, p. 182). Usually surveys ask a large number of respondents about their opinions, beliefs, characteristics, and past or presence behaviours, thus surveys are appropriate when the goal is to learn about self-reported beliefs or behaviours (Neuman, 2014, p. 317). Surveys can provide reliable, accurate, and valid data, but it requires serious effort and thought to accomplish this; without care, surveys can easily produce misleading results (Neuman, 2014, p. 317). Surveys can answer the questions ‘what’, ‘where, ‘when’ and ‘how’, but it is not easy to discover ‘why’ (Bell, 2010, p. 12). Therefore, the focus is on fact-finding, and causal relationships can rarely be proved by survey methods (Bell, 2010, p. 12).

Another one of our research goals was to understand how online gamblers perceive cryptocurrency as an option to not only place wagers with, but to earn winnings with as well. As we were looking to discover the opinions and behaviours of online gamblers’, the data was collected by using a questionnaire. Since we were conducting a mixed-methods study, the combination of semi-structured interviews and a questionnaire helped us to discover both company and consumer perceptions, and to answer both of our research questions. Questionnaires provide an efficient and economical way of collecting data from a large sample, because each respondent is asked to answer
to the same set of questions (Saunders et al., 2016, p. 439). However, conducting an excellent questionnaire might be surprisingly hard (Bell, 2010, p. 140). Questionnaire offers only one chance to collect the data, which means that the researchers must plan and design each aspect of the process precisely; the questionnaire must collect the precise data that is required (Saunders et al., 2016, p. 444). According to Neuman (2014, p. 321), writing good questions for a questionnaire involves a mixture of art and science; the entire questionnaire should be seen as an integrated whole with the questions flowing smoothly from one to another after a few introductory remarks and instructions. Two key principles – keeping the respondent’s perspective in mind and avoiding possible confusion – guide writing good questions (Neuman, 2014, p. 321).

The questionnaire design depends on how the questionnaire is delivered, returned or collected and the amount of contact between the researchers and the respondents (Saunders et al., 2016, p. 440). Different questionnaire designs are self-completed questionnaires, interviewer-completed questionnaires, telephone questionnaires, and face-to-face questionnaires (Saunders et al., 2016, p. 440). The choice of questionnaire is influenced by factors related to the research question and objectives, such as characteristics of the desired respondents, size of required sample, and types of question (Saunders et al., 2016, p. 440). We decided to use a self-completed web questionnaire, since we aimed to collect a large sample from geographically dispersed individuals. As the target population was online gamblers, they intrinsically have access to the Internet. Therefore, it was suitable to distribute the questionnaire through the Internet, respondents accessing it through their web browsers using a hyperlink. The choice of questionnaire is also affected by the resources the researchers have available (Saunders et al., 2016, p. 442). In this study, we had limited financial resources, and limited time available to complete the data collection. A self-completed web questionnaire does not require interviewers or field workers, and all data will be analysed by computer, which enabled us to explore and analyse the data far more quickly and thoroughly than by hand (Saunders et al., 2016, p. 444). However, collecting a sufficient number of responses may be challenging, since the likely response rate is 10% or even lower in web questionnaires (Saunders et al., 2016, p. 441). Careful planning, designing and testing helps to maximize the response rate, validity, and reliability of a questionnaire (Saunders et al., 2016).

4.4.1 Quantitative Sampling Technique

The quantitative part of this study utilized non-probability sampling. The sampling technique was the same as in our qualitative research: convenience sampling. Convenience sampling is often used when the researcher aims to obtain relevant information from a sample that is easily available (Saunders et al., 2016, p. 304). Saunders et al. (2016, p. 304) state, that convenience sampling influences the generalization of the research negatively and might give very little credibility to the findings. Besides having reasons related to time constraints, we decided to use convenience sampling because the target population of this quantitative study – online gamblers – consists of millions of people and is spread around the world. Since it would have been impossible to get a complete list of individuals in our target group, convenience sampling technique was a necessity in this case.

We started distributing the survey on April 10, 2018 and kept it open until April 22, 2018. During this time, we received 151 responses. The survey was distributed via web link on our personal Facebook pages and on different online communities. These online communities included forums,
player experience platforms, and Facebook groups related to online poker, online sports betting and online casino gaming. Because the web link was distributed on public websites and groups instead of targeting individuals directly, we could not know how many people had seen or opened the survey. Therefore, calculating the response rate was not possible in this study. The average completion rate of the survey was 85% and the median amount of time the participants spent answering the questions was 5 minutes and 31 seconds.

4.4.2 Survey Construction

The internal reliability and validity of the collected data and obtained response rate depends on the questionnaire structure, the design of the questions, and the preciseness of the pilot testing (Saunders et al., 2016, p. 449). We followed a data requirements table to ensure that the collected data enables the research questions to be answered and the objectives accomplished (Saunders et al., 2016, p. 447). The process includes deciding the main outcome of the research, subdividing research questions into more specific investigative questions, keeping in mind relevant theories and key concepts, identifying variables and establishing the level of detail required, and developing measurement questions (Saunders et al., 2016, p. 447).

The outcome of this quantitative survey was predominantly explanatory, although we wished to describe the populations’ characteristics, as our research design approach was abductive. We aimed to examine how interest in innovative technologies, trust, security and usability influence online gamblers’ decision to use cryptocurrency as a payment method. We divided the research question – ‘what drives consumers within the online gambling industry to use cryptocurrencies, such as Bitcoin, as a form of payment over other traditional payment options available?’ – into investigative questions, which were distinguished based on the data variables. Three types of data variables are factual and demographic, attitudes and opinions, and behaviour and events (Saunders et al., 2016, p. 445). Our questionnaire began with factual and demographic questions concerning age and gender, and continued with questions related to behavioural and event variables, such as online gambling habits and user experience of cryptocurrency. Lastly, the questionnaire presented questions related to attitudes and opinions, and investigated the influence of trust, security, anonymity, and usability.

Researchers can either create their own questions or exploit questions used in other questionnaires. Adopting or adapting questions used in other questionnaires may be necessary if the goal is to compare or replicate findings with another research (Saunders et al., 2016, p. 452). Researchers must also design the question form; questions can be open-ended or closed-ended (Neuman, 2014, p. 332). We decided to use mainly closed-ended questions, which reduce the number of irrelevant or confused answers to questions, and make the answers’ comparison easier (Neuman, 2014, p. 333). However, closed-ended questions may suggest ideas that the respondents would not otherwise have, and force respondents to give simplistic answers to complex issues (Neuman, 2014, p. 333). Careful planning, designing and wording of questions helps to avoid problems that could threaten the validity and reliability of answers (Saunders et al., 2016). Closed-ended questions have different types: list, category, ranking, rating, quantity, and matrix (Saunders et al., 2016, p. 452-453). We decided to use rating questions, which are often used to collect opinion data (Saunders et al., 2016, p. 457). Rating questions frequently use the Likert-style rating, where respondents are asked how strongly they agree or disagree with a statement on a rating scale.
In our study, we used the Likert scale ranging from 1 to 5, where 1 = strongly disagree and 5 = strongly agree.

### 4.4.3 Survey Testing

Upon creation of the draft version of survey, we had a number of friends take the survey and provide feedback on overall impression and understanding relating to the questions asked. As stated by Snijkers et al. (2013, p. 267), pretesting is an important procedure to undertake when developing a survey in order to improve its validity. Since the survey was written in English, and we were aware that a majority of the survey participants were not going to be native English speakers, we received feedback from both native and non-native English speakers regarding wording of each question. This was done to ensure clarity throughout the entire survey. During the first pretest, we received feedback regarding repetitive questions and questions that did not make sense. Our second pretest was conducted with an active user in the online gambling community. The feedback we received during this stage related to questions that were impossible to answer due to specific scenarios that occur from participating in online gambling activities. For example, “How much do you tend to spend per month on online gambling?” This is related to cases where players are winning a lot. The winnings tend to remain in their gambling accounts and players can go prolonged periods of time without making deposits, thus losing track of how much they are actually spending. In this case, those questions were removed from the survey. Our final pretest gave us more feedback regarding question clarity. This corresponded to adding more detail to stipulated answers to questions so that they were not too vague and gave the participants a better understanding as to the differences between each possible answer group. Once these changes were applied, the survey was ready to be distributed.

### 4.5 Quantitative Data Analysis

The results from the quantitative portion of this thesis were analyzed using a few different statistical analysis techniques. These included Cronbach’s Alpha to score the reliability of the study, descriptive statistics as a method to organize and present the data, and multiple regression analysis to analyze the relationship between the drivers of cryptocurrency use that we have discussed and consumer interest in adopting cryptocurrency online gambling. SPSS was used to facilitate the statistical analysis of this study. SPSS is a computer software package designed for analyzing quantitative data (Quinlan, 2011, p. 352). Data collected from the survey was exported from SurveyMonkey (the survey platform we used to perform the study) and inserted into SPSS.

#### 4.5.1 Cronbach’s Alpha

An important issue to consider when analyzing the responses from our survey is to measure its reliability. The reason being is that respondents may not always interpret the questions in the survey in a different way than what was intended, thus causing problems for the researchers in answering their research question (Saunders et al., 2009, p. 451). As such, we utilized Cronbach’s Alpha in order to calculate the internal reliability of the survey that we developed for this study. Cronbach’s Alpha ($\alpha$) is the most widely used statistical tool to measure the consistency of responses to a set of questions (Saunders et al., 2009, p. 451). This is attributed the fact that
Cronbach’s Alpha does not require two or more raters of the scale, which are requirements when using test-retest or interrater reliability methods. As such, it makes determining the validity of the study much less effortless when using Cronbach’s Alpha reliability testing (Streiner, 2003, p. 99). The formula for calculating Cronbach’s Alpha is denoted as:

$$\alpha = \frac{N}{N-1} \cdot \left( \frac{\sigma_X^2 - \sum_{i=1}^{N} \sigma_{Y_i}^2}{\sigma_X^2} \right)$$

In this case, N represents the number of survey items in the scale, $\sigma_X^2$ represents the variance of the observed total scores and $\sigma_{Y_i}^2$ represents the variance of item i for person y. The range of this statistic runs from 0.00 – 1.00 and the alpha score depends on the number of items in the scale. In general, an increased number of items in a scale has a tendency to result in an increased alpha score (Streiner, 2003, p. 101-102). There seems to be some debate on what is considered acceptable alpha scores, but scores ranging between 0.65 – 0.80 are generally considered acceptable (Vaske et al., 2017, p. 165).

### 4.5.2 Descriptive Statistics

Descriptive statistics involves the use of numeral, graphical and measurement techniques of location and scale to explore data sets and present what one has found (Kadane, 1978, p. 195). In other words, they provide the capability to comprehend and interpret the data set in a simpler manner (Welkowitz, 2011, p. 26). This process normally includes measures of central tendency and dispersion (Murray et al., 2008, p. 95). Measures of central tendency are a single number that describe the location of a set of scores (Welkowitz, 2011, p. 56). This includes measurement of the mean, median and mode. The mean measures the average score of a distribution, the median measures the middle score of a distribution, and the mode measures the numerical value with the highest frequency. Measures of dispersion refers to how scattered the scores in a distribution are and normally include frequency distribution, range, interquartile range and standard deviation (Welkowitz, 2011, p. 62). The frequency distribution takes into consideration the number of cases per category, the range is the distance between the highest and lowest scores, the interquartile range is the range within the middle 50% of the scores fall and the standard deviation is the average difference of each score to the mean (Murray et al, 2008, p. 95).

Subsequently, the study used the Pearson Correlation coefficient in order to measure linear dependence amongst the study’s variables. This correlation measurement tool is one of the most widely used measures of relationship (Zhou et al., 2016, p. 209). It provides an indication of strength of the linear relationship between two random variables $x$ and $y$. The coefficient ranges from -1 to 1, and the closer the value of the coefficient is to 1, the stronger the relationship between the two random variables is (Zhou et al., 2016, p. 210). A positive correlation would indicate a direct relationship, whereas a negative correlation would indicate an inverse relationship. As such, this means that given a positive relationship, an increase in $x$ would be linked to an increase in $y$. A negative relationship would indicate that an increase in $x$ would be linked to a decrease in $y$ (Zhou et al., 2016, p. 210).
Logistic regression is a popular method in terms of calculating maximum likelihood estimation amongst a binary dependent variable (Özkale, 2016, p. 992). This procedure is used to predict the probability of a binary outcome with the use of one or more categorical variables as predictors. The binary outcome being represented as a one (1) in the case of occurrence or zero (0) in the case of non-occurrence. An initial prediction test is conducted without the predictor variables included to assess an initial classification score (null model). This is followed further by a prediction test which includes the predictor variables in order to establish a predictive capacity that predicts the actual outcomes to a higher degree (Ramos et al., 2016, p. 136). This specific model fitted well with our study, given that we were looking to understand if certain predictor variables lead to a certain outcome that can be either yes or no; that outcome being cryptocurrency acceptance in online gambling. As such, the binary dependent variable is acceptance of cryptocurrency in online gambling (Accept = 1, Reject = 0). The independent variables (predictive variables) this study used to test this outcome were interest in innovative technologies, and perceptions of trust, usability, anonymity and security online gamblers believe to be associated to cryptocurrency use. Furthermore, a second logistic regression analysis was conducted that incorporated a separate set of predictor variables. Those predictor variables were cryptocurrency ownership, previous use of cryptocurrency as a payment method, belief that cryptocurrency has potential to be a major payment method in the future, and belief that investing cryptocurrency is the best option for cryptocurrency use. Since this study used more than two predictor variables, the equation for multiple binary logistic regression analysis is in the form of:

$$P(Y=1) = \frac{1}{1 + \exp[-(\beta_0 + \beta_1 \cdot X_1 + \beta_2 \cdot X_2 + \cdots + \beta_k \cdot X_k)]}$$

$P(Y=1)$ represents the likelihood of the outcome surrounding the dependent variable occurring, $B_k$ represents the slope, $X_k$ represents the independent variables, $\beta_0$ represents the parameter of the null model, $\beta_k$ represents the intercept and $\exp$ represents the exponential value of the intercept (Cohen et al., 2003, p. 79). In order to understand how good a predictor the multiple regression equation is proven to be, the coefficient of determination $R^2$ needs to be calculated. $R^2$ is the proportion of the dependent variables variance shared with the optimally weighted independent variables (Cohen et al., 2003, p. 70). However, logistic regression utilizes a pseudo form of $R^2$ and in the case of this thesis, used Nagelkerke $R^2$. In regular regression analyses, $R^2$ ranges from values of 0 to 1. The closer the value is to 1, the higher the relationship between the dependent and independent variables are. If the value is closer to 0, the relationship is much weaker (Cohen et al., 2003, p. 70). This also holds true for Nagelkerke $R^2$, however, in logistic regression models, which predict binary outcomes, the maximum theoretical value of $R^2$ will always be smaller than 1 (Pencina, 2012, p. 57). Nagelkerke (1991, p. 692) proposed a modified maximum $R^2$ which depends solely on the event rate and is expressed as: Max $(R^2) = 1 - \exp \{2n^{-1}l(0)\} = 1 - L(0)^{2/n}$. In this case, $\exp$, once again, represents the exponential value of the intercept, $n$ represents the sample size and $L$ is the logistical likelihood that determines the optimal values of the estimate coefficient Beta ($\beta$).

To provide further insight towards how Nagelkerke $R^2$ operates to assess maximum attainable $R^2$, take into consideration a binary outcome that has a 50-50 percent chance of occurring (50% Y=1...
and 50% Y=0). Nagelkerke (1991, p. 692) expressed that such a possible observation would yield a maximum $R^2$ of 0.75, which is unacceptable for an $R^2$ coefficient. Max ($R^2$) = 1 - $\exp \{2n^{-1} l (0)\} = 1 - 0.5 \times 0.5^{2/n} = 0.75$.

Table 4 provides an overview of the maximum $R^2$ alters as a function of the given event rate.

<table>
<thead>
<tr>
<th>Event Rate</th>
<th>Maximum R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>0.75</td>
</tr>
<tr>
<td>0.2</td>
<td>0.632</td>
</tr>
<tr>
<td>0.1</td>
<td>0.478</td>
</tr>
<tr>
<td>0.05</td>
<td>0.328</td>
</tr>
<tr>
<td>0.03</td>
<td>0.236</td>
</tr>
<tr>
<td>0.01</td>
<td>0.106</td>
</tr>
</tbody>
</table>

Table 4: Maximum $R^2$ as a function of the Event Rate (Pencina, 2012)

As is evident from the table, a low event rate generates a low $R^2$ value, which can lead to a misinterpretation of the measure in models that incorporate low event rates. To solve this, Nagelkerke (1991, p. 692) redefined $R^2$ as:

$$\bar{R}^2 = \frac{R^2}{\max(R^2)}$$

As such, it becomes consistent with classical $R^2$ and consistent with the maximum likelihood estimation method. Furthermore, it is asymptotically independent of the sample size, is capable of interpreting the proportion of explained variation and does not depend on the units used (Nagelkerke, 1991, p. 692).

Another important element to consider when using logistic regression analysis is the Goodness of Fit of model. Goodness of fit is evaluated by summarizing the discrepancy between the outcome (dependent) variable and the predictor (independent) variables, as denoted in aggregate without referencing their scale measures (Hosmer et al., 1991, p. 1631). In other words, it assesses the distances between the observed distribution and the distribution that is proposed by the model (von Eye & Mun, 2014, p. 23). This is important because it provides insight as to whether the regression model is capable of providing adequate predictive capacity (Hosmer et al., 1991, p. 1631). One such method of evaluating goodness of fit is through the Hosmer and Lemeshow Test, which was used in this study. This specific test calculates if the observed event rates match the expected event rates using elements of chi-squared and p-value to evaluate the goodness of fit of the model (Hosmer et al., 1991, p. 1631). A general rule of thumb is that if the outputted p-value from the test is less than your stated significance level (i.e. $p<0.05$) then the model reflects a poor fit. Subsequently, if the p-value is calculated as being higher than the stated significance level of the test, then there is reason to believe that the test is producing a strong fit amongst the variables. However, a large p-value does not always mean that the model fits well. If the sample size is relatively small, a high p-value may arise due to the test having lower power to detect discrepancies (Bartlett, 2014).
Once the significance level of prediction capacity is calculated, the test will then group the observations into “g” groups. This is normally done in groups of 10; g=10, with the observations being predicted as having the lowest 10% of predicted probabilities being inserted into the first grouping. The test will then insert the next 10% of the sample into the second group whose observations of predicted probabilities are the next lowest. This continues until the tenth group consisting of sample observations is created. This group consists of those with the highest observations of predicted probability within the sample. The expected probability of each group is then compared with its corresponding observed probability. If the two probabilities from each group have only slight deviations from each other, then one can assess a good fit within the model (Bartlett, 2014).

4.6 Ethical Considerations

Ethics is a critical aspect for the success of any research project (Saunders et al., 2016, p. 220). Ethics defines what is not legitimate to do or what ‘moral’ research process includes, and ethical issues are concerns, dilemmas, and conflicts that appear over the proper way to utilize research (Neuman, 2014, p. 145). It is important to consider ethical concerns that could arise during the research process, and how the access to undertake the research will be gained; otherwise good ideas may turn out to be problematic or impractical (Saunders et al., 2016, p. 220). Neuman (2014, p. 145) states that ethics begins and ends with the researcher; the personal moral code is the best defense against unethical behaviour. With this in mind, we aimed to ensure that ethical considerations are emphasized from the very beginning of this study. Following ethical principles during the data collection stage means that the researchers collect data accurately and fully, and avoid exercising subjective selectivity (Saunders et al., 2016, p. 255). We tried to maintain a neutral and objective perspective throughout the literature search by viewing concepts from different perspectives and using multiple sources for certain topics. Cryptocurrency and online gambling are topics that often raise strong opinions in people, so remaining objective was particularly important with these concepts. We aimed to combine widely recognized authors and their publications with recent sources to provide a relevant and comprehensive overview of all theories and concepts.

The discussion of research ethics has emphasized possible negative effects on research participants more than any other issue (Neuman, 2014, p. 147). Causing unnecessary or irreversible harm, humiliation, degrading, or releasing harmful information about specific participants is strictly prohibited in the law and codes of ethics (Neuman, 2014, p. 147). All research participation must be voluntary and obtaining permission is not enough; people need to know what they asked to participate in (Neuman, 2014, p. 151). With this in mind, we emphasized that the participants are fully aware of what would be required from them. As Saunders et al. (2016, p. 235) suggest, we composed a polite and clear introductory letter that outlined the purpose of the research, how the person being contacted might be able to help, and what is likely to be involved in participating. We also assured that the responses would be anonymous and seen only by us. Bell (2010, p. 48) states that researchers must be precise when they promise confidentiality and anonymity; imprecision about what is meant by the terms can lead into crucial misunderstandings. If researchers say that respondents will be anonymous, then under no circumstances can they be identified (Bell, 2010, p. 48).
Since this was a mixed-methods research, considering ethical issues from different perspectives was highly relevant for us. Traditional research and Internet-mediated research can raise different types of issues. According to Saunders et al. (2016, p. 264) qualitative research may lead to a wider range of ethical issues compared to quantitative research, although all research methods have specific concerns related to them. Guillemin and Gillam (2004, p. 263) suggest that there are at least two major ethical dimensions in qualitative research: procedural ethics and ethics in practice. Ethics in practice refer the everyday ethical issues that occur in the doing of research, such as participants indicating discomfort with their answers or revealing a vulnerability (Guillemin & Gillam, 2004, p. 265). To ensure the relevance of the qualitative interview we created for this study, we conducted pilot interviews to test the quality of the questions. Before each actual interview started, we introduced ourselves, the purpose of the research, and the role of the interviewee again. We also requested a permission to record the interviews and informed the participants that they can decline answering to any question (Saunders et al., 2016, p. 256). We avoided overzealous questioning or pressing the participants for responses; researchers’ behaviour must remain within appropriate and acceptable parameters (Saunders et al., 2016, p. 256). All interviews were held in English to maintain the equivalency of the responses, and to avoid problems with translating the answers from different languages to English.

The Internet may provide access to certain types of data, but its use raises different ethical issues and dilemmas (Saunders et al., 2016, p. 246). For example, ‘harvesting’ data from online communities without the knowledge and permission may be seen as violating the principles of gaining trust and the voluntary nature of participation (Saunders et al., 2016, p. 246-247). We aimed to avoid ethical issues in our Internet-mediated research by being open, informative and respectful towards the users of the online communities. By following netiquette, we ensured that our messages were clearly structured, relevant, and did not appear unfriendly or unclear (Saunders et al., 2016, p. 248-249). The use of incentives in a web survey may increase the response rate remarkably (Cobanoglu & Cobanoglu, 2003). However, it raises a number of ethical aspects that the researchers need to be aware of; the results may be biased if respondents answer the survey merely to get a chance of winning the prize, or if the incentive affects the responses in any way (Cobanoglu & Cobanoglu, 2003, p. 486). To avoid biased results and to maintain the promised level of anonymity, we did not use incentives in our research.
5.0 Qualitative Empirical Findings and Analysis

In this chapter we present the empirical findings from the semi-structured interviews conducted in this research study. We begin with defining our findings regarding the managerial perceptions of cryptocurrency and innovative technologies. Next, we discuss the findings regarding the managers’ perceptions of the online gambling industry itself. This is followed by our findings regarding how managers in the online gambling industry perceive the potential for cryptocurrency to be used in this particular industry. We conclude by discussing the findings on how managers in the online gambling industry perceive the opinions of their customer-base regarding the use of cryptocurrency.

5.1 Managers Knowledge Regarding Cryptocurrency and Blockchain

The first set of questions that our participants were asked during the interviews revolved around their own knowledge and experience surrounding cryptocurrency and blockchain technology. These questions were asked in order to decipher the level of knowledge the participants possessed on the topics, which could provide insight towards the rationality of their perceptions regarding the potential for cryptocurrency application in online gambling. It could be argued that participants who have had experience trading and/or using cryptocurrency would have practical experience and knowledge, that could be used towards making valid assumptions towards its feasibility in the industry.

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<th>Number</th>
<th>Question</th>
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<tbody>
<tr>
<td>1</td>
<td>Do you consider yourself knowledgeable when it comes to the topic of cryptocurrency?</td>
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<td>2</td>
<td>Do you have experience trading or using cryptocurrency?</td>
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<td>3</td>
<td>What reasons have led you to using (not using) cryptocurrency?</td>
</tr>
<tr>
<td>4</td>
<td>Could you explain your interpretation of blockchain technology and do you think it could be a useful tool to implement in the online gambling industry?</td>
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Table 5: Interview Questions on Managers Knowledge Regarding Cryptocurrency and Blockchain

When it came to the topic of cryptocurrency, our participants were all very consistent with their answers. They all stated they had an understanding regarding the technology but would not deem themselves experts on the topic. Interviewee (1) stated “I’m far from an expert. I know a little bit about it. It’s the classic topic. I know probably a little bit more than average (person), but I am still learning... I’m no expert. Interviewee (3) had a very similar response to this question stating “I would say I am somewhat knowledgeable. I am not an expert. I know the basic stuff – maybe intermediate”. Apart from one interviewee, all other participants also had experience using cryptocurrency to some degree, which gave them practical knowledge on the topic. An interesting discovery from this theme was that even though the participants had purchased cryptocurrency at one point in time, they had done so with investment purposes in mind, instead of acquiring cryptocurrency for the intention of using it to make purchases. Interviewee (4) stated “I’ve been investing in crypto. Only trading not using. I think it was mostly because of my friends that I
trusted, were talking about it a lot and gave me some investment ideas. So I just did what they said.” Similarly, interviewee (2) stated “Yeah, yeah, I traded, I never actually used it to pay with, but I did some trading, yes. I think it’s best to hold. Because it’s heavily influenced by ‘whales’ basically, like they dump a massive amount of coins to the market and the price is very volatile, and you could get it wrong on a day-to-day trading aspect. So, the best way to do it I found from my experience, is to shut down the news, and store the coins away from the exchange, and just forget about them for a couple of months or even years.”

When it came to the topic of blockchain, our participants had varying levels of knowledge regarding the technology. Interviewee (1) was a little uncertain regarding the functions of blockchain stating “Honestly I don’t know a whole lot about the thing. The blockchain, I guess, is what from a lot of my views on this is when you speak to people who know a lot about it, you tend to pick up certain things. So the view I have on this aren’t exactly 100% my own, it’s more like what I pick up from people. I don’t have the full details on everything. I do know that the people speak very highly of the technology in general. Not just for the currencies in general, but wid;,. but I don’t know too much more than that.” Interviewee (3) had a pretty good understanding regarding blockchain stating “Yeah, well as I understand it, blockchain is a distributed ledger or a distributed database in a network in which any kind of change in the ledger needs to be verified by all of the components of the network. So there’s no centralized storage of any kind of data that is in the blockchain. So nobody can hack it, nobody can meddle with it. Yeah, that’s my understanding of it.” Interviewee (5) also had a good understanding regarding blockchain, stating “If I just say a couple words about blockchain, it is basically a decentralized ledger of all transactions in a network. So like there is another transaction that is broadcast to other nodes or computers in a network the network of modes will validate the transaction and at that stage the transaction is complete.”

A second component of the question we asked our participants regarding blockchain was focused on if they believed blockchain technology would be a useful tool for their company to adopt and implement in their business practices. This portion of the question resulted in a more consistent range of answers from our participants. Interviewee (3) saw possible areas where the blockchain technology could be implemented within the online gambling industry, stating “Yeah, I think it could be [useful], especially when it comes to the part, for example, when there are disputes between players and casinos or certain problems with match fixing. I could see that happening. Setting odds for events. Maybe even payments, player data.” Interviewees (2) and (5) believed that blockchain could make current customer identification processes easier. Interviewee (5) stated, “Most of our headaches are KYC’s of customers [know-your-customers]. You have to obtain a passport photo, proof of address, bills… In the UK it is even pay slips. It is a nightmare... And let’s say a player plays on five different casinos, he is going to have to go through this process with five different casinos. Whereas with blockchain, as soon as the player is registering with my own... One of my sites, then in an ideal world I have already verified... The blockchain would have already verified this player. So it would be a win-win situation where neither myself or this player has to go through this process so many times.” Interviewee (4) was more skeptical than the other participants, stating “I don’t think it’s gonna be a big thing, at least not in the near future.”

This led to the discovery of a new theme blockchain in online gambling. The background on this theme came from the managers showing more interest in blockchain and its potential over
cryptocurrency. Whereas they would not rule out cryptocurrency as having a future in online gambling, there was a sense that blockchain technology could have more of a positive immediate effect on streamlining processes for companies in the industry.

5.2 Cryptocurrency and Innovative/Disruptive Technology in Online Gambling

The second set of questions that we asked our participants focused on innovative and disruptive technology. The main idea here was to gain insight towards how our participants viewed innovative and disruptive technology and their impact on the online gambling industry. Furthermore, it was important that we identify if they believed there was merit in considering cryptocurrency as a form of disruptive technology and if the managers viewed it as a viable technology to adopt in the industry. As such, we could distinguish if there was a positive perception towards disruptive technology emergence in the online gambling industry and if cryptocurrency could be considered a relevant element towards this particular topic. This lead to follow-up questions, which investigated the overall perceptions the participants had regarding the potential use of cryptocurrency in the online gambling industry. This included questions relating to the perceived impact cryptocurrency would have on their company if it were to be adopted, how they observed particular constraints of cryptocurrency affecting strategic decisions to adopt it and how they envisioned the future prospects of cryptocurrency.

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<tr>
<th>Number</th>
<th>Question</th>
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<tbody>
<tr>
<td>1</td>
<td>How would you define innovative and disruptive technology, and do you believe it is present in the online gambling industry?</td>
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<tr>
<td>2</td>
<td>Do you view cryptocurrency as a disruptive technology? Why or why not?</td>
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<tr>
<td>3</td>
<td>Do you perceive the need for your company to adopt cryptocurrency as a payment option?</td>
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<tr>
<td>4</td>
<td>What kind of impact do you perceive occurring if your company were to adopt cryptocurrency as a payment option?</td>
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<tr>
<td>5</td>
<td>How do you perceive the current situation surrounding cryptocurrency such as its volatility and restrictions imposed on it by certain countries and governments?</td>
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<tr>
<td>6</td>
<td>Do you see these restrictions as major barriers to your company implementing cryptocurrency as a payment method?</td>
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<tr>
<td>7</td>
<td>How do you envision the future prospects of cryptocurrency?</td>
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<tr>
<td>8</td>
<td>Do you believe innovation and/or disruptive technology is a vital component to the long-term growth of your company?</td>
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Table 6: Interview Questions on Cryptocurrency and Innovative/Disruptive Technologies in Online Gambling

In general, the interview participants had a consistent outlook towards the concepts of innovative and disruptive technologies in the online gambling industry. Most viewed disruptive technology as opportunity to improve current processes within the industry. Nevertheless, many participants expressed that they do not think that disruptive technology is present in the online gambling industry. It is important to note here that when we refer to innovative and disruptive technologies, we are referring to them in a general sense, and not specifically cryptocurrency. Interviewee (3) stated, “I would say that’s [disruptive technology] something that’s not improving existing
technology but kind of like doing something completely revolutionary in a way that shakes up the entire ecosystem. It threatens the old players in the system. When it comes to the online gambling industry, I don’t actually think it’s very innovative or disruptive. It seems to be lagging behind other industries.” Interviewee (4) shared the same view, stating “Brings something, something new for the industry. And, totally different and new. Changes things or the way people look at things or something like that. If I believe it is present... Maybe not as technology. Hmm... No, no I don’t think so.” Similarly, interviewee (5) did not think that disruptive technology has been a key success factor in the online gambling industry, “And if I believe it [disruptive technology] is present in the online gaming industry... Yes and no. The online gaming industry per se, is quite innovative and is quite fast paced, so it is already a bit disruptive. However, I don’t see yet that company that came up with something so disruptive that has been able to take most of the market share. Whoever has the highest market share today, it is not because of disruptive technology, but because of either being first to the market or having huge marketing budgets or through acquisitions, but not through disruptive technology that made everyone shift over... Not yet.”

Even though the majority of the interviewees were not convinced that disruptive technology is present in the online gambling industry, each participant’s response was corroborative when we asked if they believed that innovation and/or disruptive technology was vital to the long-term growth of the company. The risk of falling behind competitors was expressed by many participants. Interviewee (2) stated, “Not innovating means you’re falling behind to competition, so we cannot close eyes on the blockchain for example as a technology, you cannot say it doesn’t apply to us, so just shut the doors and forget it... Yeah, you have to keep an eye on it, keep monitoring, because a useful case will actually eventually pop up, which will give you a lot of benefits, and if a competitor adopts it before you, then you’re already in a disadvantage with them. So, I would say, keep an eye on this disruptive tech even though it’s not clear what benefits it will bring, because if you don’t, you will fall behind.” Similarly, interviewee (5) said “I think that with any company in the world that is predominantly technology driven as well if you stop being innovative or disruptive, your market share will be taken away by the newcomer.” Interviewee (3) believed that innovative and disruptive technologies are vital because customers will have different preferences in the future. “There are still lots of people that belong to the older age groups, which are customers and clients. But some point more and more young people are going to be customers. And they are people who have grown up with disruptive technology so I think it is something they will look for in a product.”

An interesting comparison to these answers was when we asked the participants if they believed cryptocurrency could be perceived as an innovative technology that could disrupt their market. Whereas their answers were more consistent when discussing the impact of innovative technologies in their industry, their answers became more mixed when discussing the idea of cryptocurrency as a disruptor. Interviewee (5) believed that cryptocurrency could become a disruptor in the future, but not at the current time, stating “I don’t believe so [cryptocurrency disrupting the industry] because the gaming industry doesn’t want to adopt cryptocurrency with all its risks. And people might see it as a huge risk, using cryptocurrency. And I might recall in the early 90’s people were skeptical to use their credit cards and to buy on eBay because, of course, everyone was skeptical regarding what would happen with their credit card details and what they would do with it. And then I see it... In time everyone started using it and today we don’t even... It’s day-to-day that we use credit cards to buy things and more so cryptocurrency will be the same,
but today, as of 2018, I don’t see it as a disruptive technology that will happen today. It might be in 5 years’ time…” Interviewee (2) stated, “I think eventually it will replace the physical form of paper money. But obviously, by [people] holding [cryptocurrency] doesn’t help, we need usage, we need cheap transaction fees, we need it to be simple. If it’s not simple the average person won’t be able to transact with it. So as a disruptive technology, I’m not sure how cryptocurrency could be part of it, but disruptive technology in my mind is for example, mobile phone [payment technology]. Interviewees (3) and (4) had positive views towards the disruptive effect of cryptocurrency in their industry, respectively stating “Well yes, I would… Because it might change a lot of the ways in which we do things like processing payments” and “Yes, yes. Because it changes the way you can move data”.

This brought us to the point where we asked the participants if they felt there was a need or desire for their company to adopt cryptocurrency as a payment option. The overall consensus from our participants was that it was not necessary at the current time. Interviewee (1) cited current trends towards regulation in the industry and perceived consumer interests as the main arguments against adopting cryptocurrency, “We try to be front runners when it comes to regulation and compliance and jumping on the cryptocurrency train right now would not really help us in that sense. It’s something that we could offer for sure, but it’s not something that we would have to have and it’s definitely not something that we would go out and promote. Though until we get to the point when people start spending cryptocurrency, I don’t really see a good fit for it in online gaming”. Similarly, interviewee (3) cited trends towards industry regulation as a detriment to cryptocurrency adoption, “I think at the moment that the whole issue of compliance happening around it would just put more strain on the company to enter something that is so unregulated. So I think at the moment the company will not do something like that, because it will just be adding a lot of uncertainty and risk to the already risky environment that we’re in”. Interviewee (5) perceived a need for adoption but only when cryptocurrency is regulated, stating “Not today, not today. But eventually, yes. We need to go there. Let’s say how much does it take to regulate cryptocurrencies… Let’s say in a couple of years… Two to three years, I’m sure it will be regulated. So at that stage I think we’ll need to be there.” Interviewee (4) stated that the need for adoption correlates with cryptocurrency market prices, “If you look at for example the Google trends of the people, searching for Bitcoins, I mean the word Bitcoin, it has gone down. So, six months ago I was like really asking could we get it as soon as possible, but at the moment, it’s kind of a nice thing to have but… I don’t think it as important as it used to be. But, as we never know how the price is gonna go, and like, if it’s gonna kind of start booming again, so it’s good thing to have it for the future.”

A related question that was asked after the participants discussed their perceptions towards a potential need or desire for cryptocurrency adoption was what sort of impact they perceived as occurring should cryptocurrency be adopted in the industry. The overall perception drawn from this question resulted in views shared by the majority of the participants that cryptocurrency adoption could in fact hold negative consequences. This was related to the suspicious nature of cryptocurrency and created another theme for this analysis: reputation of cryptocurrency. Interviewee (1) brought this up by stating “Even if there is nothing dodgy about it [cryptocurrency]. If countries [continue to] ban it… It’s making it look dodgier as well. Like authorities and regulatory people are… They’re not exactly the ones the most up to date and we’ve seen in the past that they’re the ones the most easily influenced by you know… If media is writing
something that is always overcoming the truth for people who are not... The thing is it’s quite a standard thing right, so if you don’t have good knowledge about something... It’s a little about myself as well about this whole cryptocurrency thing, if you don’t have the proper knowledge to be coloured [influenced] by the media... And these influences are everywhere.” Interviewees (4) and (5) shared the similar view regarding the power that media has, respectively stating “It all depends on the prices and of the media attention Bitcoin and cryptocurrencies get” and “I mean even from when looking at how the media speculates about Bitcoin in movies and series that we actually watch and read. They always connect it with human trafficking, drugs, weapons.” These views were similarly shared by interviewee (2) who said “Potentially, I think that it might also have negative consequences... The problem is, unfortunately, I think still some people think that cryptocurrency means black market. And by supporting such methods, when the general population is still unclear on what cryptocurrencies are, might leave more damage than good.” Interviewee (3) also shared this point-of-view stating “So I think that could be a negative impact, because unfortunately companies dealing with cryptocurrency have this like stigma that they are like shady or dodgy. And I don’t think it is something that Company X would want to be associated with in the current climate”.

This brought forth the theme of holding cryptocurrency. The majority of the participants raised this as a point as to why they did not believe adopting cryptocurrency as a payment option would be a good idea at the present time. They felt that people who have cryptocurrency in their possession would rather hold onto it and wait (hope) for its value to increase instead of spending it. Interviewee (1) backed this point by stating “They’re [people] buying crypto to hold them... And hold them long because they think of it as an investment. And you know you hear all these stories... Like the guy who bought a pizza back in 2008 for like 500 Bitcoin... And no one wants to be that guy right. No one wants to be those guys who could have been a billionaire and bought a Margherita instead.” Interviewee (5) had similar thoughts, “If I had to adopt Bitcoin I would with a lot of traders who are putting money in my casinos and just withdraw when the time is right. Rather than just using it to play. It is still very volatile.”

Each participant perceived the current situation surrounding cryptocurrency ab being very volatile. Interviewee (3) said, “I think it has been going worse and worse the couple past months. And the volatility is insane. So that is a problem for investors and also companies using it.” Interviewee (5) had a similar view, stating “Yes, I mentioned earlier it is very volatile. And that is one of the reasons that most of the payment processors are not adopting cryptocurrency. Because as you know the Bitcoin in the morning, the value might be quite different in the evening. So even on day-to-day the volatility is so high and that scares people away... And the industry away.”

This brought us to another theme that was raised through the analysis of the interviews: regulation. Non-regulation posed another barrier in the minds of the participants towards adopting cryptocurrency in their business processes. Interviewee (3) emphasized this with the following, “I think it [cryptocurrency] would pose a lot of challenges for the fraud department and the payments department at the moment because like what I have been hearing with regulation, especially in the UK, now that we want to enter more and more regulated markets, that might be a problem.” Interviewee (2) stated, “We need some regulation, on at least on the exchange of value aspect of it, because it’s [cryptocurrency] a bit too volatile.” Also, interviewee (4) expressed that there is a
need for higher control, stating “I think the restrictions by the countries and governments are a good thing in the long run. So it needs to be somehow controlled.”

From this, we were also interested in gathering insight towards how the participants viewed the future prospects of cryptocurrency. This provided us with more detailed information relating to whether, at this point, the idea of cryptocurrency adoption was a flat-out rejection by our participants or if it was something that could have potential in the future. The answers we received had a more positive outlook on the idea in terms of future potential. However, several participants expressed that there are too many cryptocurrencies at the moment. Interviewee (4) brought this up by stating “I think there’s too many, so many different cryptocurrencies at the moment that doesn’t make any sense at least for me, so... I think some of them will be used, but most of them, no. So it’s gonna be a rough ride, in the future.” Interviewee (2) had similar thoughts, stating “So, by time, the bad ones will kind of wither away, hopefully also with some regulation, and the good ones will stand out. The duplicate ones, the ones which don’t really exist, only on a white paper kind of thing, they have to wiped out. And when that’s clear, then we start evolving and maturing and utilizing the benefits of these cryptocurrencies.” Interviewee (3) said, “I think that at some point, probably, we are going to have a longer period of uncertainty with new coins and stuff like that. At some point there will be like a winner when it comes to the technology.” Interviewee (5) stated that cryptocurrency can have a future when it is regulated, “So we believe in this future, however, it is not today. So until cryptocurrency gets regulated and then until finally there would be a bank that would endorse and acknowledge that the cryptocurrency would be able to trade through this bank. At that stage we can actually have a future.”

5.3 Managerial Perceptions of the Online Gambling Industry

Our third set of questions were related to the online gambling industry and its competitiveness. The purpose was to form a view of the industry structure by examining how the participants describe competition in their industry, and if they feel that the competition varies between different geographical areas or certain divisions. It could be argued that highly competitive industries require firms to be more innovative and agile. By examining this area, we could distinguish if the level of competition in the industry had an influence on how the participants viewed innovative and disruptive technology.

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<td>1</td>
<td>How would you describe the competition in the online gambling industry?</td>
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<td>2</td>
<td>Do you feel competition is stronger in certain geographic areas?</td>
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<tr>
<td>3</td>
<td>Do you feel competition is stronger in certain divisions of online gambling (i.e. online poker vs. sports betting)?</td>
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Table 7: Interview Questions on Managerial Perceptions of the Online Gambling Industry

When we asked the participants to describe the competition in the online gambling industry, all responses were very consistent. Interviewee (3) stated “I think it [the online gambling industry] is extremely competitive and it has been extremely competitive for a long time”. Interviewee (1) described the competition “very high”, and interviewee (4) called it “extremely harsh”. Interviewee
(2) shared the similar viewpoint by stating “I think the market is very mature. It’s a very stiff competition.” The majority of the participants found Scandinavia and the United Kingdom as the most competitive markets. For example, interviewee (2) cited “I’d say this Scandinavian market is... Like for example, Sweden is very... There’s a lot of competition happening there in the online gambling industry.” The majority of the participants mentioned “regulation” as one factor that induces high competition in certain markets. Similarly, Interviewee (5) viewed the Nordics as the market with the highest rates of competition- “Currently, the competition is very fierce. Because most of our markets... most of our countries, especially in the Nordics are not regulated yet. Where it is unregulated, the entry barriers are basically inexistent, the competition is very high. Whereas in the regulated markets it is much lower”. Interviewee (4) stated “the UK is a huge market. There are a lot of traditional big companies there. But they have the local laws that are banning... Making the marketing very hard at the moment. So they kind of have to look at the local laws all the time when doing the marketing, so that is going to cut out all of the... Well not all... But it’s going to cut out a lot of smaller competitors.” Interviewee (2) had similar thoughts about the regulation and different requirements that firms need to take into account. “So I think, competition is not just about being creative with the latest and greatest, now you also have to be in line and compliant, so, you need to be quick, and keeping up with these new regulations.”

We also asked if the participants felt that the competition is stronger in certain divisions of the industry, such as in online sports betting or in online poker. The responses were mostly consistent, as majority of the participants did not find a certain division more competitive than others. However, many participants had a feeling that online poker might be the least competitive division. Interviewee (3) stated “For me they all [different divisions] seem equally competitive. I am not sure... I know there is less money to be made for example in poker. Then there is also the part if it is a profitable thing to pursue at all. So yeah, it would be very difficult for me to like out one of those divisions.” Similarly, interviewee (2) told “I don’t think there is a massive defense... Like, of course, poker is not as popular as sports betting for example. When we see our numbers, our poker player bases, fraction of our sports user base... But I think it faces the same challenges and same competition.”

5.4 Cryptocurrency Use in Online Gambling

The fourth part of the interviews focused on cryptocurrency use in the online gambling industry. We examined whether the participants viewed cryptocurrency as a viable option to be used in the online gambling industry or not. Furthermore, we asked if the participants felt that a certain geographical region or division of online gambling would be more accepting towards adopting cryptocurrency. The purpose of this theme was to examine the participants’ views about the potential of cryptocurrency use in the online gambling industry in general.

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<td>1</td>
<td>Do you see cryptocurrency as a viable option to be used in the online gambling industry?</td>
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<tr>
<td>2</td>
<td>Do you feel any specific geographical area or division of online gambling would be more receptive towards adopting cryptocurrency?</td>
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Table 8: Interview Questions on Potential for Cryptocurrency Use in Online Gambling
Some of our participants viewed cryptocurrency as a more viable option to be used in the online gambling industry than others. Interviewees (4) and (5) had positive outlooks towards the use of cryptocurrency in their industry, respectively stating “I think it will be used as payment method and I don’t see any reason why it wouldn’t be used” and “Yes, why not? Not today as I mentioned earlier, but yes.” Interviewee (2) believed that cryptocurrency could potentially be a viable option, and presented an idea of online gambling companies developing their own cryptocurrencies. “For example, let’s say I’m playing the casino and I level up and I get tokens, and... Why wouldn’t these tokens be a cryptocurrency, which I can utilize, not just on our own website... I would say why would I give money away for other websites, but let’s say in the case of Company X which has multiple brands, and one token is applicable to other brands within that group... Maybe, that’s one use case I can imagine, which would be beneficial.” Interviewees (1) and (3) were less optimistic but they saw some potential in the long-term if the general acceptance of cryptocurrency increases. Interviewee (1) stated, “I think that for cryptocurrency to be a viable option for online gaming it first has to become a viable option for everyday use. That’s my personal opinion of it. If the cryptocurrencies are being used in an everyday situation... Yes. Until then no. I think in general, these sites that offer cryptocurrency are a bit dodgier, unregulated sites. I definitely think that the whole crypto thing has to become more serious”. Interviewee (3) had similar opinions, “I think that it [cryptocurrency] has a chance if some things come together, for example, it’s acceptance in the wider community and institutions. And for as long as it doesn’t have this negative reputation that it has today. So I think that it could happen, but I don’t think it is going to happen anytime soon. In the long-term, yes.”

A second question of the theme examined if the participants felt that any specific geographical region or division of online gambling would be more accepting towards adopting cryptocurrency. This question resulted in a varying range of answers from our participants. Interviewee (5) stated, “Usually the Nordics are the disruptors, the tech-savy’s... Whereas the Mediterranean’s are the ones reluctant to shift over to new technology until it is fully tested or proved.” Interviewee (3) believed that either small jurisdictions or advanced economies would be the most accepting towards adopting cryptocurrency, “Well I know that certain smaller jurisdictions want to be the first to adopt it because that would be their competitive edge when it comes to competing with other larger countries. And I know, for example, that Malta wants to become the blockchain island and to implement it in relation to online gambling, but I don’t know how that is going to work yet. I think it’s like either these smaller jurisdictions or very advanced economies.” Interviewee (2) mentioned that some countries have already more accepting attitude towards adopting cryptocurrency, “Like China for example, a complete crackdown on ICOs, it showed clear that it doesn’t want to associate itself with it for now at least until... I understand it, but then the case of Malta and Switzerland for example. They’ve already established these kind of acceptance towards blockchain, exchanges and cryptocurrencies in general”. Furthermore, some of our participants believed that online poker players would be more accepting towards adopting cryptocurrency than other divisions of online gambling. Interviewee (4) brought this up stating “I would say... Division of online gambling I would say poker because poker players are used to moving money around and making kind of crazy investments and using this kind of technology. So... I would say poker would be the one that could take it first.” Interviewee (1) had a similar view, “I think in general, poker players are more into cryptocurrencies than other people.”
5.5 Managers Perceptions on their Customer-Base Using Cryptocurrency

This section was constructed as a method to directly link the perceptions of the managers towards their thoughts on whether their customer-base would be receptive towards using cryptocurrency and the results we obtained from the quantitative portion of this thesis. As such, it would give us an understanding as to whether the thought process regarding cryptocurrency use in online gambling from both spectrums of the industry were aligned.

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<td>1</td>
<td>How would you describe your customer-base?</td>
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<td>2</td>
<td>Do you think the customer-base differs among the various divisions of your company?</td>
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<td>3</td>
<td>Do you see innovative or disruptive technology, such as cryptocurrency, as something that could entice traditional gamblers to try out online gambling?</td>
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<td>4</td>
<td>Do you believe your customer-base would be receptive towards adopting cryptocurrency as a method to make deposits and collect winnings? Why or why not?</td>
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<tr>
<td>5</td>
<td>Do you think any specific group of online gamblers would be more receptive towards using cryptocurrency in online gambling?</td>
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Table 9: Interview Questions on Managers Perceptions Regarding Cryptocurrency Use by their Customer-Base

When we asked the participants to describe their end user customer-base, responses were very consistent. Majority of the interviewees stated that their customers are mostly young or middle-aged males. Interviewee (3) said, “So for us it is mostly middle-aged men that like sports, because that is what we are promoting. Just guys who like to watch sports and then bet as well.” Interviewee (1) stated that engaging female customers into online sports betting is difficult, “In general, the average guy I would say... Mostly men in this industry. We try to engage women... It’s hard for sports for some reason. They tend to like casino and the bingo games... Stuff like that.” Similarly, interviewee (4) stated, “It’s pretty much all over the place. But 75% are male. And it’s also quite young. 20-30-year-old males. They gamble the most so... That’s it basically.”

A related question that was asked after the participants described their customer-base was focused on if they thought that the customer-base differs among the various divisions of the company. Interviewee (5) said that in the online sports betting division some customers are gambling for living, unlike the customers in the online casino division. “And then we have VIPs who spend a lot more money, and see it more than just a hobby, but a way to earn income... Especially in sports where we have sort of provision in patterns where it is almost a full-time job where they are trying to earn money from just the sportsbook alone. You’d have the guy who watches the football match just for the sake of doing so, while others do it for a living. In casinos, it is different. There isn’t really the element of skill.” Interviewee (3) believed that online casino players are seeking more thrills than online sports bettors, by stating “I know that like the casino tend to be more different in the sense that they’re more... Even within the casino vertical, you have different segments of customers, but they tend to be more about the instantaneous thrills, like for example, playing the slot machines. And big wins and stuff like that. Whereas in sports it’s more like... They’re not huge wins... Unless you’re making crazy bets. It’s more like entertainment I’d say. With casino it is way easier to get out of hand.” Interviewee (1) brought up that most customers tend to stick with one
division, “There’s not that many people who are like you see more services... They tend to stick to one. Like either casino, sports or poker. There aren’t that many who are able to like cross verticals, but no there’s no big difference really.”

When we asked the participants if they saw innovative and disruptive technology, such as cryptocurrency, as something that could entice traditional gamblers to try out online gambling, the question resulted in a versatile range of answers. Interviewees (4) and (5) were sceptical, respectively stating “I mean if they are traditional gamblers that are gambling in traditional casinos like brick-and-mortar casinos then they are not... I don’t see it likely that they would want to even test cryptocurrency” and “I mean, if you are to look at these traditional gamblers, these guys don’t trust credit cards, let alone cryptocurrencies”. Interviewee (3) was more optimistic, stating “I am trying to connect it to something that I think used to be the case in the past where you had these payment methods like Skrill or Neteller that used to do a lot of gambling promotions so I think they probably used to send a lot of non-gamblers into online gambling, just because they used that payment method. So I think that maybe if some of the people holding the cryptocurrency saw that could use it for online gambling that they would be willing to try online gambling for the first time.” Interviewee (1) believed that artificial intelligence and machine learning could be useful tools in customer engagement, “Well definitely. If you look at... There’s still a huge amount of gaming being done in retail. You have your casinos and your shops and whatever... There’s still a massive market. And I think online you have total different possibilities in terms of customer engagement and what you can actually do like... Just look at like machine learning and AI, these things are super powerful tools.”

We also asked the participants if they believed their customer base would be receptive towards adopting cryptocurrency as a method to make deposits and collect winnings. The overall consensus from our participants was quite consistent; customers might be receptive if cryptocurrency becomes more regulated and widely accepted. Interviewee (1) stated, “If the cryptocurrencies are being used in an everyday situation... Yes. Until then no.” Interviewee (5) stated that cryptocurrency needs regulation until online gamblers would be receptive, “I think that for the online gambler to be receptive, they need to trust. So I believe that once it [cryptocurrency] regulates, there will be some whole users, because of course, there are some already. But I don’t think it will be the majority.” Interviewee (3) saw that the potential receptiveness of customers is dependent on the future of Bitcoin and Ethereum, stating “It really depends on what happens with Bitcoin and Ethereum in the near future. Because if it turns out that it really was a bubble and everything collapses, I think people will be warier of using it. So I think it really depends on what is really going to happen in the next year. If they [customers] continue seeing people making a lot of money, I think they might be more susceptible to it.” Interviewee (2) believed that providing the option to make deposits and collect winnings in cryptocurrency would not bring in new customers. “Yeah, the existing ones [customers] I think some of them would be interested in trying it out like I said before but I don’t think just having this option would bring in new players, at least this is the way I see it right now, on our website.”

Once again, the theme of holding cryptocurrency instead of spending it was raised. Interviewee (1) explained that the “holding cryptocurrency mentality” that people who have cryptocurrency possess as a reason as to why customer demand to use the technology at the current time is not a major issue. “People are not buying cryptocurrency to pay in cryptocurrency. They could just use
their own money. They’re buying crypto to hold them... And hold them long because they think it’s an investment.” This sentiment was also shared by interviewee (4) who also believed there was no real reason for people to switch their purchasing methods at the current time. “The ones that are already using like euros, but only with bank transfers and that sort of stuff, but if they don’t already have crypto, I don’t see any reason for them to start using it. I know there must be quite many gamblers that have some crypto but are still only using or transferring euros”.

As the last question of this theme, we asked the interviewees if they thought that any specific group of online gamblers would be more receptive towards using cryptocurrency in online gambling. The responses were similar when we asked the participants if they felt that any specific geographical region or division of online gambling would be more accepting towards adopting cryptocurrency. Again, majority of the participants mentioned poker players as a group that could be more receptive than others online gamblers. Interviewee (4) stated, “Yeah I think it’s like I said, poker is for sure... It is going to be the one that is more receptive towards it.” Interviewee (3) saw that young people and poker players could be more receptive, stating “I am not sure about the different verticals. It has more to do with the age groups, so I think younger people would be. Maybe... I could see poker players fitting that profile as well.” Interviewee (5) believed that online gamblers who play games which require skills, could be more receptive towards using cryptocurrency. “But if I were to try and say who would be linked to being the first adopters of cryptocurrency, I would say... Would be guessing those guys who are adopting the skills portions of the games, who are trying to think outside the box. So more of the poker and sports guys.”

5.6 Thematic Analysis and Discussion

As mentioned in the earlier sections of this chapter, there were a few specific themes that were derived from the data collected through the interviews. These corresponded to terms and topics that were brought up on a consistent basis amongst each of the interviews conducted and held some form of importance. Those themes included blockchain application in online gambling, holding cryptocurrency, regulation, and reputation of cryptocurrency and will be discussed in the following section.

5.6.1 Theme: Blockchain in Online Gambling

A widespread perception that our participants expressed was that blockchain technology provides more of an immediate and positive impact on streamlining the processes in online gambling than cryptocurrency. Despite cryptocurrencies, such as Bitcoin, functioning through the use of the blockchain, all but one of our study participants believed blockchain technology would be a very useful tool to implement, and at the present time, as a separate entity from cryptocurrency. Ideas that came up regarding the other possible uses of blockchain technology in online gambling ranged from streamlining customer registration throughout multiple gaming sites and divisions to helping improve the process of solving disputes between players and casinos or solving problems with match fixing. As such, the general consensus was that given that these particular processes were already in place, and that the belief that blockchain technology could help improve these processes, that implementing blockchain technology would be something that would occur earlier than implementing cryptocurrency. They felt that the industry was more prepared at this stage in time.
to effectively use blockchain technology, but that there were still issues relating to cryptocurrency that needed to be improved upon before the industry could successfully adopt it. What is equally as important to discuss is how there was division of opinion between our participants regarding the online gambling industry experiencing a presence of disruptive technology. As previously stated, the opinion regarding this was split, yet the idea regarding the importance of operating a business in an innovative and disruptive manner was widely accepted by the study participants. This could stipulate that there is opportunity for growth in this industry to those companies that are willing to operate differently and offer new processes. And in this case, blockchain technology was viewed positively by managers in the online gambling industry as something that fulfill this requirement.

This relates closely to the idea of disruptive technology, which we discussed in our theoretical framework. Christensen et al. (2015) mention the implementation of a “disruptive” mindset as a means for smaller companies with fewer resources to appropriate market share from industry incumbents. An interesting discovery from our study revealed that the managers we interviewed who work for Company X, a large incumbent in the online gambling industry, were fully aware of this an agreed on the importance of remaining innovative and providing new and “disruptive” products to maintain market share. This was one area that all of our participants agreed upon unanimously. They all discussed the need to differentiate in order to remain competitive in the industry, and thus, maintain or even increase market share. The consensus was that failure to do so would be to fall behind the competition and eventually become irrelevant. The majority of the participants even directly cited blockchain technology as a means of creating a competitive advantage that could lead towards increasing market share in the industry. Furthermore, we learned that from a managerial perspective that blockchain was viewed as a disruptive technology, but the same views were not shared regarding cryptocurrency. As such, the proposition of adopting cryptocurrency for such reasons as creating a competitive advantage through its potential as a disruptive technology was approached with more hesitation and uncertainty. There was the concern that the online gambling industry was not quite ready to adopt it yet. These concerns will be discussed in the following themes.

5.6.2 Theme: Holding Cryptocurrency

Another theme that was derived from the data analysis was the idea of holding cryptocurrency. As previously mentioned, this was cited many times throughout the majority of the interviews. Holding cryptocurrency is the concept of obtaining a form of cryptocurrency and holding it in an attempt to gain increased wealth if the price of the cryptocurrency increases beyond the price paid for it. However, there are risks associated with this strategy, specifically exchange-rate risk, since the price of cryptocurrency is extremely volatile and has a tendency to fluctuate quite rapidly (Moore, 2013, p. 148). Yet, despite the volatility of cryptocurrency, people still seem willing to hold onto it and use it as an “investment” tool instead of using it as a currency to make purchases with. This resonates with companies as well. Currently, the risk factor may be too high for companies to accept the idea to adopt cryptocurrency as a payment option since price fluctuation is so high. This was made evident from the perceptions of the managers we interviewed regarding volatility of cryptocurrency and the risks it posed. Furthermore, there is no widespread use of cryptocurrency as a payment tool. This can be attributed to the mainstream concept of “hodl”. Hodl (a niche word commonly used by cryptocurrency users) refers to the widespread
determination by cryptocurrency users, such as Bitcoin, to hold onto their cryptocurrency in the hope that it will exponentially appreciate, and thus, earn tremendous returns (Financial Times, January 2, 2018). This phenomenon can be attributed to a few different circumstances. One, the collapse in confidence in traditional forms of authority and the opinions of financial experts. And secondly, the widespread belief in cryptocurrencies and the “trustless networks” that they run on, all of which is fueled by cryptocurrency success stories spreading throughout the internet. As such, cryptocurrencies are more of a “faith-based” financial asset rather than a “fact-based” financial asset” (Johnson, December 4, 2017). This gives some understanding as to why there is still currently no widespread use of cryptocurrency as a payment method. In general, those who use cryptocurrency do not want to relinquish it just yet due to anticipation that the price of the cryptocurrency that they currently own will eventually increase.

To provide a linkage to this in the context of the theoretical framework we presented for this thesis, we needed to review a couple of contexts we presented earlier relating to consumer behaviour. Those being Theory of Reasoned Action (TRA) and Perceived Behavioural Control (PBC) developed by Icek Ajzen. To quickly recap TRA, the theory implies that rational decisions are made upon the information that is made available to achieve an end goal. This initiates a cognitive process in which one commits to a specific action (volitional control). This cognitive process is proceeded by a behavioural intention, which is based on beliefs that the specific behaviour will lead to the specific end goal. These beliefs further influence the attitude of the individual making the decision, which is the positive or negative evaluation on the possible outcome. Behavioural intention can also be influenced by the subjective norms of the individual making the decision, which are the social pressures affiliated to the specific decision. Once the intention to perform a specific behaviour is decided upon, that behaviour is then applied by the decision maker. Another element that can be applied is that of Perceived Behavioural Control, which is derived from the Theory of Planned Behaviour. PBC is an evaluation by the decision maker regarding how easy or difficult it accomplishing a specific task is, and thus, directly affects the behaviour of the individual.

In the context of holding cryptocurrency, we could attribute the volitional control of an individual as the action of purchasing cryptocurrency. The behavioural intention, in this case, is to make a profit from the purchase as a result of earning a high return when the price of the cryptocurrency increases. This behavioural intention is based off the belief that if the individual who owns the cryptocurrency holds onto it long enough, that the desired return will be met. Whereas the individual’s attitudes towards holding the cryptocurrency are influenced by the rise and fall of the price of cryptocurrency. Due to the volatile nature of cryptocurrency it can be assumed that these attitudes shift between positive and negative evaluations on the decision to hold, given the direction the price is heading. Generally, if the price increases exponentially, the attitude towards holding cryptocurrency will be positive. If the price decreases exponentially, the attitude will be negative. However, due to the volatile nature of cryptocurrency, a decrease in price does not necessarily mean the individual will decide to sell off and cut their losses. The reason being is that the expectation is that the price will rebound again, and they can mitigate their losses by being patient and holding on to the cryptocurrency a little longer. If the price were to increase, the expectation would be to sell and make a profit. Another factor from TRA that influences taking action on a behaviour are the social norms. These can be factored in by taking into consideration the success stories circulating the internet of people getting rich off cryptocurrency. People may
feel the pressure to hold onto their cryptocurrencies instead of spending it or selling off in hopes that the same will happen with them, thus leading to the actual behaviour of holding cryptocurrency being performed. Finally, if we were to integrate Perceived Behavioural Control into this context, the task of purchasing cryptocurrency is not necessarily difficult and the decentralized nature of cryptocurrency gives direct control to the cryptocurrency user, thus leading to the actual behaviour of holding cryptocurrency being performed. Finally, if we were to integrate Perceived Behavioural Control into this context, the task of purchasing cryptocurrency is not necessarily difficult and the decentralized nature of cryptocurrency gives direct control to the cryptocurrency user, then the ability of holding cryptocurrency for the intention of “getting rich” is easily attainable, making it more likely for the user to perform the behaviour.

If we were to look at cryptocurrency from the viewpoint of holding or “hodl”, it would seem unlikely that at the current stage of the cryptocurrency lifecycle, people would be willing to widely accept it as a payment method and start using it as such. This also includes online gamblers using it to gamble. This resonates with the viewpoints of the managers we interviewed who believed that people, their customer-base included, are more interested in using cryptocurrency as an investment tool. They felt that it would take some time and certain circumstances to occur, including increased trust and regulation of cryptocurrency, before cryptocurrency would become used widespread as a payment option in online gambling, beyond people holding it as an investment tool.

5.6.3 Theme: Industry Regulation

Regulation was a term that several managers mentioned frequently during the interviews. They expressed that online gambling industry is heavily influenced by regulation, which poses challenges for companies. As Gainsbury et al. (2013, p. 14) state, companies must be compliant with strict codes of conduct in order to operate in the regulated markets. The managers discussed that the Company X wants to enter more and more regulated markets, and the goal is to eventually receive all revenues from the regulated markets. According to Gainsbury et al. (2013), appropriate regulation and codes of conduct are in accordance with a profitable business model as it increases retention and customer acquisition. By focusing on the regulated markets, companies also benefit by having less competitors, as smaller companies will not be able to accomplish the licensing processes. Many of the interviewed managers expressed that competition is extremely fierce in unregulated markets because the entry barriers are low, and number of competitors is high. According to some of our interviewees, the number of operators in the unregulated markets is more than 50% higher than in the regulated markets.

Besides referring to the industry regulation, the managers brought up regulation (or non-regulation) of cryptocurrency various times during the interviews. Each of the interviewees expressed that cryptocurrency needs more control and regulation. Non-regulation was perceived as a factor enabling the extreme volatility, which influences investors and companies in a negative way besides making regulators and governments leery. Several managers also discussed that there are too many different cryptocurrencies in the market and distinguishing the “bad” coins from the viable ones is difficult without regulation. Furthermore, past scandals with deceitful cryptocurrency exchanges were brought up in several interviews.

Due to these factors, highly regulated online gambling industry and non-regulated cryptocurrency stood out as an inappropriate combination, which averts companies from adopting cryptocurrency as a payment method. A common opinion that could be distinguished from the interviews was that adopting cryptocurrency at its current state would not support the strategy of Company X to be a
front runner when it comes to regulation and compliance. Many of the managers were concerned that dealing with cryptocurrency would make the company look untrustworthy in the eyes of regulators and authorities. Brito et al. (2014, p. 144-145) state that some laws, including the ones aimed at online gambling, do not inspect a form of payment such as Bitcoin. Therefore, many transactions are placed in a legal gray area. With the mission to operate solely in the regulated markets, Company X would not want to be associated with such issues.

However, the majority of the interviewees had a positive outlook when it came to the topic of long-term potential of cryptocurrency in the online gambling industry. An insight that could be perceived from the interviews was that even though cryptocurrency is currently unsuitable to be adopted, the situation might change once cryptocurrency has been regulated. According to Barber et al. (2012), the potential success of Bitcoin as an alternative currency among established national currencies is not dependent on its technical or economical eligibility. On the contrary, the eligibility depends on the ability of Bitcoin to operate in a more regulated environment (De Filippi, 2014, p. 1143). Many of the interviewed managers believed that cryptocurrency would be regulated in a few years, and then adopting it as a payment method could be a better suited option.

5.6.4 Theme: Reputation of Cryptocurrency

The last theme that was derived from the data analysis was the reputation of cryptocurrency. The overall perception that could be drawn from the interviews was that the current reputation of cryptocurrency is one of the barriers that prevent companies from adopting cryptocurrency. The reputation of cryptocurrency was described “shady” and “dodgy”, and the majority of the managers expressed concerns that authorities as well as customers’ associate cryptocurrency with black market, money laundering, drugs, or other illegal activities. This is in accordance with prior research; Grinberg (2013) and Swan (2015) state the public perception of cryptocurrency is not flattering because many people associate it with illegal activities such as drug trade, tax evasion and child pornography. Some of the managers identified media as a factor that escalates the negative reputation and steers the public perception of cryptocurrency. They discussed that the majority of people do not have proper knowledge about cryptocurrency, which makes the influence of media even more significant. Furthermore, we could derive from the interviews that both high number of bad cryptocurrencies and deceitful coin exchanges escalate the negative reputation.

The impact of the perceived negative reputation could be examined through the theory of uncertainty. Akerlof (1970, p. 488) states that the existence of goods of many grades causes a number of problems for the theory of markets. As stated earlier, the managers we interviewed saw that the cryptocurrency market includes too many alternative coins. If people feel that sorting out the “rotten apples” is difficult or even impossible, an increase in uncertainty and a decrease in trust is inevitable. Trust is important in economic models because uncertainty is present in all economic activities, and informal unwritten guarantees are Preconditions for trade and production (Akerlof, 1970, p. 500). When people try to assess likelihoods and predict values to simpler judgmental operations, they often rely on heuristic principles which are generally useful but sometimes they lead to critical errors (Tversky & Kahneman, 1974, p. 1). It could be argued that when it comes to the topic of cryptocurrency, the heuristics have led to crucial errors, which is partly causing the negative reputation. For example, hundreds of thousands of Bitcoins were lost when a major coin exchange Mt. Gox collapsed in 2014 (Trautman, 2014). An interesting point that can be
highlighted is that even though cryptocurrency is based on blockchain, the first technology that is able to lower uncertainty, the process of buying, storing and using cryptocurrency includes many factors that increase uncertainty and thus, leads to the negative reputation.

5.7 Summary of Qualitative Findings

The Table 10 represents the qualitative findings from the thematic analysis. The description of theme summarizes each of the four themes, and the next row explains how the theme is connected to the managers’ perceptions towards accepting cryptocurrency as a potential payment option. The last row shows which participants supported the presented views.

<table>
<thead>
<tr>
<th>Description of the theme</th>
<th>Blockchain in online gambling</th>
<th>Holding cryptocurrency</th>
<th>Regulation</th>
<th>Reputation of Cryptocurrency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceptions towards accepting cryptocurrency as a potential payment option</strong></td>
<td>Blockchain could be a useful tool in the online gambling industry and implementing the blockchain technology might occur earlier than implementing cryptocurrency.</td>
<td>People are more willing to hold cryptocurrency and use it as an investment tool instead of using it as a currency to make purchases with.</td>
<td>Highly regulated online gambling industry and unregulated cryptocurrency form a combination that poses many challenges.</td>
<td>Cryptocurrency has a negative reputation, and many people associate it with illegal activities.</td>
</tr>
<tr>
<td><strong>The view is supported by...</strong></td>
<td>The industry is currently more prepared to use blockchain technology than to adopt cryptocurrency as a payment method.</td>
<td>Cryptocurrency needs to become a viable option for everyday use before it can be widely used as a payment method in the online gambling industry.</td>
<td>Cryptocurrency needs more control and regulation, adopting it at its current state is risky for companies.</td>
<td>The reputation of cryptocurrency is a barrier for companies to adopt it, as it might give a stigma for those who are dealing with it.</td>
</tr>
<tr>
<td>Interviewee 2 Interviewee 3 Interviewee 5</td>
<td>Interviewee 1 Interviewee 2 Interviewee 4 Interviewee 5</td>
<td>Interviewee 1 Interviewee 2 Interviewee 3 Interviewee 4 Interviewee 5</td>
<td>Interviewee 1 Interviewee 2 Interviewee 3 Interviewee 4 Interviewee 5</td>
<td></td>
</tr>
</tbody>
</table>

*Table 10: Thematic Network Summary*
6.0 Quantitative Empirical Findings and Analysis

This chapter provides an overview of the quantitative study carried out for this thesis. It begins with a presentation of the demographics of our survey. Next, the reliability statistic of our survey, which are calculated through Cronbach’s Alpha, are presented. We follow this with a presentation of the descriptive statistics of the study. This is followed by a presentation of the regression analysis used to identify a relationship between the aforementioned drivers of cryptocurrency use and customer willingness to adopt cryptocurrency use in online gambling. This section then concludes with a discussion of the findings.

6.1 Quantitative Study Demographics

The survey that we administered resulted in 151 participants. The vast majority of respondents answered all the questions, however, there were some cases in which some respondents skipped certain questions. In those cases, the mean answer from the entire pool of answers from that particular question was used as a replacement for the blank answer.

6.1.1 Background Questions

The survey began by asking several background questions to the participants in order for us to identify specific trends that may result from a specific cohort of participants. The first background question that was asked was gender. Of the 151 participants, 149 answered this question. The total number of males’ respondents was 132 and the total number of female respondents was 17. This equated to a survey that consisted of 88.6% male respondents and 11.4% female respondents. This corresponds well to the research conducted by Carver and McCarty (2013) that stated that majority of online gamblers are male. Figure 7 provides a visual representation of the gender results of the study.

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>88.59%</td>
</tr>
<tr>
<td>Female</td>
<td>11.41%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>

Figure 7: Gender
The next demographic question that was asked was the age of participants. In this case, every participant answered this question. The age group that represented the majority in this study was 18-29. 80 of the survey participants were a member of this age group, which represented 53% of the survey respondents. The age group that represented the next highest number of participants was the 30-39 age group. This group consisted of 50 respondents, which represented 33.1% of the survey participants. There were 16 participants who were members of the 40-49 age group, which is 10.6% of the total survey participants. The 50-59 age group consisted of three participants and the under 18 age group consisted of two participants, which represented 2% and 1.3% of the total survey participants respectively. There was no one who took part that was in the 60 or above age group. The younger age groups that dominated this study were also in line with previous studies that also identified online gamblers as generally being younger. Figure 8 provides a visual representation of the age distribution of the study.

Next, we asked the country of origin. 150 participants from 12 different countries answered this question. The vast majority of the survey respondents were from Finland. 106 respondents were Finnish, which represented 70.7% of the survey participants. The country that represented the next highest number of participants was Denmark with nine individuals, accounting for 6% of all respondents. Both Sweden and Malta accounted for seven respondents, each representing 4.7% of the participants. Six participants from Canada accounted for 4% of all participants. The rest 15 respondents represented seven countries, accounting for 10% of the survey participants. The dominating number of Finnish participants can be explained by the convenience sampling
technique which was utilized in this study. As another author of this study was from Finland, respondents from the same country of origin were easily available to include.

The next demographic question of the survey was the employment status. Of the 151 participants, 148 answered this question. 76 respondents were employed full-time, which represented 51.4% of all participants. The group that represented the next highest number of participants was students. They consisted of 34 respondents, accounting for 23% of all respondents. 23 participants were self-employed, representing 15.5% of the survey respondents. There were nine participants who were unemployed and seeking work, which was 6.1% of the total amount of participants. Three participants were employed part-time, accounting for 2% of the total respondents. Two participants were homemakers and one was retired, which represented 1.4% and 0.7% of the participants respectively. Figure 9 shows a visual representation of the employment status of the respondents.

![Employment Status](image)

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>22.97%</td>
</tr>
<tr>
<td>Employed full-time</td>
<td>51.35%</td>
</tr>
<tr>
<td>Employed part-time</td>
<td>2.03%</td>
</tr>
<tr>
<td>Self-employed</td>
<td>15.54%</td>
</tr>
<tr>
<td>Unemployed and seeking work</td>
<td>6.08%</td>
</tr>
<tr>
<td>Homemaker</td>
<td>1.35%</td>
</tr>
<tr>
<td>Retired</td>
<td>0.68%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>148</strong></td>
</tr>
</tbody>
</table>

The question regarding the highest completed degree or level of school was answered by 148 participants. The majority of the respondents had completed a university degree, as 54 participants had a Bachelor’s degree and 25 participants had a Master’s degree. These groups represented 36.5% and 16.9% of the survey respondents respectively. 41 respondents whose highest completed degree was high school accounted for 27.7% of all respondents. 22 respondents had completed either trade/technical/vocational school, accounting for 14.9% of the total participants. The group whose highest completed degree was less than high school consisted of six respondents and represented 4.1% of all participants. There was no one who had completed a PhD, law or medical degree. These results were in line with the research conducted by Carver and McCarty (2013), stating online gamblers to be more likely better educated than traditional gamblers. Figure 10 provides a visual representation of the participants’ highest completed degree of level of school.
Next, we asked the annual income level. 148 of the 151 participants answered this question. The majority of the respondents earned 25,000 – 49,999 euros annually. This group consisted of 67 respondents and represented 45.3% of the total sample. The second largest group consisted of 43 participants who earned less than 25,000 euros, accounting for 29.1% of all respondents. 26 respondents earned 50,000 – 74,999 euros, representing 17.6% of the survey participants. The group of respondents who earned 75,000 – 99,999 euros consisted of seven people, accounting for 4.7% of the survey sample. One participant earned 100,000 – 149,999 euros, and four participants earned 150,000 euros or more. These groups accounted for 0.7% and 2.7% of the participants respectively. Figure 11 shows a summary of the income level of the participants.
The last demographic question was the marital status. This question was answered by 148 participants. The vast majority, 98 participants, were single. This group represented 66.2% of all respondents. 25 participants were married, and 16 participants were in a registered partnership. These groups accounted for 16.9% and 10.8% of the total sample. Seven respondents were divorced or separated, accounting for 4.7% of all participants. Furthermore, two participants were widowed, representing 1.4% of the survey respondents. A visual representation of the results can be seen in the Figure 12.
6.1.2 Online Gambling Questions

The next part of the demographic questions was focused on online gambling. First, we asked the participants how often they gambled online. 148 participants answered this question. The group that gambled every day consisted of 28 participants and represented 18.9% of the total respondents. 49 respondents gambled a few days a week. This group the next highest number of participants and it accounted for 33.1% of the whole sample. 37 respondents gambled a few times a month, representing 25% of the survey respondents. 14 participants gambled less than a few times a month, and 20 participants gambled almost never. These groups represented 9.5% and 13.5% of all respondents respectively. Females were less active online gamblers than males, as 37.5% of them gambled almost never, and none of them gambled every day. Figure 13 represents a summary of the results.

Next, we asked what online payment method the participants used most often when making deposits. This question was answered by 148 participants. 60 respondents answered card deposit, representing 40.5% of all participants. The second most popular payment method was internet banking. This group of respondents consisted of 42 people and it represented 28.4% of the total sample. 21 participants answered e-wallet, accounting for 14.2% of the survey respondents. The group who used bank transfer most often, included 17 participants and represented 11.5% of the whole sample. One respondent answered prepaid voucher, accounting for 0.7% of the participants in this study. Seven respondents answered that they did not make deposits. This group accounted for 4.7% of the sample. None of the respondents used mobile payments or cryptocurrency most often when making deposits. Figure 14 provides a visual representation of the payment method distribution of the study.
The last question of this part asked what form of online gambling the participants played most often. The question was answered by 150 participants. The most popular form of online gambling was sports betting. The group of participants who played online sports betting most often consisted of 73 people and represented 48.7% of the total sample. 44 respondents played online poker most often, accounting for 29.3% of all participants. 27 respondents played online casino games most often. This group represented 18% of the survey respondents. The rest 4% of the participants played other forms of online gambling most often. This group included six people. Female participants had different preferences than males, as they played online casino games most often. Figure 15 shows a visual representation of the results.
6.1.3 Cryptocurrency and Blockchain Questions

The last part of the demographic questions was focused on cryptocurrency and blockchain. First, we asked the participants how they would rate their knowledge of cryptocurrency. Of the 151 participants, 150 answered this question. 21 respondents had a poor knowledge of cryptocurrency, accounting for 14% of the whole sample. Almost half, 49.3% of the participants, had a fair knowledge of cryptocurrency. This group had the highest number of participants, as it included 74 people. 39 people had a good knowledge of cryptocurrency, representing 26% of the participants. 16 respondents had a very good knowledge of cryptocurrency. This group included the lowest number of respondents and represented 10.7% of the total sample. A visual representation of the results can be seen in Figure 16.

150 participants answered the question regarding whether they own or use or have previously owned or used any form of cryptocurrency. 62.7% of the participants answered no, and 37.3% of them answered yes. The groups consisted of 94 and 56 respondents respectively. Differences
between genders could be distinguished from the data; female participants were less experienced than males, as only 23.5% of them had owned or used cryptocurrency. Furthermore, online poker players stood out as a group that included more cryptocurrency owners or users than any other group. 43.2% of online poker players had owned or used cryptocurrency. Figure 17 provides a visual representation of the results.

A second component of the question asked the participants for what purpose they had owned or used cryptocurrency. This part was targeted for respondents who had formerly answered yes. 53 of them answered this question and we could distinguish clear themes from the responses. 49% of the respondents had owned or used cryptocurrency for investing or holding purposes. 15.1% of the respondents mentioned trading. 9.4% of the respondents had owned or used cryptocurrency as a matter of interest or fun. Furthermore, 5.7% of the respondents stated online gambling, and 5.7% of the respondents mentioned drug trade. The rest 15.1% of the participants expressed a number of different purposes for owning or using cryptocurrency, such as getting Bitcoins from a friend who owed money.

Next, we asked the participants if they had ever used cryptocurrency to make online payments. This question was answered by 150 respondents. The vast majority had not used cryptocurrency to make online payments. This group included 132 participants and represented 88% of all respondents. 18 participants had used cryptocurrency to make online payments, accounting for 12% of the sample. Using cryptocurrency to make online payments was rarer among female participants, as only 5.9% of them answered yes to this question. Furthermore, online poker players were more experienced in this topic than other groups of online gamblers. 13.6% of online poker players had used cryptocurrency to make online payments. Figure 18 provides a visual representation of the results.
Again, the question included a follow-up question for those participants who had used cryptocurrency to make online payments. We asked them how they would describe the experience (using cryptocurrency to make online payments) and received answers from 18 participants. A few clear themes could be distinguished from the responses. 33.3% of the respondents described the experience fast or easy. 27.8% of the respondents were not as satisfied, as they described the experience expensive, complicated or bad. 11.1% of the respondents stated that the experience was similar to any other payment method. The rest 27.8% of the respondents described a number of different experiences that could not be formed into clear themes.

As the last question of this part, we asked the respondents how they would rate their knowledge of blockchain. 149 participants answered this question. The participants were not as familiar with blockchain as they were with cryptocurrency; 54 respondents rated their knowledge of blockchain poor. This group represented 36.2% of the total sample. 61 participants had a fair knowledge of blockchain, accounting for 40.9% of the respondents. 25 people rated their knowledge of blockchain good, representing 17.5% of all participants. The group who had very good knowledge of blockchain consisted of eight people and accounted for 5.4% of the sample. A visual representation of the results can be seen in Figure 19.
<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor: I don’t know anything about the blockchain technology</td>
<td>36.24%</td>
</tr>
<tr>
<td>Fair: I have a simplistic understanding of the blockchain technology</td>
<td>40.94%</td>
</tr>
<tr>
<td>Good: I understand the uses of the blockchain technology</td>
<td>17.45%</td>
</tr>
<tr>
<td>Very good: I have a comprehensive understanding of how the blockchain technology works</td>
<td>5.37%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>

Figure 19: Levels of Blockchain Knowledge

6.2 Cronbach’s Alpha

As previously discussed, this study utilized Cronbach’s Alpha to calculate its reliability. A common guideline when evaluating the reliability of a study is to have an alpha score of at least 0.7. Although, this is not universally recognized as other academics have stipulated than an alpha score as low as 0.65 would also suffice (Bonett & Wright, 2015, p. 5). Within the confines of this study, an alpha score of 0.65 was established as the minimum acceptable reliability measure for five separate item groups. Those item groups being Interest in Innovation, Trust in Cryptocurrency, Perceived Security of Cryptocurrency, Anonymity of Cryptocurrency and Cryptocurrency Usability. Once the reliability analysis was complete for each item group, we discovered that specific groups had alpha scores that were below the 0.65 threshold, which required us to narrow that group down to one question each. Those groups being Perceived Security of Cryptocurrency, Anonymity of Cryptocurrency and Cryptocurrency Usability. The questions we chose were based on how well they represented the overall phenomena that we were trying to understand. As such, for crypto security, we chose: “I believe making transactions with cryptocurrency through blockchain is a safe and secure method”. For crypto anonymity we chose: “I am interested in the notion that cryptocurrency has stronger privacy measures to keep my personal information anonymous compared to other online payment methods”. And for crypto usability we chose: “Cryptocurrency is too complex for me to consider using”. The other two item groups, Innovation Diffusion and Trust in Cryptocurrency received alpha scores that were acceptable to maintain an item scale for each group. However, one question from each item group had to be deleted in order for the alpha scores to reach an acceptable level. As a result, the Interest in Innovation item group scored an alpha of 0.679 as a three-item scale and the Trust in Cryptocurrency item group scored an alpha of 0.792 as a two-item scale.
### Scale: Interest in Innovation

**Case Processing Summary**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases</td>
<td>132</td>
<td>86.8</td>
</tr>
<tr>
<td>Excluded</td>
<td>20</td>
<td>13.2</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>100.0</td>
</tr>
</tbody>
</table>

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>Cronbach’s Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.679</td>
<td>.687</td>
<td>3</td>
</tr>
</tbody>
</table>

### Scale: Trust in Cryptocurrency

**Case Processing Summary**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases</td>
<td>133</td>
<td>87.5</td>
</tr>
<tr>
<td>Excluded</td>
<td>19</td>
<td>12.5</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>100.0</td>
</tr>
</tbody>
</table>

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>Cronbach’s Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.791</td>
<td>.794</td>
<td>2</td>
</tr>
</tbody>
</table>

### Item Group

<table>
<thead>
<tr>
<th>Item Group</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest in Innovation</td>
<td>0.68</td>
</tr>
<tr>
<td>Trust in Cryptocurrency</td>
<td>0.79</td>
</tr>
<tr>
<td>Perceived Security of Cryptocurrency</td>
<td>One Item</td>
</tr>
<tr>
<td>Anonymity in Cryptocurrency</td>
<td>One Item</td>
</tr>
<tr>
<td>Cryptocurrency Usability</td>
<td>One Item</td>
</tr>
</tbody>
</table>

Table 11: Cronbach’s Alpha

#### 6.3 Descriptive Statistics

The first set of descriptive statistics that are presented are focused on the drivers of cryptocurrency use. These item groups are Interest in Innovation, Trust in Cryptocurrency, Perceived Security of Cryptocurrency, Anonymity of Cryptocurrency and Cryptocurrency Usability. The descriptive statistics we discuss are the mean, median, mode, standard deviation and Pearson Correlation. The answers are based off the 5-point Likert scale that was used in the survey, where 5 equaled strongly agree and 1 equaled strongly disagree. The first statistic that is discussed is the mean. The mean is the average score of a distribution (Welkowitz, 2011, p. 62). When discussing the drivers for cryptocurrency usage, interest in innovative technology generated the highest average mean of 3.83. Cryptocurrency usability generated the lowest mean of 2.34. The other item groups all scored means slightly above 3, which would suggest that the perception for each of these item groups was on average viewed neutrally as a motivator for cryptocurrency usage. It is also important to note that for the item group of Cryptocurrency Usability that the low mean is in relation to the belief that cryptocurrency is too complex to use, and therefore, the majority consensus from our survey population was that cryptocurrency was not too complex to use.

The mode indicates the response most commonly provided in a distribution (Welkowitz, 2011, p. 62). Based on results stemming from the mode, we could see that online gamblers showed favourable perceptions towards cryptocurrency as being a secure technology. This item group
scored 4 (agree) as the answer that was selected the most often for that particular section. An interesting discovery here is that the answer 4 (agree) was also the most common answer in relation to their perception that they felt less trust in cryptocurrency than in traditional payment methods such as credit cards or bank transfers. Interest in innovation received a mode of 3.67, which indicated that most answers in this item group agreed with constructs supporting interest in innovation. The item group perceptions towards importance of maintaining anonymity while using cryptocurrency received 3 (neutral) as the most commonly chosen option. The item group of usability received the lowest mode of 2 (disagree) indicating that most respondents perceived cryptocurrency as a technology that would be or is easy to use.

To understand these results further we had to look at the standard deviations of each item group, which is the average difference of each score to the mean (Murray et al., 2008, p. 95). In this portion of the analysis, the standard deviation ranged from as low as 0.941 in the item group of interest in innovation to as high as 1.221 for the item group of trust in cryptocurrency. The other item groups had standard deviations that were slightly above 1. This was an indication that there was a relatively high coefficient of variation for each of the item groups aside from interest in innovation. In other words, this meant that the participants provided a variety of answers when it came to the topics of trust in cryptocurrency, perceived security in cryptocurrency, anonymity in cryptocurrency and cryptocurrency usability, and provided answers that were relatively similar in the item group of interest in innovation.

<table>
<thead>
<tr>
<th>Item Group</th>
<th>Standard Deviation</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest in Innovation</td>
<td>0.941</td>
<td>3.83</td>
<td>3.67</td>
<td>3.67</td>
</tr>
<tr>
<td>Trust in Cryptocurrency</td>
<td>1.221</td>
<td>3.35</td>
<td>3.57</td>
<td>4</td>
</tr>
<tr>
<td>Perceived Security of Cryptocurrency</td>
<td>1.059</td>
<td>3.41</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Anonymity in Cryptocurrency</td>
<td>1.091</td>
<td>3.16</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Cryptocurrency Usability</td>
<td>1.093</td>
<td>2.34</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 12: Descriptive Statistics – Drivers of Cryptocurrency Use

Additionally, we looked at a second set of predictor variables that were developed during the progression of this study. Those factors were cryptocurrency ownership, previous use of cryptocurrency as a payment method, belief that cryptocurrency has a bright future as a payment method and the belief that cryptocurrency was better suited as a form of investment than as a payment option. The first two item groups, cryptocurrency ownership and previous use of cryptocurrency as a payment method were rated on a binary scale of 0 and 1 (0 = No, and 1 = Yes). The mean for these two items indicated that, on average, 40% of our survey participants had ever owned cryptocurrency, while only 13% had ever previously used it as a payment method. The mode of 0 for both these items further indicated that the majority of respondents had not used cryptocurrency before.

The other two items, belief in the future of cryptocurrency and belief that cryptocurrency is better suited in investing, were rated through the 5-point Likert Scale. The mean regarding these items indicated a rather neutral average since both score slightly above 3. However, the mode for belief in the future of cryptocurrency was a 4, which stated that the most used response to this question was “agree”. This is indicative to the relatively high standard deviation of this item (1.27), which is indicative of a wide range of responses to this particular question. However, with a mode of 4,
one can infer a positive perception being linked to the responses of this particular question. The high standard deviation regarding belief that cryptocurrency is better suited in investing (1.15) also inferred a wide variation of responses regarding this particular question, indicating respondent’s views regarding this item was as low as “disagree” and ranged as high as “agree”. With a mode of 3, the overall consensus maintains the neutral perception surrounding this particular item.

<table>
<thead>
<tr>
<th>Item Group</th>
<th>Standard Deviation</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crypto Ownership</td>
<td>0.492</td>
<td>0.4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Previous Use of Crypto as a Payment Method</td>
<td>0.333</td>
<td>0.13</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Belief that Crypto has a Bright Future as a Payment Method</td>
<td>1.274</td>
<td>3.31</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Belief that Crypto is Better Suited towards Investing than as a Payment Method</td>
<td>1.147</td>
<td>3.11</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 13: Descriptive Statistics — Cryptocurrency Usage Factors

Furthermore, we used the Pearson Correlation Matrix to provide insight towards the strength of the linear relationship between two random variables x and y. This form of correlation indicates a relationship on absolute terms between the two variables, without considering the impact if other variables. The coefficient ranges from -1 to 1, and the closer the value of the coefficient is to 1, the stronger the relationship between the two random variables is (Zhou et al., 2016, p. 210). Table 13 provides a visualization of the correlation amongst the variables used in this distribution. The relationship being investigated here is the drivers of cryptocurrency usage and interest by online gamblers to use cryptocurrency. In this case, the item regarding cryptocurrency usage is Interest in Using Crypto in Online Gambling. The results indicated that all group items aside from those related to interest in innovation were highly correlated to cryptocurrency usage. The item groups of security and anonymity provided positive and significant correlations with interest in using cryptocurrency in online gambling. This meant that when an online gambler believed cryptocurrency to provide higher levels security measures and anonymity, they were more likely to be interested in using it as a payment option in online gambling. The item groups of trust and usability scored negative, yet significant correlations with interest in using cryptocurrency in online gambling. In the case of trust, the less trustful someone felt regarding cryptocurrency in relation to traditional payment methods the more likely they were going to reject the idea of using cryptocurrency in online gambling. In terms of usability, this meant that the more complex someone found cryptocurrency to be, the less likely they would be interested in using it in online gambling.
Furthermore, there were some other factors that we wanted to investigate and how they related to interest in using cryptocurrency in online gambling. Those factors were cryptocurrency ownership, previous use of cryptocurrency as a payment method, belief that crypto currency has a bright future as a payment method and the belief that cryptocurrency was better suited as a form of investment than as a payment option. As such, we conducted another Pearson Correlation to understand the relationship between these variables and interest in using cryptocurrency in online gambling. Since not every participant in our study had previously owned or used cryptocurrency, we wanted to get an indication regarding how cryptocurrency ownership correlated with interest in using cryptocurrency as a payment option in online gambling. Also, we wanted to see if those who have owned cryptocurrency and have previously used it as a payment with other e-commerce choices would be interested in using it as a payment in online gambling. Finally, the last factor, belief that cryptocurrency is better suited as an investment option, was explored in relation to interest in cryptocurrency use in online gambling, to see if a relationship existed. This factor could also prove useful when comparing the results from the quantitative study and qualitative study, specifically when exploring the phenomenon of holding cryptocurrency.

The results indicated a positive and significant correlations, at the 0.01 level, between cryptocurrency ownership and interest in using cryptocurrency in online gambling, as well as the belief that cryptocurrency will be major payment option in the future and interest in using cryptocurrency in online gambling. These two results indicated that, one, if the participant owned cryptocurrency already, they were more likely to adopt it in online gambling, and two, if the participant were to hold a positive belief towards the future potential of cryptocurrency as a payment method, they were more likely to adopt it in online gambling as well. There was also a positive, yet slightly less significant correlation between interest in using cryptocurrency in online

| Table 14: Pearson Correlation – Drivers of Cryptocurrency Use |
|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Interested in Using Cryptocurrency in Online Gambling (Accept) | Interested in Using Cryptocurrency in Online Gambling (Accept) | Interest in Innovative Technologies | Receipient to Trying New Things | Identifies as Early Adopter | Less Trust in Cryptocurrency as a Form of Investment | Perceiption of Crypto as Secure | Benefit Crypto Provides Higher Levels of Privacy | Benefit Crypto is too Complex to Use |
| 1 | .094 | .159 | .351 | .390 | .376 | .436 | .317 |
| N | 135 | 133 | 134 | 135 | 134 | 133 | 131 |
| 0.094 | 1 | .430 | .377 | .099 | .270 | .235 | .188 |
| N | 135 | 133 | 134 | 135 | 134 | 133 | 131 |
| 0.094 | 1 | .430 | .377 | .099 | .270 | .235 | .188 |
| N | 135 | 133 | 134 | 135 | 134 | 133 | 131 |
| 0.094 | 1 | .430 | .377 | .099 | .270 | .235 | .188 |
| N | 135 | 133 | 134 | 135 | 134 | 133 | 131 |
| -0.390 | -0.099 | -2.15 | -1.22 | 1 | -465 | -3.25 | -3.29 |
| N | 135 | 133 | 134 | 135 | 134 | 133 | 131 |
| -0.390 | -0.099 | -2.15 | -1.22 | 1 | -465 | -3.25 | -3.29 |
| N | 135 | 133 | 134 | 135 | 134 | 133 | 131 |
| -0.390 | -0.099 | -2.15 | -1.22 | 1 | -465 | -3.25 | -3.29 |
| N | 135 | 133 | 134 | 135 | 134 | 133 | 131 |
| Benefit Crypto is too Complex to Use | Pearson Correlation | Pearson Correlation | Pearson Correlation | Pearson Correlation | Pearson Correlation | Pearson Correlation | Pearson Correlation | Pearson Correlation |
| -0.390 | -0.099 | -2.15 | -1.22 | 1 | -465 | -3.25 | -3.29 |
| N | 135 | 133 | 134 | 135 | 134 | 133 | 131 |

**,** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
gambling and having previously used cryptocurrency as a payment option. The factor relating to belief that cryptocurrency was better suited as an investment option was negatively correlated with interest in using cryptocurrency in online gambling with a significance at the 0.05 level. This meant that if the participant believed that cryptocurrency was more useful to invest, they would not be interested in using it in online gambling. What is also important to mention here is that not every participant in our study had experience with cryptocurrency. This suggested that the results regarding cryptocurrency ownership and cryptocurrency currently used as a payment option are related solely to those participants who had experience with cryptocurrency. In this case we could assess that perception of cryptocurrency use in online gambling by online gamblers is positive, but primarily by those who have had experience with the technology. Since this group of people did not make up the majority of this study, we would have to stipulate that wider adoption of cryptocurrency would be required before stating that online gamblers as a whole are interested in adopting cryptocurrency to be used in online gambling. Table 15 provides a visual representation of these results.

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Interested in Using Cryptocurrency in Online Gambling (Accept)</th>
<th>Crypto Ownership</th>
<th>Crypto Previously Used as a Payment Method</th>
<th>Belief that Crypto has Potential to be a Major Payment Method in the Future</th>
<th>Belief that it is better to Invest Crypto than to Pay with it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interested in Using Cryptocurrency in Online Gambling (Accept)</td>
<td>Pearson Correlation</td>
<td>1</td>
<td>.352**</td>
<td>.191*</td>
<td>.547**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.026</td>
<td>0.000</td>
<td>0.048</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>135</td>
<td>135</td>
<td>135</td>
<td>133</td>
<td>129</td>
</tr>
<tr>
<td>Crypto Ownership</td>
<td>Pearson Correlation</td>
<td>.352**</td>
<td>1</td>
<td>.465**</td>
<td>.221*</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.010</td>
<td>0.488</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>135</td>
<td>135</td>
<td>135</td>
<td>133</td>
<td>129</td>
</tr>
<tr>
<td>Crypto Previously Used as a Payment Method</td>
<td>Pearson Correlation</td>
<td>.191*</td>
<td>.465**</td>
<td>1</td>
<td>.155</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.026</td>
<td>0.000</td>
<td>0.074</td>
<td>0.386</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>135</td>
<td>135</td>
<td>135</td>
<td>133</td>
<td>129</td>
</tr>
<tr>
<td>Belief that Crypto has Potential to be a Major Payment Method in the Future</td>
<td>Pearson Correlation</td>
<td>.547**</td>
<td>.221*</td>
<td>.155</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.010</td>
<td>0.074</td>
<td>0.466</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>133</td>
<td>133</td>
<td>133</td>
<td>133</td>
<td>128</td>
</tr>
<tr>
<td>Belief that it is better to Invest Crypto than to Pay with it</td>
<td>Pearson Correlation</td>
<td>-.175*</td>
<td>-.062</td>
<td>-.077</td>
<td>-.065</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.048</td>
<td>0.488</td>
<td>0.386</td>
<td>0.466</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>129</td>
<td>129</td>
<td>129</td>
<td>128</td>
<td>129</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 15: Pearson Correlation – Cryptocurrency Usage Factors

6.4 Logistic Regression Model 1 – Drivers of Cryptocurrency Usage

Two logistic regression analyses were conducted in this study. To provide a quick summary, the procedure is used to predict the probability of a binary outcome with the use of one or more categorical variables as predictors (Ramos et al., 2016, p. 136). Both analyses used Interest in Using Cryptocurrency in Online Gambling as the binary dependent variable. However, the first
analysis used the aforementioned drivers of cryptocurrency use as the predictor variables. The analysis was performed on (n=125) respondents. This specific sample number factored out respondents with missing data. What was revealed in this logistical regression analysis was that given the sample population of online gamblers, the outcome regarding cryptocurrency adoption (acceptance) in online gambling was a moderate majority towards rejecting cryptocurrency in online gambling, with 74 of the 125 participants rejecting cryptocurrency and 51 of the 125 participants accepting cryptocurrency. The logistic regression model correctly classified 74.4% of the total sample population (83.8% No-Reject and 60.8% Yes-Accept). This was a significant improvement from the percentage of predictability that was calculated in the null classification, which provided percentage of predictability of 59.2%. This specific null prediction accounts for the prediction of outcomes occurring without considering the predictor variables. The null classification of percentage predictability and the classification percentage of percentage predictability are visualized in tables 16 and 17.

Using the Nagelkerke R-Square value, which is considered a pseudo R-Square, we could see that roughly 40% of the variability towards interest in using cryptocurrency in online gambling was accounted for by the predictor variables used in this model. Table 18 provides a visualized representation of this. The Hosmer and Lemeshow test, as seen in Table 19, calculated a significance value (p-value) of 0.897 indicating that the regression model established a good fit amongst the variables. However, caution needed to be taken here given that the sample size of this particular study (n=125) was relatively small, thus potentially providing the test will a lower level of power to distinguish discrepancies amongst the variables. Some evidence of this was found in the contingency table derived from the test, which indicated some degree of discrepancy in predictive capability of some of the observation groups. However, the 10th observation group, which consists of the components with the highest observations of predictive probability, which was our focus point, had very minimal discrepancy, further indicating strong goodness of fit.

### Classification Table

<table>
<thead>
<tr>
<th>Observed Interested in Using Cryptocurrency in Online Gambling</th>
<th>Predicted Percentage Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 0 No</td>
<td>74</td>
</tr>
<tr>
<td>Step 0 Yes</td>
<td>51</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
</tr>
</tbody>
</table>

* a. Constant is included in the model.
  b. The cut value is .500

*Table 16: Null Classification Percentage of Predictability – Logistics Regression 1*
Despite the results indicating a moderate level of rejection towards cryptocurrency use in online gambling, we also wanted to see how the independent (predictor) variables related with the dependent variable of interest in using cryptocurrency in online gambling in order to answer our second research question. The results presented in Table 20, Variables in the Equation, showed that based on the unstandardized beta weights (β), that the belief in cryptocurrency providing higher levels of privacy, which relates to the driver of anonymity, had the strongest capability of prediction towards the occurrence of cryptocurrency acceptance in online gambling. The unstandardized beta weight of this variable was both positive and statistically significant, where β = 0.709 p < 0.05. This indicated that a one-unit increase in the belief that cryptocurrency provides higher levels of privacy increases the probability of accepting
cryptocurrency in online gambling by 0.709. Additionally, a belief that cryptocurrency is being too complex to use resulted in a negative and somewhat statistically significant correlation with interest in using cryptocurrency in online gambling, where $\beta = -0.476$ $p < 0.10$. This indicated that a one-unit increase in the belief that cryptocurrency is too complex to use, decreased the logit of accepting cryptocurrency in online gambling by 0.476. Further predictor variables, such as security for example, showed positive correlations, but were not statistically significant. Further meaning was derived by examining the odds ratios, $\text{Exp}(\beta)$, in the table. These odds ratios represent the odds of an outcome occurring given a specific exposure, controlling for individual differences in the other variables within the reference category. When an odds ratio is valued over +1, it is increasing the probability of the dependent variable experiencing an occurrence. An odds ratio below 0 is decreasing the probability of occurrence (van Eye & Mun, 2014, p. 68). When discussing the relationship between the belief of cryptocurrency providing higher levels of privacy and interest in using cryptocurrency in online gambling, the odds ratio tells us that a one-unit increase in the predictor variable increases the likelihood of being receptive to the idea of using cryptocurrency in online gambling is increased by 2.031 times, taking into consideration all the other predictor variables. Similarly, in terms of crypto usability, the odds ratio states that a one-unit increase in the belief that cryptocurrency is too complex to use, decreases the probability of being interested in using cryptocurrency in online gambling by 37.9% ($1 – 0.621 = 0.379$). Once again, this factors in the individual differences of all variables in the reference category.

<table>
<thead>
<tr>
<th>Variables in the Equation</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig</th>
<th>Exp(β)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest in Innovative Technologies</td>
<td>-.263</td>
<td>.283</td>
<td>.862</td>
<td>1</td>
<td>.353</td>
<td>.769</td>
</tr>
<tr>
<td>Receptive to Trying New Things</td>
<td>-.056</td>
<td>.337</td>
<td>.028</td>
<td>1</td>
<td>.868</td>
<td>.945</td>
</tr>
<tr>
<td>Identify as Early Adopter</td>
<td>.112</td>
<td>.268</td>
<td>.174</td>
<td>1</td>
<td>.677</td>
<td>1.118</td>
</tr>
<tr>
<td>Less Trust in Crypto than Traditional Payment Methods</td>
<td>-.320</td>
<td>.233</td>
<td>1.805</td>
<td>1</td>
<td>.170</td>
<td>.726</td>
</tr>
<tr>
<td>More Trust in Traditional Payment Methods</td>
<td>-.057</td>
<td>.264</td>
<td>.046</td>
<td>1</td>
<td>.829</td>
<td>.945</td>
</tr>
<tr>
<td>Perception of Crypto as Secure</td>
<td>.433</td>
<td>.266</td>
<td>2.651</td>
<td>1</td>
<td>.103</td>
<td>1.542</td>
</tr>
<tr>
<td>Belief Crypto Provides Higher Levels of Privacy</td>
<td>.709</td>
<td>.238</td>
<td>8.876</td>
<td>1</td>
<td>.003</td>
<td>2.031</td>
</tr>
<tr>
<td>Belief Crypto is too Complex to Use</td>
<td>-.476</td>
<td>.257</td>
<td>3.441</td>
<td>1</td>
<td>.064</td>
<td>.621</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.000</td>
<td>2.252</td>
<td>.197</td>
<td>1</td>
<td>.867</td>
<td>.368</td>
</tr>
</tbody>
</table>

Table 20: Unstandardized Beta (B) Coefficients and Odds Ratios – Logistics Regression 1

What is important to point out is that this model, as developed through SPSS, does not incorporate standardized coefficients of the beta. The importance of standardized coefficients rests in the fact that they remove arbitrary differences in the predictor variables (Jones & Waller, 2013, p. 435). Furthermore, it is much more challenging to calculate the importance of predictive variables using unstandardized beta weights in a regression model alone. As such, by calculating the standardized beta weights, the ability to compare the relative importance of the predictor variables in the context
of the logistic regression model is increased (King, 2007, p. 3). In order to calculate the semi-standardized beta weights of the predictor variables for a logistic regression analysis, King (2007, p. 3) proposes utilizing a specific equation. Since SPSS does not provide a standardized beta weight in logistic regression, the semi-standardized beta weights had to be obtained through the use of the following formula:

\[
\frac{1}{1 + e^{-\left(\ln\left(\frac{A_1}{1-A_1}\right) + 0.5A_2A_3\right)}} - \frac{1}{1 + e^{-\left(\ln\left(\frac{A_1}{1-A_1}\right) - 0.5A_2A_3\right)}}
\]

In the case of this equation, A1 refers to the mean predicted probability of the dataset, A2 refers to unstandardized beta weight for predictor variable \(x\), A3 refers to the sample standard deviation for predictor variable \(x\), \(EXP\) represents the exponential value of the intercept and LN refers to the natural logarithm. Using SPSS, we were able to calculate the predicted probability of each individual participant’s likelihood of accepting cryptocurrency in online gambling through the logistic regression model. We were then able to obtain the mean predictive probability of the entire dataset through the descriptive statistics function on SPSS, which also provided us with the means and standard deviations for each individual predictive variable in this particular logistic regression model. When these values were plugged into the equation for each predictor variable, with the mean predicted probability of the dataset remaining constant, we were able to calculate the semi-standardized beta weight for each predictor variable. These values are provided in Table 21.

![Descriptive Statistics](image)

<table>
<thead>
<tr>
<th>Variable</th>
<th>(\hat{\beta})</th>
<th>Std. (\hat{\beta})</th>
<th>Wtd. (\chi^2)</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-2.66</td>
<td>2.53</td>
<td>0.197</td>
<td>0.657</td>
</tr>
<tr>
<td>Innov. Tech.</td>
<td>-2.46</td>
<td>0.28</td>
<td>-0.058</td>
<td>0.553</td>
</tr>
<tr>
<td>Try New Things</td>
<td>-0.056</td>
<td>0.337</td>
<td>-0.011</td>
<td>0.028</td>
</tr>
<tr>
<td>Early Adopter</td>
<td>0.140</td>
<td>0.106</td>
<td>0.029</td>
<td>0.177</td>
</tr>
<tr>
<td>Crypto Trust 1</td>
<td>-0.057</td>
<td>0.264</td>
<td>-0.099</td>
<td>0.183</td>
</tr>
<tr>
<td>Crypto Trust 2</td>
<td>-0.057</td>
<td>0.264</td>
<td>-0.016</td>
<td>0.048</td>
</tr>
<tr>
<td>Crypto Security</td>
<td>0.453</td>
<td>0.266</td>
<td>0.111</td>
<td>2.651</td>
</tr>
<tr>
<td>Crypto Privacy</td>
<td>0.709</td>
<td>0.328</td>
<td>0.185</td>
<td>8.176</td>
</tr>
<tr>
<td>Crypto Usable</td>
<td>-0.476</td>
<td>0.257</td>
<td>-0.125</td>
<td>3.441</td>
</tr>
</tbody>
</table>

Note: \(\hat{\beta}\) = Semi-standardized beta weight using the mean predicted probability of 0.408

The results regarding the semi-standardized beta weights indicated that the privacy (anonymity) factor of cryptocurrency, once again, demonstrated the highest coefficient of the reference group with a value of 0.185. This further indicated that a one-unit increase in standard deviation of the belief by online gamblers that cryptocurrency provides high levels of privacy, increased the predictive probability of being interested in using cryptocurrency in online gambling by 0.185. This is also used in the context of the mean predicted probability of 0.408, which entails that this 18.5% change increased the likelihood of online gamblers being interested in using cryptocurrency in online gambling from 0.408 to 0.593 (59.3%).
6.5 Logistics Regression Model 2 – Cryptocurrency Usage Factors

Our second logistic regression analysis came as a result of factors that were identified as a result of both the qualitative and quantitative studies we conducted. This analysis incorporated cryptocurrency ownership by the online gambler, previous use of cryptocurrency as a payment method by the online gambler, belief that crypto has potential to be a major payment method in the future and belief that crypto is better suited for using in investing than paying with as the predictor variables. The dependent variable interest in using cryptocurrency in online gambling remained the same in this analysis. The analysis was performed on (n=128) respondents, factoring out those who had missing data.

Once again, the null classification, which predicted the outcome without incorporating the predictor variables, predicted a moderate majority rejection of cryptocurrency in online gambling by online gamblers. This prediction was 62 of the 128 participants from the sample would reject cryptocurrency and 52 of the 128 would accept it, with a percentage of predictability of 59.4%. This outcome was expected and was considered a by-product of our first logistic regression analysis. The slight difference is a result of the slight increase of the sample size that was able to be used in this particular analysis. When analyzing the classification table at the end of the logistic regression model, we could see that once again, when the predictable variables were incorporated into the model, the percentage of predictability the model was able to accomplish increased to 78.1%. This showed that the model correctly predicted 62 of 74 observations related to cryptocurrency rejection and correctly predicted 38 of the 52 observations regarding cryptocurrency acceptance. Tables 22 and 23 reflect this.

<table>
<thead>
<tr>
<th>Classification Table a,b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Step 0</td>
</tr>
<tr>
<td>Interested in Using Cryptocurrency in Online Gambling (Accept)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Overall Percentage</td>
</tr>
</tbody>
</table>

a. Constant is included in the model.
b. The cut value is .500

Table 22: Null Classification Percentage of Predictability – Logistic Regression 2

<table>
<thead>
<tr>
<th>Classification Table a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Step 1</td>
</tr>
<tr>
<td>Interested in Using Cryptocurrency in Online Gambling (Accept)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Overall Percentage</td>
</tr>
</tbody>
</table>

a. The cut value is .500

Table 23: Classification Percentage of Predictability – Logistic Regression 2

Looking at the Nagelkerke R-Square, we could see that roughly 47% of the variability in interest in using cryptocurrency in online gambling was accounted for by the predictor variables used in
this model. The Hosmer and Lemeshow Goodness of Fit Test indicated a significance level of 0.569, which indicated the model was able to establish a good fit amongst the predictor variables. However, the same caution we previously described in the first logistic regression analysis regarding the sample size needed to be accounted for. Tables 24 and 25 visualize these results.

An analysis of the relationship between the predictor variables and the dependent variable (Table 26) indicated that based on the unstandardized beta weights (β), that both cryptocurrency ownership by online gamblers and the belief that cryptocurrency has potential to be a major payment method in the future were both strongly related to cryptocurrency acceptance in online gambling. The unstandardized beta weight (β) of cryptocurrency ownership was both positive and statistically significant where β = 1.362 p < 0.01. This indicated that a one-unit increase in cryptocurrency ownership resulted in a 1.362 increase in logit of accepting cryptocurrency in online gambling. Similarly, the unstandardized beta weight (β) of the belief that cryptocurrency has potential to be a major payment method in the future was both positive and statistically significant, where β = 1.084 p < 0.00. As such, a one-unit increase in the belief that cryptocurrency has potential to be a major payment method in the future resulted in a 1.084 increase in the likelihood that accepting cryptocurrency in online gambling. The other two predictor variables were negatively correlated towards accepting cryptocurrency in online gambling, which indicated a one-unit increase in each of these variables decreased the likelihood of accepting cryptocurrency in online gambling. However, both these variables were not statistically significant. The Odds Ratios, Exp (β), indicated that a one-unit increase in cryptocurrency ownership by an online gambler increased the likelihood of accepting cryptocurrency in online gambling by 3.9 times. A
one-unit increase in the belief that cryptocurrency has potential to be a major payment in the future increased the likelihood of accepting cryptocurrency in online gambling by 2.96 times.

<table>
<thead>
<tr>
<th>Variables in the Equation</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1*</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crypto Ownership</td>
<td>1.362</td>
<td>.526</td>
<td>6.690</td>
<td>1</td>
<td>.010</td>
<td>3.992</td>
</tr>
<tr>
<td>Crypto Previously Used as a Payment Method</td>
<td>-.315</td>
<td>.759</td>
<td>.173</td>
<td>1</td>
<td>.678</td>
<td>.729</td>
</tr>
<tr>
<td>Belief that Crypto has Potential to be a Major Payment Method in the Future</td>
<td>1.084</td>
<td>.216</td>
<td>25.186</td>
<td>1</td>
<td>.000</td>
<td>2.958</td>
</tr>
<tr>
<td>Belief that it is Better to Invest in Crypto than to Pay with It</td>
<td>-.330</td>
<td>.209</td>
<td>2.502</td>
<td>1</td>
<td>.114</td>
<td>.719</td>
</tr>
<tr>
<td>Constant</td>
<td>-3.646</td>
<td>1.027</td>
<td>12.613</td>
<td>1</td>
<td>.000</td>
<td>.028</td>
</tr>
</tbody>
</table>

Table 26: Unstandardized Beta (β) Coefficients and Odds Ratios – Logistics 2

As mentioned in the previous regression model, unstandardized beta weights are not necessarily as strong at predicting relative importance of the predictor variables in the context of the regression model. Therefore, the same process was implemented in this second regression analysis in order to calculate the semi-standardized beta weights of the predictor variables. In this case the results were very interesting. By analyzing just, the unstandardized beta weights, we would have determined that cryptocurrency ownership had the strongest relation towards predicting the likelihood of cryptocurrency acceptance in online gambling. However, the semi-standardized beta indicated that belief in cryptocurrency having potential to be a major payment option in the future as having the coefficient of the reference group with a value of 0.322. As such, a one-unit increase in the standard deviation of this predictor variable increased the predictive probability of being interested in using cryptocurrency in online gambling by 32.2%. By factoring in the mean predicted probability of 0.406, the 32.2% change reflected a 72.8% increase in the likelihood of online gamblers being interested in using cryptocurrency in online gambling. In comparison, the next strongest relationship, cryptocurrency ownership, reflected a 56.6% increase in the likelihood of online gamblers being interested in using cryptocurrency in online gambling. Table 27 visualizes these results.

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td><strong>Mean</strong></td>
<td><strong>Std. Deviation</strong></td>
</tr>
<tr>
<td>Crypto Ownership</td>
<td>135</td>
<td>.40</td>
</tr>
<tr>
<td>Crypto Previously Used as a Payment Method</td>
<td>135</td>
<td>.13</td>
</tr>
<tr>
<td>Belief that Crypto has Potential to be a Major Payment Method in the Future</td>
<td>133</td>
<td>3.31</td>
</tr>
<tr>
<td>Belief that it is Better to Invest in Crypto than to Pay with It</td>
<td>129</td>
<td>3.11</td>
</tr>
<tr>
<td>Predicted probability</td>
<td>128</td>
<td>.4062500</td>
</tr>
</tbody>
</table>

Table 27: Calculating the Semi-Standardized Beta Weights – Logistics Regression 2
6.6. Impact of Relevant Technology Knowledge Level on Cryptocurrency Acceptance

A final analysis we conducted in our quantitative study was to observe how the knowledge levels of online gamblers have regarding cryptocurrency and blockchain correlated with accepting cryptocurrency in online gambling. This resulted in some very interesting findings. In general, online gamblers stated that they have less understanding regarding blockchain technology than cryptocurrency. This analysis was based on a rating scale of 1 to 4 regarding knowledge level of both cryptocurrency and blockchain. A rating of 1 represented a poor knowledge level, a rating of 2 represented a fair knowledge level, a rating of 3 represented a good knowledge level and a rating of 4 represented a very good knowledge level. The descriptive statistics provided us with some useful information regarding the average ratings for each construct, their standard deviation and the frequency of each response corresponding to the two constructs. The mean score for cryptocurrency knowledge was a 2.36 and a mode of 2. This meant that the average rating relating to cryptocurrency knowledge was a fair level while the rating with the most responses was also a fair level. The mean score for blockchain knowledge was 1.93 and a mode of 1. This meant that the average rating for blockchain knowledge was just below a fair level and the rating with the most responses was a poor level. Based on these results, we could conclude that online gamblers do not possess much knowledge regarding the functions of cryptocurrency and even less regarding blockchain. Both constructs possessed standard deviations below 1, which indicated a relatively stable coefficient of variation amongst the responses.

Despite online gamblers perceiving themselves as not having much knowledge regarding either cryptocurrency and blockchain, each resulted in positive and significant correlations with cryptocurrency acceptance. However, higher levels of blockchain knowledge resulted in a stronger positive and more significant correlation with cryptocurrency acceptance (0.239 p < 0.01) than higher levels of cryptocurrency knowledge (0.171 p < 0.05). This further highlighted more faith by online gamblers being put into blockchain technology than in cryptocurrency, despite having less of an understanding towards how it functions.

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Crypto Knowledge</th>
<th>Blockchain Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Valid</td>
<td>134</td>
<td>134</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Mean</td>
<td>2.36</td>
<td>1.93</td>
</tr>
<tr>
<td>Median</td>
<td>2.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Mode</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>.862</td>
<td>.898</td>
</tr>
</tbody>
</table>

Table 28: Descriptive Stats Crypto/Blockchain Knowledge
Table 29: Frequency of Responses Corresponding to each Rating

<table>
<thead>
<tr>
<th>Rating</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>19</td>
<td>14.0</td>
<td>14.2</td>
<td>14.2</td>
</tr>
<tr>
<td>2</td>
<td>63</td>
<td>46.3</td>
<td>47.0</td>
<td>61.2</td>
</tr>
<tr>
<td>3</td>
<td>37</td>
<td>27.2</td>
<td>27.6</td>
<td>88.8</td>
</tr>
<tr>
<td>4</td>
<td>15</td>
<td>11.0</td>
<td>11.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>134</td>
<td>98.5</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>136</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 30: Pearson Correlation – Technology Knowledge Impact Factors

<table>
<thead>
<tr>
<th></th>
<th>Crypto Accept</th>
<th>Crypto Knowledge</th>
<th>Blockchain Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Correlation</strong></td>
<td><strong>Crypto Accept</strong></td>
<td><strong>Crypto Knowledge</strong></td>
<td><strong>Blockchain Knowledge</strong></td>
</tr>
<tr>
<td><strong>Crypto Accept</strong></td>
<td>1</td>
<td>.171</td>
<td>.239</td>
</tr>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td>.048</td>
<td>.005</td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>135</td>
<td>134</td>
<td>134</td>
</tr>
<tr>
<td><strong>Crypto Knowledge</strong></td>
<td>.171</td>
<td>1</td>
<td>.754</td>
</tr>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td>.048</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>134</td>
<td>134</td>
<td>134</td>
</tr>
<tr>
<td><strong>Blockchain Knowledge</strong></td>
<td>.239</td>
<td>.754</td>
<td>1</td>
</tr>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td>.005</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>134</td>
<td>133</td>
<td>134</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

6.7 Revised Conceptual Model

The results gained from both studies that were conducted for this thesis project provided us with the required insight towards revising the conceptual model we developed earlier. The former conceptual model presented a hypothesized effect of the selected independent variables, that were identified through previous research, on the dependent variable of cryptocurrency acceptance (rejection). Furthermore, as our research progressed, we developed five more predictor variables that we believed proved useful to the study which were: Perception of Innovative Technologies, Cryptocurrency Ownership, Previous Use of Cryptocurrency as an Online Payment Method, Belief in the Future Capability of Cryptocurrency as a Payment Method and Belief that Using Cryptocurrency as an Investment is a Better Option. New hypotheses were also formed to incorporate these additions.

Using a confidence interval of 90%, we were able to identify four predictor variables that showed a significant relationship towards driving interest towards using cryptocurrency in online gambling. Those being, Cryptocurrency Anonymity, Cryptocurrency Usability, Cryptocurrency Ownership and Belief in Cryptocurrency. As a result, we were able to provide conclusions to our hypotheses and re-develop the conceptual model to incorporate these specific drivers, which is presented below. These are depicted in two separate tables. Table 31 provides the results associated with our original hypotheses and Table 32 provides the results associated with the hypotheses added in cooperation with the new predictor variables we developed further into the research process.
<table>
<thead>
<tr>
<th>Abbreviations</th>
<th>Hypotheses</th>
<th>Conclusions</th>
<th>Associated Theories</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Trust is an important predictor towards online gamblers accepting cryptocurrency usage in online gambling.</td>
<td>Not Supported</td>
<td>Consumer Behaviour - Uncertainty</td>
</tr>
<tr>
<td>H2</td>
<td>Security is an important predictor towards online gamblers accepting cryptocurrency usage in online gambling.</td>
<td>Not Supported</td>
<td>Consumer Behaviour - Uncertainty &amp; Loss Aversion</td>
</tr>
<tr>
<td>H3</td>
<td>Anonymity is an important predictor towards online gamblers accepting cryptocurrency usage in online gambling.</td>
<td>Supported</td>
<td>Consumer Behaviour - Uncertainty &amp; Loss Aversion</td>
</tr>
<tr>
<td>H4</td>
<td>Usability is an important predictor towards online gamblers accepting cryptocurrency usage in online gambling.</td>
<td>Supported</td>
<td>Technology Acceptance Model (TAM)</td>
</tr>
<tr>
<td>H5</td>
<td>Online gamblers are accepting towards using cryptocurrency as an online payment option.</td>
<td>Not Supported</td>
<td>Innovation Diffusion, Disruptive Innovation Consumer Behaviour &amp; TAM</td>
</tr>
</tbody>
</table>

*Table 31: Revised Hypotheses – Original Predictor Variables*

<table>
<thead>
<tr>
<th>Abbreviations</th>
<th>Hypotheses</th>
<th>Conclusions</th>
<th>Associated Theories</th>
</tr>
</thead>
<tbody>
<tr>
<td>H6</td>
<td>Interest in innovative technologies is an important predictor towards online gamblers accepting crypto usage in online gambling.</td>
<td>Not Supported</td>
<td>Innovation Diffusion &amp; Disruptive Innovation</td>
</tr>
<tr>
<td>H7</td>
<td>Experience of having owned cryptocurrency is an important predictor towards online gamblers accepting cryptocurrency usage in online gambling.</td>
<td>Supported</td>
<td>Technology Acceptance Model (TAM)</td>
</tr>
<tr>
<td>H8</td>
<td>Having previously used cryptocurrency as an online payment method is an important predictor towards online gamblers accepting cryptocurrency usage in online gambling.</td>
<td>Not Supported</td>
<td>Technology Acceptance Model (TAM)</td>
</tr>
<tr>
<td>H9</td>
<td>Belief that cryptocurrency has potential to be a major payment method in the future is an important predictor towards online gamblers accepting cryptocurrency usage in online gambling.</td>
<td>Supported</td>
<td>Consumer Behaviour - Uncertainty &amp; Loss Aversion</td>
</tr>
</tbody>
</table>
Belief that cryptocurrency is better suited to be used in investing rather than as a payment method is an important predictor towards online gamblers accepting cryptocurrency usage in online gambling.

<table>
<thead>
<tr>
<th>H10</th>
<th>Not Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory of Reasoned Action &amp; Theory of Planned Behaviour</td>
<td></td>
</tr>
</tbody>
</table>

Table 32: New Hypotheses Relating to Newly Added Predictor Variables

A review of our revised conceptual model gives indication towards how our research results provided a basis for a more complete picture of this thesis project in comparison to our original conceptual model. Regarding the results of our quantitative study, we kept the specific predictor variables (drivers) that proved significant to the context of our study, while removing those that proved insignificant. Regarding our qualitative study, we were able include specific perceptions that were deemed important to cryptocurrency adoption in online gambling by the managers we interviewed on a majority consensus basis. Additionally, our findings were able to give us more insight towards how perceptions regarding innovative technology could be applied to our study. In this scenario, both groups from our studies showed interest in innovative technologies. However, there was not a concrete consensus that this specific interest was directly related to cryptocurrency usage. What we did discover, however, was that there was a positive perception towards blockchain as being a potential useful innovative technology in the industry. This was strongly inferred by the managers we interviewed and there was also some evidence resulting from our quantitative study that online gamblers agreed with this idea as well. As such, our revised conceptual model links perceptions of interest in innovative technologies to blockchain use in online gambling. We created a stronger link to this idea from the managerial perceptions, over the perceptions of the online gamblers since there was a stronger and more concrete belief in blockchain potential from this end of the model. The component “blockchain use in online gambling” was not directly linked to the “cryptocurrency acceptance/rejection in online gambling” component of the model because there were other useful procedures of blockchain, other than cryptocurrency, that were cited. Such procedures included, for example, streamlined registration, solving customer-company disputes and mitigating match fixing.

Figure 20: Revised Conceptual Model
6.7 Discussion on Quantitative Results

The discussion on the results of our quantitative study begins with a summary of our descriptive statistics. The item group (associated with the Likert Scale responses) that scored the highest mean was Interest in Innovative Technologies, which scored an average of 3.83. This indicated that online gamblers are generally interested in innovative technology. The item group that scored the lowest mean was Cryptocurrency Usability, which related to the beliefs of our participants that cryptocurrency is too complex to use. With a mean score of 2.34, we could infer that online gamblers do not perceive cryptocurrency as too complex to use. All other item groups scored means in the low to mid 3s, which indicated an overall neutral perception towards these item groups. However, the high standard deviations associated with each item group, signified that the responses of the participants’ experienced high degrees of variation. We could assume that the high degree in variation of responses was associated with the differences in perception that may occur between those participants who had experience with cryptocurrency and those who did not. In this case, the ratio of the participant group was roughly a 60/40 split on experience with cryptocurrency (60% no experience, 40% experience).

With the help of the Pearson Correlation, we were able to identify specific predictor variables that held significant relationships with the interest of using cryptocurrency in online gambling. It is important to mention that his specific situation refers to the absolute values associated with the relationship between the predictor variable and the dependent variable. In other words, the relationship between the predictor variable and the dependent variable without considering the individual differences associated with the other variables. In this case, cryptocurrency security, cryptocurrency anonymity, cryptocurrency ownership and belief in the future of cryptocurrency all held positive and significant relationships with interest towards using cryptocurrency in online gambling. This meant, that on their own, these four predictor variables had a positive effect towards increasing interest towards using cryptocurrency in online gambling. Other predictor variables such as low levels of trust in cryptocurrency, cryptocurrency complexity and the belief that cryptocurrency is better suited towards investing all held negative and significant relationships with the dependent variable. Thus, meaning that, in absolute terms, they were associated with a decrease towards interest in using cryptocurrency in online gambling.

An interesting discovery from this portion of the analysis was to see that the item group of interest in innovative technologies had no significant relationship towards interest in using cryptocurrency in online gambling, despite scoring the highest mean amongst all the item groups. This would imply, that even though online gamblers are generally interested in innovative technologies and trying new things, this did not necessarily specifically relate to cryptocurrency. In other words, they are open to accepting innovation within the online gambling industry, but cryptocurrency does not seem to be a part of that equation at the moment. This opens the door to discussing the implications of using blockchain in online gambling, but this is further discussed in our triangulation of the results.

The main focus of our analysis of the quantitative study came from the results of our logistic regression models, which predicted the probabilities of cryptocurrency acceptance as a result of the predictor variables. As previously mentioned, our first logistic regression included specific drivers of cryptocurrency usage that were identified during the research stage of this thesis. The
first of those drivers was Interest in Innovative Technologies. As was the result in the Pearson Correlation, this specific item group had little to no effect on increasing the likelihood of online gamblers using cryptocurrency as a payment method in online gambling, and therefore, our hypothesis regarding this item group was rejected. The second item group, trust in cryptocurrency, showed that when lower levels of trust were perceived around cryptocurrency, the likelihood of using it in online gambling was decreased. However, this item group also did not hold strong enough significance for this model and the corresponding hypothesis was rejected.

We felt it would be important to provide some discussion regarding the item group of cryptocurrency security, even though it was deemed to be insignificant for this model. The reason being is that in absolute terms, its relationship with interest accepting cryptocurrency in online gambling was significant and did increase the likelihood of cryptocurrency acceptance in online gambling. However, when compared with individual differences of the other predictor variables, the strength of that relationship was diminished to a level that was insignificant, and therefore, resulted in its corresponding hypothesis being rejected. However, this brought up an interesting school-of-thought. If the model were to only incorporate cryptocurrency security as a measure of motivation for online gamblers to adopt and start using cryptocurrency in online gambling, then we could conclude that beliefs regarding increased levels of security factors associated with cryptocurrency are an important predictor towards cryptocurrency adoption in this particular industry. This went to show that even though security measures seemed to be important to online gamblers, there were other factors that held greater importance to them when cryptocurrency was the central topic.

As was previously mentioned, the final two item groups from the first logistic regression model, cryptocurrency anonymity and cryptocurrency usability, both exhibited high levels of importance in the model. Using the semi-standardized beta weights, we could interpret that an increase of one standard deviation point in the belief that cryptocurrency has increased measures of privacy, increased the likelihood of online gamblers accepting cryptocurrency by nearly 60%. Given the corresponding odds ratio, this inferred that a one-unit increase in this particular predictor variable increased the probability of cryptocurrency acceptance by 2.03x. This iterated the importance this predictor variable held towards our model, and therefore, resulted in our hypothesis regarding cryptocurrency anonymity to be supported. Cryptocurrency usability, on the other hand, exhibited an important relationship towards decreasing the probability of cryptocurrency acceptance. The corresponding odds ratio exhibited that one-unit increase in the belief that the technology was viewed as being too complex, decreased the likelihood of acceptance by nearly 38% (1-.621). Similarly, the associated semi-standardized beta weight exhibited an important relation to the model. As such, we were able to conclude that the more complex online gamblers perceived cryptocurrency to be, the more likely they were to reject using it, and therefore, supported our corresponding hypothesis to this predictor variable.

The second logistic regression analysis, which focused on other factors related to cryptocurrency usage, which we developed during our research, provided two predictor variables that showed high relative levels of importance to the model and two others that proved insignificant to the model. To begin with, having previously used cryptocurrency as a payment method proved to be insignificant to the model. This led us to conclude that our hypothesis regarding the importance of this predictor variable was not supported. Additionally, as it was with cryptocurrency security, the
belief that investing cryptocurrency instead of using it as a payment method proved to be insignificant when factoring in individual differences associated with other predictor variables. As an absolute value, its relationship with cryptocurrency acceptance was significant and negatively correlated. Thus, inferring that higher beliefs to invest cryptocurrency and hold it decreased the likelihood of using cryptocurrency in online gambling. However, due to its insignificance when factoring in other variables, we had to reject our hypothesis related to this particular predictor variable.

The two predictor variables that exhibited high levels of importance to our second logistic regression analysis were cryptocurrency ownership and belief in the cryptocurrencies capability to be a major payment method in the future. These two predictor variables proved to hold significant and positive relationships with acceptance of cryptocurrency in online gambling. Both in absolute terms and when factoring in other predictor variables. The importance of cryptocurrency ownership makes sense given that it provides the online gamblers a basis on which to make their decisions to further accept the use of cryptocurrency in online gambling. The results of our study indicated that having previously owned cryptocurrency, increased the likelihood of online gamblers to accept cryptocurrency as a payment method by 56.6%, utilizing the semi-standardized beta weight. Subsequently, the odds ratio stated that if they owned or had any previous experience using cryptocurrency, they were nearly 4x as likely to accept cryptocurrency usage in online gambling. This allowed us to conclude that our hypothesis regarding cryptocurrency ownership as an important predictor towards acceptance of cryptocurrency in online gambling was supported.

Belief in the future capability of cryptocurrency as a payment method in online gambling was the strongest predictor variable in our entire study. At an absolute level, it was statistically significant at a 95% confidence interval and held the strongest relationship with our dependent variable. Its predictability strength remained when factoring in the other variable within the model. Using semi-standardized beta weights, a one standard-deviation point increase in its belief resulted in a 72.8% increase in the probability that an online gambler would accept cryptocurrency as a payment method in online gambling. This was reinforced by an odds ratio that specified that a similar one-unit increase in this predictor variable would increase the likelihood of cryptocurrency acceptance by nearly 3x. As such, our hypothesis regarding this predictor variable was supported.

Our final portion of the discussion surrounding our quantitative results is related to what we discovered regarding the overall perception towards the acceptance of cryptocurrency in online gambling. In general, online gamblers are not ready to accept cryptocurrency as a payment method. This is associated with the fact that the majority of our participants were not interested in using cryptocurrency in online gambling. The logistic regression models we used in this study predicted an approximate 60/40 split on cryptocurrency rejection. Relating this to both the ratio we calculated regarding cryptocurrency ownership amongst our sample and the results we established regarding cryptocurrency ownership, we can assume that the majority of the participants who exhibited experience with cryptocurrency were the ones who were the most likely to demonstrate interest in using it as a payment method in online gambling. This was also made apparent when analyzing levels of knowledge regarding cryptocurrency and blockchain. These factors also made evident that for those who perceived themselves as having adequate levels of knowledge regarding both constructs were also more likely to adopt cryptocurrency in online gambling. Additionally, both constructs were positively and significantly correlated with cryptocurrency ownership. This
further indicated that online gamblers who have experience with cryptocurrency and perceive themselves as having adequate knowledge regarding the technology involved with it are the ones who are most likely to adopt it in online gambling. This particular finding was similar to that of Polasik et al. (2018, p. 32) who, through their research, discovered that customer knowledge regarding cryptocurrencies, such as Bitcoin, had a significant and positive impact on the share of cryptocurrency in vendors’ sales. However, this group made up the minority of our sample, which then stipulates that if an online gambler has not owned or used cryptocurrency before, they do not feel the need to start using it at this point-in-time. Based on our sample, this particular group makes up the majority of the industry. As such, we can conclude that at this point-in-time, before one can expect cryptocurrency to become an accepted payment option amongst online gamblers, it needs to become more widespread first. And thus, our hypothesis regarding cryptocurrency acceptance in online gambling was rejected.

Based on the results of this quantitative study, our second research question, “what drives consumers within the online gambling industry to use cryptocurrencies, such as Bitcoin, as a form of payment over other traditional payment options available?” was answered. We were able conclude that specific predictor variables had strong predictive capability towards cryptocurrency acceptance in online gambling. Those being cryptocurrency anonymity, cryptocurrency usability, cryptocurrency ownership, and belief in the future potential of cryptocurrency as factors that would influence online gamblers to adopt and use cryptocurrency in online gambling.
7.0 Triangulation

This chapter presents the triangulation, which combines the findings and results of our qualitative and quantitative studies. The triangulation compares the most significant results that were derived from the studies, and then discusses if there is a consensus between online gambling companies and online gamblers as to whether cryptocurrency does have potential to be a viable payment option.

7.1 Perceptions of Anonymity Associated with Cryptocurrency

Based on the results of the quantitative research, we could derive that one of the more important drivers of cryptocurrency usage was anonymity. The Pearson Correlation showed that the item group of anonymity provided positive and significant correlations with interest towards using cryptocurrency in online gambling. This meant that online gamblers were more likely to be interested in using cryptocurrency as a payment method in online gambling when they believed that it provided adequate levels of anonymity. This is in accordance with prior studies that examined the behavioural characteristics of online gamblers. Cotte and Latour (2009, p. 746) state that anonymity was perceived as a notable benefit of online gambling. Gainsbury et al. (2013, p. 36) found that privacy was a major factor influencing the participation in online gambling.

There was some difference in opinion regarding anonymity and its relative importance when comparing the results between how online gamblers perceived it and how managers working in the online gambling industry perceived it. As we mentioned, higher levels of anonymity associated with cryptocurrency was one of the more important factors for online gamblers when it came to the idea of accepting cryptocurrency in online gambling. However, the perception the managers presented towards anonymity was more conservative. There was the sense that the anonymity factor of cryptocurrency was associated with cryptocurrency having a “dodgy” reputation. This was identified as one of the barriers related to managers believing that the online gambling industry was not ready to implement cryptocurrency just yet. The belief here stemmed from stories relating to cryptocurrencies as the payment of choice in illegal or unethical trade activities due to the anonymous nature of the technology. As such, issues relating to privacy and anonymity measures associated with cryptocurrencies are a central point of debate in the cryptocurrency community between users and policy makers. Where measures of increased privacy are important to cryptocurrency users, they provide high levels of concern for policy makers (Zohar, 2015, p. 111).

7.2 Perceptions of Usability Associated with Cryptocurrency

The findings that were derived from the quantitative study demonstrated that consumers did not perceive cryptocurrency as too complex to use. Cryptocurrency usability generated the mean of 2.34. The low mean is in relation to the belief that cryptocurrency is too complex to use and thus, the overall consensus from the survey population was that cryptocurrency was not too complex to use. On the other hand, the Pearson Correlation indicated that the more complex someone perceived cryptocurrency to be, the less likely they would be interested in using it in online
gambling. 8.3% of the survey respondents had used cryptocurrency to make online payments. The majority of the respondents had a positive or neutral view of the experience, as 33.3% described it fast or easy, and 11.1% stated that the experience was similar than using any other payment method. However, 27.8% of the participants described the experience expensive, complicated or bad.

The results of the qualitative study of this thesis indicated that the managers did not perceive complexity as a major barrier for adopting cryptocurrency either. A few of the managers compared cryptocurrency to credit cards and other innovations from the past that were first perceived as complex and suspicious, but eventually became the norm. The managers believed that there are many other, more significant barriers that prevent online gamblers from using cryptocurrency as a payment method. This relatively positive perception seemed to correlate with the fact that online gamblers are gambling online. We could interpret from the interviews that cryptocurrency was perceived as too complex for traditional gamblers who gamble in brick-and-mortar casinos. One explanation for this might be the difference in average age. According to Carver and McCarty (2013, p. 345), the vast majority of traditional casino gamblers are represented in the 45+ age cohort, whereas online gamblers tend to be younger. This was also supported by our quantitative study, as the age group that represented the majority of the participants was 18-29.

7.3 Impact of Owning Cryptocurrency

The results of the quantitative study demonstrated that consumers who owned cryptocurrency were more receptive towards cryptocurrency than those who did not own it. The Pearson Correlation indicated a positive and significant correlation between cryptocurrency ownership and interest in using cryptocurrency in online gambling. Also, an analysis of the relationship between the predictor variables and the dependent variable demonstrated that cryptocurrency ownership had a strong relation to cryptocurrency acceptance in online gambling. The unstandardized beta weight (β) of cryptocurrency ownership was positive as well as statistically significant, where β= 1.362 p < 0.01.

This finding was also in line with the results of the qualitative study; the managers believed that the consumers who own cryptocurrency are more accepting towards using it in online gambling. The majority of the managers did not believe that consumers without experience with cryptocurrency would start using it as a payment method in online gambling. Furthermore, the managers viewed online poker players as being more receptive towards using cryptocurrency than other divisions of online gambling. The results of the quantitative study proved this view to be true, as the division of online poker players included more cryptocurrency owners than other divisions. Furthermore, using cryptocurrency to make online payments was more common among online poker players than other online gamblers.

7.4 Perceptions Regarding the Future of Cryptocurrency

The results of our qualitative study indicated that the majority of the managers interviewed believed that the best time to adopt cryptocurrency was not at the present time, but at some point
in the future. This perception was mainly centered around the ideas regarding industry regulation and the current volatility of cryptocurrencies. Essentially stating that they believed the industry just is not ready to offer the option of utilizing such a technology. Concerns regarding the volatility of cryptocurrencies were heavily associated with the risks they imply. Where the price of cryptocurrencies has a tendency to fluctuate exponentially in short periods of time, they believed it was not worth the risk to incorporate it into their operations. However, they did indicate positive outlooks towards the future potential of cryptocurrency if it were to become regulated in the future. This stemmed from their beliefs that the regulation of cryptocurrency would help stable price fluctuations, as well as remedying the reputation of cryptocurrency by shedding its association with the label of a “black market currency”, towards becoming a form of payment that is more reliable and trustworthy. Zohar (2015, p. 112) emphasizes this particular perception by stating that the decentralized nature of cryptocurrencies, such as Bitcoin, is at risk. This stems from the idea that the current decentralized nature of cryptocurrencies and their protocol development are controlled by small groups of miners and developers. However, recent trends of cryptocurrency mining are shifting towards the control of larger organizations. These larger mining organizations tend to invest in the latest technology and produce their hardware and purchase in mass, which, in turn, provides them with increased returns to scale (Zohar, 2015, p. 112). As such, this particular trend in cryptocurrency mining is slowly eliminating smaller mining groups and shifting cryptocurrency towards a more centralized nature (Zohar, 2015, p. 112). Furthermore, this belief associated with the possible regulation of cryptocurrency can be linked back to the “hodl” mentality. The managers indicated the holding mentality of cryptocurrency owners was another barrier towards adopting and offering cryptocurrency as a payment option at the current time. However, they believed that if cryptocurrency were to one day become regulated, that this holding mentality would diminish, and thus, provide the opportunity to offer cryptocurrency as a payment option on a wider scale.

These perceptions regarding the future potential of cryptocurrency that were extracted from our qualitative study related closely to those that we obtained from our quantitative study. The survey results indicated that online gamblers generally held positive views regarding the future prospects of cryptocurrency. This particular construct had a mean of 3.31 on the 5-point Likert Scale. This was in conjunction with a mode of 4, which therefore, implied agreement towards the idea that cryptocurrency has potential to be a major payment method in the future. Even though the average response from this particular variable was associated to neutrality, a couple factors indicated that online gamblers do have a positive outlook regarding the future of cryptocurrency. First, by further analyzing the descriptive statistics regarding this variable, we could see that 47.4% of the survey respondents gave positive responses towards this construct (agreed or strongly agreed). On the other hand, 28.6% of the survey respondents provided negative responses towards this construct (disagree or strongly disagree). The remaining 24.1% remained neutral. Secondly, this particular variable exhibited the strongest correlation and held the highest level of importance towards predicting the probability of cryptocurrency acceptance out of any of the variables used in this study. Thus, further reinforcing the idea that online gamblers do possess positive outlooks towards the future potential of cryptocurrency.
7.5 Impact of Innovative Technologies in Online Gambling

The results of our qualitative study indicated that blockchain was perceived to have more potential in the online gambling industry than cryptocurrency. The majority of the interviewed managers believed that the blockchain technology could be a useful tool, and that it could pose a positive impact towards streamlining different processes such as customer registration throughout multiple gaming sites or solving problems with match fixing. We could distinguish a perception that the online gambling industry is currently more prepared to implement the blockchain technology than to adopt cryptocurrency as a payment method. Each manager also felt that innovative and/or disruptive technologies were vital to the long-term growth of the company. However, cryptocurrency was not perceived as a factor that could disrupt the online gambling industry in the near future. According to Bower and Christensen (1995, p. 53), a disruptive technology must be accepted by important customers within the mainstream business’s financial demands or otherwise the company fails. The managers believed that cryptocurrency needs to become more regulated and accepted until a widespread adoption could happen within consumers in the online gambling industry.

The managers’ views correlated with the findings of the quantitative part of this study; the majority of online gamblers were not accepting towards cryptocurrency. The logistical regression analysis showed that 74 of the 125 survey respondents rejected cryptocurrency in online gambling. However, the study also demonstrated that consumers were interested in innovative technologies, as it had the highest average mean of 3.83 on a 5-point Likert scale. Based on this, we could infer that online gamblers were accepting towards innovative technologies, but the stance did not particularly relate to cryptocurrency.

This provided us with an indication as to what level cryptocurrency and blockchain use has spread within online gambling by relating this back to what we learned from Prethus and O’Malley (2017) regarding diffusion of innovation. Our study indicated that online gamblers tend to have a high degree of interest in innovative technology and tend to perceive themselves as early adopters. This is a good cohort to target in order to help boost the success rate of a new technology. Furthermore, as Prethus and O’Malley stipulated, for an innovative technology to become diffused, it needs to reach the critical mass. It is evident that this has not occurred yet with cryptocurrency or blockchain; yet the results of this study indicated that there is potential for this to occur. Key components of an innovative technology reaching the critical mass and becoming diffused are: the technology providing a sense of uniqueness, being communicated through the proper channels, and being adopted by members of a social class and if the timing makes sense. We can argue that based on the findings from our study, technologies such as cryptocurrency and blockchain both possess the first three key elements of innovation diffusion. They both provide an element of uniqueness, they are both widely communicated amongst various communication and media channels and they have both been adopted by members of a social class. However, unlike with blockchain, the timing of widely adopting cryptocurrency is just not there yet. This could relate to the scale of what blockchain is capable of compared to cryptocurrency, since it has many more uses beyond just being a system for alternative monetary transactions. Furthermore, we were able to gain deeper insight by incorporating aspects of innovation diffusion, such as relative advantage and complexity, as described by Rogers (2002, p. 990). Whereas both elements are important to the adoption of an innovative technology, our results from the study indicated that cryptocurrency
does not necessarily provide any relative advantage in online gambling. The majority of online gamblers are just as comfortable and content with using current fiat currencies for the time being. This could be one reason as to why the perception of cryptocurrency as an innovative technology has not entirely spread amongst online gamblers. However, we discovered that cryptocurrency was not considered too complex to use by online gamblers, which gives it potential for future diffusion. On the other hand, perceptions regarding the relative advantage of blockchain technology were positive. These were related to the broader scope of its capabilities, mainly its ability to streamline important procedures in online gambling. However, its complexity remained unclear. This gives indication that the widespread use of cryptocurrency is not quite there yet, but its future potential is evident. However, there seems to be a greater emphasis on a widespread adoption of blockchain sooner rather than later.

The online gambling industry and its consumers were both reluctant to accept cryptocurrency, but open towards innovative technologies. This leads to discussing of the potential of adopting blockchain in online gambling. The results of our qualitative study indicated that the managers perceived a need to differentiate and innovate in order to remain competitive and maintain or increase the market share. According to Iansiti and Lakhani (2017), adopting cryptocurrency faces high barriers to adoption as it aims to replace entire ways of doing business and requires customers to change their behaviour, whereas facilitating the adoption of blockchain can be executed on a smaller scale and with less risks. Thus, focusing on blockchain instead of cryptocurrency might appear as a better source of competitive advantage.

7.6 Impact of the Holding Mentality and Investing with Cryptocurrency

The interviewees discussed that the prevalent way of holding cryptocurrency posed as another barrier for adopting cryptocurrency. The managers believed that people are more willing to hold cryptocurrency and use it as an investment tool instead of using it as a currency to make purchases with. An overall perception was that cryptocurrency needs to become a viable option for everyday use before it can be widely used as a payment method in the online gambling industry. The managers’ views were supported by the findings of the quantitative study, as the most common purpose to own cryptocurrency among the consumers was holding. The Pearson Correlation showed that the belief that cryptocurrency was better suited as an investment option was negatively correlated with interest in using cryptocurrency in online gambling with a significance at the 0.05 level. Thus, if the participant believed that cryptocurrency was more useful to invest, they would not be interested in using it in online gambling. Even though the Pearson Correlation indicated a positive correlation between cryptocurrency ownership and interest in using cryptocurrency in online gambling, it needs to be taken into account that the majority of the online gamblers had not owned or used cryptocurrency. 37.3% of the survey participants had owned cryptocurrency, and only one third of them had used it to make online payments. This indicates that the group of consumers that would be interested in using cryptocurrency in online gambling is small.

The managers discussed that people do not use cryptocurrency to make online payments because they hope that its value increases. One manager stated that no one wants to be that person who bought a pizza for 500 Bitcoins back in 2008. Therefore, the pressure to hold onto purchased cryptocurrencies instead of spending them or selling off in hopes of getting rich may be high. A
related concept that was brought up by both managers and consumers was FOMO – *Fear of Missing Out*. It is characterized by the desire to stay continually connected with what others are doing, and by fear that others are having rewarding experiences from which one is absent (Przybylski et al., 2013, p. 1841). The results of the qualitative study showed that several managers had purchased cryptocurrencies by themselves because their friends had done so; they wanted to understand what is happening, get involved in conversations, and not be left behind by the “cryptocurrency train”. The findings of the quantitative study demonstrated similarities, when online gamblers were asked what purpose they had owned cryptocurrency for. Therefore, we argue that the fear of missing out may have an influence on the prevalent holding mentality – people do not want to use or sell their cryptocurrencies because they fear to miss out the possibility to get rich. Also, the uncertainty that is surrounding cryptocurrency may influence this even more; according to Cialdini (2011), people are especially likely to follow others’ actions and accept them as correct under uncertain circumstances.

### 7.7 Overall Perception of Cryptocurrency Adoption in Online Gambling

The overall perception of the online gambling industry towards cryptocurrency adoption was directed towards rejection. The major barriers for adopting cryptocurrency were volatility, lack of regulation, negative reputation, and the perception that there is no widespread use of cryptocurrency as a payment method. We could distinguish from the interviews that the negative reputation is caused by the unregulated state of cryptocurrency at least to some extent. High volatility was also perceived as a factor that is enabled by the lack of regulation. In comparison to fiat currencies, the volatility of cryptocurrencies provide opportunity for possible quick huge profits. However, they also present the possibility for equally large losses. And this amount of uncertainty relating to the potential earnings online gambling companies can obtain by implementing cryptocurrency into their business structure is not appealing to them. Especially in an industry that is trending towards more regulatory control (Owens & Lavitch, 2013, p. 764). Furthermore, the managers believed that regulation and decrease in volatility are necessary requirements until cryptocurrency could be widely adopted and used to make online payments. Even though these barriers were connected and affecting each other, the most central factor seemed to be the lack of regulation.

Online gamblers were not ready to adopt cryptocurrency as a payment method either. This was associated with the fact that majority of the participants were not interested in using cryptocurrency in online gambling. The logistic regression models that were used in this study predicted approximately a 60/40 split on cryptocurrency rejection. Based on the calculations and established findings regarding cryptocurrency ownership amongst the participants, we argue that the people who have experience with cryptocurrency are the most accepting towards using cryptocurrency in online gambling. However, online gamblers who had owned cryptocurrency accounted for 37.3% of the participants in the quantitative study. Thus, they represented a minor part of the total sample.

Based on the findings of the both studies, we argue that the lack of regulation is the most significant barrier that prevents the wide adoption of cryptocurrency in online gambling from the industry perspective. From the consumer perspective, it is more difficult to distinguish one major reason causing the rejection. As the results of our quantitative research showed, low level of trust in
cryptocurrency, cryptocurrency complexity and the belief that cryptocurrency is better suited towards investing were associated with a reduce towards interest in using cryptocurrency in online gambling. Also, a lack of experience with cryptocurrency seemed to direct online gamblers towards rejecting cryptocurrency, rather than accepting it. These issues were similarly expressed by Owens and Lavitch (2013, p. 764) who stated that if online gamblers do not understand how cryptocurrencies work, they are not particularly interested in learning.

7.8 Summary of Triangulation

We constructed the following table (Table 33) to provide a clearer summary regarding the results of the triangulation of both our qualitative and quantitative studies. The first column describes the factors related to cryptocurrency acceptance or rejection in online gambling, the second column provides a description regarding the managers’ perceptions towards each of these factors and the third column provides a description regarding the perceptions of the online gamblers towards each of these factors.

<table>
<thead>
<tr>
<th>Cryptocurrency Accept/Reject Factors</th>
<th>Managers’ Perceptions</th>
<th>Perceptions of Online Gamblers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importance of Anonymity Factors Associated with Cryptocurrency</td>
<td>Anonymity is associated with particular traits that have resulted in cryptocurrency having a sketchy reputation.</td>
<td>Anonymity is an important benefit of cryptocurrency.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Significant correlation with increasing interest towards using cryptocurrency in online gambling.</td>
</tr>
<tr>
<td>Importance of Usability Factors Associated with Cryptocurrency</td>
<td>Not a significant barrier to cryptocurrency adoption in online gambling.</td>
<td>Cryptocurrency is not perceived as being too complex for online gamblers to use.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Significant negative correlation with cryptocurrency adoption if considered too complex to use.</td>
</tr>
<tr>
<td>Impact of Owning Cryptocurrency Towards Accepting Cryptocurrency Usage in Online Gambling</td>
<td>Believe that online gamblers who already own cryptocurrency are the ones who would accept it as a payment method.</td>
<td>Cryptocurrency ownership by online gamblers was significantly and positively correlated with cryptocurrency acceptance in online gambling.</td>
</tr>
<tr>
<td></td>
<td>Believe online poker players to be the customer group most likely to own and use cryptocurrency.</td>
<td></td>
</tr>
<tr>
<td>Beliefs Regarding the Future Outlook of Cryptocurrency</td>
<td>The online gambling industry is not quite ready to adopt cryptocurrency. Believe cryptocurrency has a bright future as a payment method if certain circumstances occur.</td>
<td>Believe that cryptocurrency has strong potential to be a major payment method in the future. This belief is significantly and positively correlated with cryptocurrency acceptance in online gambling.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Impact of Innovative Technology Towards Online Gambling</td>
<td>Innovative and disruptive technology is important to the viability of the company. More faith in blockchain technology than in cryptocurrency.</td>
<td>Interested in innovative technologies, but cryptocurrency is not necessarily related to this interest.</td>
</tr>
<tr>
<td>Holding Cryptocurrency/Investing Cryptocurrency and its effect Towards Acceptance in Online Gambling</td>
<td>The holding cryptocurrency phenomena acts as a barrier towards cryptocurrency acceptance in online gambling. Cryptocurrency usage needs to become more widespread before it can become a viable payment method.</td>
<td>If an online gambler believes that cryptocurrency is more useful as an investment option, they would be less likely to accept it as a payment option.</td>
</tr>
<tr>
<td>Overall Perception Towards Accepting or Rejecting the Idea of Cryptocurrency as a Payment Method in Online Gambling</td>
<td>Majority perceptions towards rejecting cryptocurrency as a payment method in online gambling at the current time.</td>
<td>Moderate majority perceptions towards rejecting cryptocurrency as a payment method in online gambling at the current time.</td>
</tr>
</tbody>
</table>

*Table 33: Triangulation Table*
8.0 Conclusions

In this chapter we address the purpose of this research and answer the research questions in the general conclusion. Next, we provide the theoretical contributions in relation to prior research. This is followed by our practical contributions our data and analysis represent for managers in the online gambling industry and in general. Furthermore, we discuss the social implications in relation to this research. The last part of this chapter presents the limitations and suggestions for future research in this area.

8.1 General Conclusions

The purpose of this research was to discover if there is a consensus between the online gambling industry and online gamblers pertaining to the practicality of adopting and using cryptocurrency in the online gambling industry. To accomplish this, we aimed to gain a deeper understanding towards how companies in the online gambling industry perceived cryptocurrency as a potential form of monetary income. Also, we wanted to understand how online gamblers perceive cryptocurrency as an option to not only place wagers with, but to earn winnings with as well.

In order to conduct this study, we utilized a mixed-methods research design. The qualitative part of this thesis focused on the industry, and it included interviews with managers from an online gambling company. The interview consisted of four themes: cryptocurrency and innovative technology, online gambling industry, link between cryptocurrency and the industry, and perceptions of customer-base towards cryptocurrency. The quantitative part of this research focused on consumers, and it consisted of a survey targeted towards online gamblers. The survey was built around four themes: trust, security, anonymity, and usability.

To fulfill the purpose of this study, three different research questions were established:

1. “How do online gambling companies perceive accepting cryptocurrency as a potential payment option in their industry?”

2. “What drives consumers within the online gambling industry to use cryptocurrencies, such as Bitcoin, as a form of payment over other traditional payment options available?”

3. “Is there a common consensus between companies operating in the online gambling industry and their customers (online gamblers) as to whether cryptocurrency does have potential to be a viable payment option?”

The insights and results obtained from our qualitative study helped us answer our first research question. In this case, we discovered that the perception towards accepting cryptocurrency as a payment option in the online gambling industry is quite conservative. Our results showed us that, currently, more emphasis is being put towards abiding by regulation standards in the industry. Adopting and offering unregulated cryptocurrency as a payment option does not necessarily align with that strategy at the present time. Besides the lack of regulation, we distinguished that the
prevalent holding mentality, volatility, and negative reputation are barriers that prevent online gambling companies from adopting cryptocurrency as a payment method. Due to the negative aspects, cryptocurrency is not seen as a disruptive innovation that could bring competitive advantage for online gambling companies at the current time. However, the results indicated that cryptocurrency is perceived to have potential once it becomes regulated and obtains widespread usage. This linked to the findings of Polasik et al. (2018, p. 37) who also establishes that cryptocurrency usage had not yet reached the required critical mass and could only really be considered an alternative currency for online purchases in the e-commerce industry. Furthermore, Polasik et al. (2018, p. 37) also establishes that the unregulated nature of cryptocurrencies remained a major obstacle towards becoming a payment option more widely adopted by companies operating in e-commerce.

Our quantitative study helped answer our second research question. Based on the results from the survey we conducted and their corresponding analysis, we were able to identify cryptocurrency anonymity, cryptocurrency usability, cryptocurrency ownership, and belief in the future potential of cryptocurrency as factors that would influence online gamblers to adopt and use cryptocurrency in online gambling. However, to be precise, we would say that belief in the future potential of cryptocurrency is the factor that has the greatest influence of all of them. Even though these drivers were discovered to have a positive effect, the majority of online gamblers are not ready to accept cryptocurrency as a payment method. By linking this to the diffusion of innovation theory (Rogers, 1962), we can conclude that the group of receptive online gamblers is still relatively small and consists of innovators and early adopters. Therefore, the diffusion of innovation – cryptocurrency as a payment method – remains in the early phase of the S-curve. As the surrounding environment of cryptocurrency is still notably uncertain, the cumulative prospect theory may explain different reflection pattern of attitudes towards the prospects of it (Tversky & Kahneman, 1992a, p. 316). Some people are overweighting small probabilities, while others underweight high probabilities.

Our triangulation of the results from both studies helped us answer our third research question. In this case, there was a consensus between online gamblers and the companies operating in the online gambling industry that at the current time, cryptocurrency is being rejected as a payment option. However, both parties did provide positive perceptions regarding the future potential of cryptocurrency as someday being a viable payment method in the industry.

8.2 Theoretical Contributions

Due to a lack of research combining cryptocurrency and the online gambling industry with both company and consumer perspectives, we were able to provide a deeper understanding of the topic. This study therefore contributed by clarifying whether there is a consensus between online gambling companies and online gamblers when it comes to the potential of cryptocurrency as a payment method. As the results showed, neither side was ready to adopt cryptocurrency as a payment method in online gambling. By identifying and assessing the barriers for adoption, we were able to examine the disruptive potential, the diffusion of innovation and the impact of uncertainty in the context of cryptocurrency in online gambling. These findings were valuable because cryptocurrency is a relatively new and unexplored subject, which has experienced rapid changes in recent years. Thus, there is a need for new theoretical contributions.
Given that cryptocurrency use is still in its infancy stage, there is little in terms of previous research towards company perceptions towards its adoption, more specifically, in the online gambling industry. Therefore, the qualitative part of this thesis contributed by examining if adopting cryptocurrency could provide competitive advantage or higher profits for companies. As mentioned, we discovered that adopting cryptocurrency could cause negative consequences for online gambling companies at current time. Besides identifying the factors that decreased the potential of cryptocurrency adoption in the industry, we could generate theoretical contributions regarding the future outlook of cryptocurrency from the company perspective. We discovered that cryptocurrency has disruptive attributes, but it cannot be considered as a disruptor in online gambling. Instead, blockchain could be seen as a disruptive technology once its reaches wider adoption. As Christensen (2015) states, disruption occurs, when mainstream customers start adopting the offerings in volume.

The theoretical contribution of our quantitative study gave a more extensive picture of what factors drive consumers to use cryptocurrency as a payment method in online gambling. We identified the drivers and distinguished potential barriers that prevent online gamblers from adopting cryptocurrency. Besides providing brand new findings in the context of cryptocurrency in online gambling, we contributed by deepening the knowledge regarding the behavioural traits of online gamblers. Our findings correlated with Carver and McCarty’s (2013) research, which describes online gamblers as more likely to be male, younger and better educated than traditional gamblers. Our quantitative research also contributed by providing data about the characteristics of cryptocurrency users. The most common purpose to own cryptocurrency is to hold it, and the most receptive group of online gamblers consists of poker players. These insights were beneficial because the prior research in the field of cryptocurrency focuses mostly on aspects other than the users.

Furthermore, the concept of innovation diffusion by Rogers (2012), was useful towards assessing the current state of cryptocurrency adoption in online gambling and the potential future growth of the technology in the industry. Our results indicated, that the diffusion of cryptocurrency use in online gambling remains in an early phase of the diffusion S-curve. As Rogers (2012, p. 991) states, the acceptance of the innovation by mainstream customers is based on the information they disseminate from innovators and early adopters. Our results showed that this information has been influenced by a number of negative aspects in recent years, but it is moving towards more positive direction. This can specifically be pinpointed to the strength in belief online gamblers held towards the future potential of cryptocurrency and those same beliefs being held by managers in the online gambling industry. Despite there currently being a rather suspicious reputation surrounding cryptocurrency, it would appear that online gamblers and the industry itself believe that cryptocurrency is moving in the right direction towards wider adoption.

This study was able to develop a clearer understanding surrounding the interest in innovation in this particular industry and the type of cohort group online gamblers generally believe themselves to be a part of. As such, further theoretical approaches were extended not only to cryptocurrency adoption in online gambling, but to the relevant importance of blockchain technology as well. Additionally, research by Gainsbury et al. (2013, p. 236) provide insight towards the behavioural tendencies of online gamblers. Their results indicated that measures of privacy were key factors towards influencing online gambling. Our research corroborated with these specific results,
indicating that increased measures of privacy towards other components of online gambling are viewed as important factors by online gamblers. However, it differed slightly in the context that Gainsbury et al. (2013, p. 236) identified security as another major element towards influencing online gambling. Whereas we discovered that higher security measures related to cryptocurrency do hold prominence towards accepting it in online gambling, it was not the strongest predictor of cryptocurrency acceptance. Therefore, we could state that our research provided further theoretical context towards understanding specific key motivators in online gambling. This could, to an extent, be conveyed to the e-commerce industry as well. However, since online gambling provides a different overall experience than the traditional retail experience of e-commerce, some differences in results would be evident.

8.3 Practical Implications

The practical implications of this study provided an understanding of the consumer perspective in the context of cryptocurrency in the online gambling industry. Our findings may help managers within the online gambling industry to develop or pursue their strategies in relation to payment methods and cryptocurrency. As the findings indicated, there are currently several barriers that pose challenges for companies and prevent widespread consumer adoption of cryptocurrency. Thus, our research helps managers by pointing out potentially negative aspects that should be taken into account. In general, adopting cryptocurrency at its current stage could be a risky step to take. As the results indicated, some aspects need to change until widespread adoption of cryptocurrency among consumers could be possible. Therefore, the information we provided in this study can help managers to examine whether adopting cryptocurrency would be a profitable move.

This research also showed that the division of online poker players was the most receptive towards using cryptocurrency in online gambling. Furthermore, owning or using cryptocurrency was rare among female online gamblers. This information can help managers to judge whether cryptocurrency would raise interest in the customer-base of the company. We also believe that the results can deliver useful insights for e-commerce companies in other industries. Even though the research was conducted in the online gambling industry, some of the distinguished themes extend over the industry borders, such as the reputation of cryptocurrency and the prevalent holding mentality. We argue that these are concerns that companies should take into consideration before adopting cryptocurrency. Furthermore, we believe that the findings regarding the characteristics of cryptocurrency users within the online gambling industry may provide valuable information for cryptocurrency exchanges or other operators in the field when it comes to consumer acquisition and engagement.

8.4 Societal Implications

We believe that the results of this study can pose a positive societal impact by providing more information for society regarding the topics of online gambling and cryptocurrency. As our findings indicated, the majority of online gamblers is not very familiar with the concepts of cryptocurrency or blockchain. Media pushes ostentatious stories regarding cryptocurrency and gathering reliable knowledge might be difficult in the crossfire of overly positive or negative
headlines. Cryptocurrency is an interesting innovation that can provide benefits for many people, but it is necessary to take the negative sides into account as well. We aimed to be transparent and observe the phenomenon from different angles. We believe that our study offers a relatively encompassing view of cryptocurrency which helps people to form their own opinions and insights of this emerging technology. Besides cryptocurrency, online gambling is a topic that raises strong opinions in people. Big wins, big losses, gambling problems, and different restrictions are subjects that are often associated with online gambling. We aimed to remain objective and focus on offering new insights regarding the industry. Our findings of the highly competitive industry and business strategy of Company X may be helpful and interesting for other companies.

8.5 Limitations and Suggestions for Further Research

The qualitative part of this study was conducted with managers from only one online gambling company. This can be seen as a limitation, as each company has different strategy and values which may affect managers’ views. If we would have had more resources, mainly in relation to time, we could have interviewed managers from other companies in the same industry. Therefore, we suggest further research to focus more on diversity and include participants from different companies. Another limitation of the qualitative study is that all interviewees were held in English. A couple of the participants were native English speakers, but the other respondents may not have been able to express themselves as clearly as they would have liked. Part of the Skype interviews were done without video connection (audio call), which did not give an opportunity to observe the non-verbal behaviour of the participants. Also, the participants could have felt more comfortable and provide more information in face-to-face interviews.

Convenience sampling technique can be seen as limitation that affects the generalizability of our quantitative study in a negative way. We suggest further research to use probability sampling in order to assure that the sample is representative of the whole population of online gamblers. Furthermore, the relatively small and unilateral sample size can be seen as a limitation. The 151 survey participants consisted of 12 different nationalities, but the majority of them were Finnish. This poses a limitation to the generalizability, as the population of online gamblers is widespread around the world. Therefore, we suggest the future research to collect larger and more diverse sample in order to guarantee its representativeness.

This study is to the best of our knowledge the first one combining consumer and company perspectives when it comes to the topic of cryptocurrency as a payment method. To improve the generalizability, we suggest that this study should be conducted in a larger scale and with a random sample. Furthermore, a similar mix-method study could be conducted in another e-commerce industry to see how the consensus between consumers or companies matches or mismatches in different setting. Additionally, given that the main focus of this study was on cryptocurrency, we believe not enough attention was given to blockchain technology and its potential impact in online gambling. Therefore, we believe that further studies on this specific topic would provide further insight into the future potential for technological development in online gambling.
9.0 Truth Criteria

This final chapter provides the truth criteria to assess the quality of the research. We chose reliability, validity, credibility, and dependability as they represent viable criteria to evaluate the quality of this study. The first part of this chapter focuses on the quantitative study, and the second part focuses on the qualitative study.

9.1 Quantitative Truth Criteria

Reliability and validity are important criteria in assessing and establishing the quality of a quantitative research study (Bryman, 2012, p. 389). Reliability refers to consistency and replication; a research study is reliable if the researcher is able to replicate the earlier research design and achieve the same results (Saunders et al., 2016, p. 202). Validity can be assessed by the appropriateness of the used measures, accuracy of the analysis of the results and generalizability of the findings (Saunders et al., 2016, p. 202). Even though reliability and validity can be analytically distinguished, they are related because validity presumes reliability (Bryman, 2012, p. 173). This means that unreliable measures cannot be valid either (Bryman, 2012, p. 173).

According to Saunders et al. (2016, p. 202), there are four kinds of threats to reliability: participant error, participants bias, researcher error, and researcher bias. To ensure the reliability of this study, we kept the threats in our minds throughout the thesis project. The internal reliability of the quantitative study was measured by using Cronbach’s Alpha, which is the most widely used statistical tool to measure the consistency of responses to a set of questions (Saunders et al., 2009, p. 451). We used 0.65 as the minimum acceptable reliability measure for five separate item groups we had distinguished. Some of the groups had too low alpha score, which required us to reduce the number of questions used to evaluate the results. Hence, we chose to use the questions that best represented the definition of these groups.

Replication is not possible if a researcher does not report the used procedures in a transparent way and in great detail (Bryman, 2012, p. 47). To enhance the replicability of this study, we explained all parts of the study as accurate as possible. We emphasized and reasoned our choices in relation to the scientific and practical methodology and explained our preconceptions to provide an outlook on the previous knowledge we had on this subject. Also, we presented the survey questions, which allows one to observe the context in which the questions were asked. We went through the thesis and evaluated it a number of times to make sure it does not contain false assumptions or logic leaps (Saunders et al., 2016, p. 203). Furthermore, we adopted and adapted the majority of the survey questions from previous studies, which is often necessary if one wishes to conduct a replicable study (Saunders et al., 2016, p. 452). The web questionnaire was also tested on several people to ensure that all questions were clear and relevant.

 Appropriateness of the used measures can be termed as measurement validity, which is associated with different types of validity to examine this intention (Saunders et al., 2016, p. 202). We assessed the measurement validity of our research by face validity and construct validity. As Bryman (2012, p. 171) suggests, we asked experienced and relevant people to determine whether
the chosen measures seemed to reflect the intended concepts to ensure the face validity of our quantitative study. This is closely related to construct validity, which refers to the extent to which a set of questions measures the presence of the construct that they are intended to measure (Saunders et al., 2016, p. 450-451). Construct validity is particularly important in online questionnaires, as there is no chance to explain or clarify the meaning of a question (Greener, 2008, p. 37). Testing the measurement validity of our questionnaire before launching it was important, as it allowed us to restructure or delete certain inappropriate measures.

Internal validity is concerned with the question of whether a conclusion that includes a causal relationship between variables is firm (Bryman, 2012, p. 203). In a questionnaire-based survey, internal validity is established when a set of questions can be presented statistically to be associated with an analytical outcome (Saunders et al., 2016, p. 203). To avoid invalid findings, we paid close attention to possible threats that might have reduced the internal validity of our research. The environment surrounding cryptocurrency is volatile, which is why we wanted to complete the quantitative data collection in a short period of time. By doing this we could better avoid the threat of an event which could change the participants’ perceptions (Saunders et al., 2016, p. 204). In our case, such an event could have been an extreme price fluctuation or the establishment of a new consequential restriction.

External validity refers to the question whether the findings of a research can be generalized to other relevant groups or settings (Saunders et al., 2016, p. 204). The preoccupation with generalization can be seen as an attempt to generate the law like findings (Bryman, 2012, p. 176). We used non-probability sampling and convenience sampling methods due to the limited resources and challenges in obtaining an accurate sampling frame. This might have affected the generalizability of this study in a negative way, as the sample is not representative of the entire population of online gamblers. The main way to generate a representative sample of a population is to use probability sampling, which largely eliminates bias from the selection of a sample by using a process of random selection (Bryman, 2012, p. 176). Convenience sampling does not allow definite findings to be generated, but it can provide a springboard for further research (Bryman, 2012, p. 201-202).

9.2 Qualitative Truth Criteria

Reliability and validity are important criteria in assessing the quality of quantitative research, but there has been some discussion concerning their relevance for qualitative research (Bryman, 2012, p. 389). Reliability and validity are often considered as technically and philosophically inappropriate in relation to qualitative research, where reality is regarded being multifaceted and socially constructed (Saunders et al., 2016, p. 204-205). According to Saunders et al. (2016, p. 205), there are three types of responses to this scenario. Firstly, researchers continue using reliability and validity, adapting them to qualitative research. Secondly, researchers adapt parallel versions of the concepts. And thirdly, researchers move further away and develop new concepts (Saunders et al., 2016, p. 205). We decided to follow the second option as we did not find the quantitative assessment criteria suitable to our qualitative research. Guba and Lincoln (1985, 1994) formulated alternative criterions to assess qualitative research: dependability, credibility, and
transferability, and confirmability. We chose to use dependability and credibility as the criterions to evaluate the quality of our qualitative study.

Dependability is the parallel criterion to reliability (Saunders et al., 2016, p. 206). To establish the merit of research in terms of dependability, a researcher needs to adopt an auditing approach (Bryman, 2012, p. 392). An auditing approach means that all phases of the research process are recorded, including problem formulation, selection of research participants, interview transcripts, data analysis decisions, and so on (Bryman, 2012, p. 392). According to Saunders et al. (2016, p. 206), this means recording all changes in order to produce a dependable and reliable research focus that others may evaluate. We ensured the dependability of the qualitative part of the study by ensuring that each phase was defined and explained in a detailed manner. We also documented or recorded all phases throughout the thesis project. This included, for example, interview audio recordings, transcripts and notes.

Credibility is the parallel criterion to internal validity, and it emphasizes assuring that the research participants’ representations actually match what the participants intended (Saunders et al., 2016, p. 206). Ensuring the match can be done by checking data, analysis and interpretations with participants, using a different person to discuss ideas and test out findings, or refining the analysis to produce the best possible explanation of the phenomenon (Saunders et al., 2016, p. 206). We used several techniques to ensure the credibility of our findings. In the end of each interview, we asked the participants if there was anything they felt was left out or would want to comment on. The interviews were recorded, and the transcripts were conducted immediately after each interview. We offered each participant a chance to read through the transcript in order to confirm that everything matches the intentions. Furthermore, we used triangulation, which is another technique to confirm that a researcher has correctly understood the social world (Bryman, 2012, p. 390). By using triangulation, the researcher may establish whether the quantitative and qualitative findings corroborate each other (Bryman, 2012, p. 635).
References:


Appendix 1: Letter of Informed Consent

Hello,

Our names are Nicolas Werle and Liina Lehtonen and we are two master’s students studying Business Development and Internationalization at Umeå University in Sweden. We are currently writing our Master’s Thesis on the perspective potential of cryptocurrency in the online gambling industry, and therefore, would like to request conducting an interview with you in early-mid April. Your participation is completely voluntary and you have been asked to participate due to your expertise working in the online gambling industry. Please read the information below regarding the study and the interview process.

Our Topic:

The goal of our research is to generate data that provides insight into the perceived potential and viability of cryptocurrency in the online gambling industry. Since online gambling is a sector within e-commerce, this research can provide insight towards the potential future growth of cryptocurrency adoption in e-commerce. Furthermore, we are looking to discover if there is a consensus between consumers in the online gambling industry and online gambling companies regarding the potential use of cryptocurrency in this particular industry. This research will be conducted by collecting data through surveys with consumers and interviews with managers.

Procedures:

By volunteering to take part in the study you will be asked to participate in an interview in which you share your perceptions towards the potential for cryptocurrency use in your respective industry of employment. The interview will be conducted over Skype or phone, based on your method of preference and should not last more than one hour. It will be guided by a series of pre-defined questions and will be audio recorded for the purpose of transcribing. The audio recordings will be stored securely and upon completion of transcribing the data from the interview, they will be deleted. Once the data has been transcribed and analyzed, we will send a copy to you to review in order to provide feedback to assure the accuracy of the answers. If you are uncomfortable with the idea of conducting the interview with audio recording, please contact us and we can work out a way to conduct the interview through other means without it.

Confidentiality:

Any information and answers in the study that can be identified with you will remain confidential. Responses will not be linked with the identity of the participant and pseudonyms will be assigned to each participant, site and the company name.

Participation and Withdrawal:
Participation in the interviews is voluntary and you are free to withdraw at any point without consequences of any kind. You are also free to refuse to answer any questions you do not feel comfortable answering.

Benefits of the Study:

The results of the study have the potential to be beneficial in the context that they will indicate perceptions surrounding the adoption of cryptocurrency use in this specific industry. Results from the interviews conducted with managers working this industry will be compared to survey results we will compile from consumers in this industry. This comparison can then give an indication whether there is a positive/negative perception surrounding the technology, which can help in making strategic decisions towards adopting it as a part of the company’s business model.

We thank you for your time and for helping us carry out this study. We have also attached a copy of the interview guide that we will be using to perform the interview for your convenience. If you have any further questions regarding the interview process, please feel free to contact us.

Nicolas & Liina

Nicolas Werle
niwe0032@umu.student.se

Liina Lehtonen
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Appendix 2: Interview Guide

**Introductory Questions**

1. What is your current position in the company?
   1. How long have you worked in this position?
   2. What kind of day-to-day tasks do you do?
   3. What is your educational background?

2. How long have you worked in the online gambling industry?

**Theme: Cryptocurrency + Innovative Technology**

3. Do you consider yourself knowledgeable when it comes to the topic of cryptocurrency?

4. Could you explain your interpretation of blockchain technology and do you think it could be a useful tool to implement in the online gambling industry?

5. Do you have experience trading or using cryptocurrency?

6. What reasons have led you to using (not using) cryptocurrency?

7. How would you define disruptive technology and do you believe it is present in the online gambling industry?

8. Do you view cryptocurrency as a disruptive technology? Why or why not?

9. Do you perceive a need for your company to adopt cryptocurrency as a payment option?

10. What kind of impact do you perceive as occurring from your company by including cryptocurrency as a payment option?

11. How do you perceive the current situation surrounding cryptocurrency such as its volatility and restrictions imposed on it by certain countries and governments?

12. Do you see these restrictions as being major barriers to your company implementing cryptocurrency as a payment method?

13. How do you envision the future prospects of cryptocurrency?

14. Do you believe innovation and/or disruptive technology is vital to the long-term growth of the company?
Theme: Online Gambling Industry

15. How would you describe the competition in the online gambling industry?

16. Do you feel competition is stronger in certain geographic areas?

17. Do you feel competition is stronger in certain divisions (i.e. online poker vs. sports betting)?

Theme: Link Between Cryptocurrency and the Online Gambling Industry

18. Do you see cryptocurrency as a viable option to be used in the online gambling industry?

19. Do you feel any specific geographical region or division of online gambling would be more accepting towards adopting cryptocurrency?

Theme: Perceptions of Customer-Based Towards Cryptocurrency

20. How would you describe your customer-base?

21. Do you think the customer-base differs among the various divisions of your company?

22. Do you see innovative and disruptive technology, such as cryptocurrency, as something that could entice traditional gamblers to try out online gambling?

23. Do you believe your customer base would be receptive towards adopting cryptocurrency as a method to make deposits and collect winnings? Why or why not?

24. Do you think that any specific group of online gamblers would be more receptive towards using cryptocurrency in online gambling?

Closing Questions

25. Is there anything you feel like you left out from any of the previous questions that you would like to add?

26. Is there anything you feel that we left out that you would like to comment on?

27. Is there anything further regarding the study that you would like to ask us about?
Appendix 3: Survey

Hello,

We are two Master’s students studying at Umeå School of Business and Economics. We are currently writing our Master’s thesis, and the goal of our research is to generate data that provides insight into the perceived potential and viability of cryptocurrency in the online gambling industry.

Part of this research will be conducted by collecting data through a web survey. The target group is online gamblers; people who have some sort of experience with online sports betting, online poker, online casino games, or with other forms of online gambling. If you have gambled online, we would be happy if you could take a moment to answer our survey. Completing the survey takes approximately 5 minutes.

The survey is completely anonymous and does not require filling any personal details. All responses will be handled confidentially and they will be deleted after the research project has been finished.

We would like to thank you in advance for answering our survey and helping us with our Master's thesis. Please do not hesitate contacting us if you have any questions regarding the survey.

lile2803@umu.student.se
niwe0032@umu.student.se

Background Information

Gender:

Male
Female

Age:

< 18
18-29
30-39
40-49
50-59
> 60

Country of Origin:
[Open answer]
Employment Status:

Student
Employed full-time
Employed part-time
Self-employed
Unemployed and seeking work
Homemaker
Retired

Education Level:

Less than high school
High school graduate
Trade/vocational/technical school graduate
Bachelor’s degree
Master’s degree
PhD, law or medical degree

Income Level (Annual):

Less than 25,000€
25,000€ - 49,999€
50,000€ - 74,999€
75,000€ - 99,999€
100,000€ - 149,999€
150,000€ or more

Marital status:

Single
Married
In a registered partnership
Divorced or separated
Widowed

Gambling Questions

1. How often do you gamble online?

    Everyday
    A few days a week
    A few times a month
    Almost never
2. What online payment method do you use most often when making deposits?

- Internet banking (e.g. Trustly, Euteller)
- E-wallet (e.g. Neteller, Skrill)
- Card deposit (e.g. Visa, MasterCard)
- Mobile payment (e.g. Zimpler)
- Bank transfer
- Prepaid voucher (e.g. Paysafecard)
- Cryptocurrency (e.g. Bitcoin)
- Other methods
- I don’t make deposits

3. What form of online gambling do you play most often?

- Online poker
- Sports betting
- Online casino games
- Other: specify

4. How would you rate your knowledge of cryptocurrency?

- Poor
- Fair
- Good
- Very good

5. Do you own/use or have you previously owned/used any form of cryptocurrency?

- Yes
- No

   If yes, for what purpose have you owned cryptocurrency?

6. Have you ever used cryptocurrency to make online payments?

- Yes
- No

   If yes, how would you describe the experience?

7. How would you rate your knowledge of blockchain technology?

- Poor
- Fair
- Good
- Very good
This part of the survey consists of a variety of statements. Please choose the most suitable answer for you from the following options:

1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree

**Innovation Diffusion/Disruptive Innovation Questions**

8. Innovative technologies interest me

9. I am receptive towards trying new things

10. I like to be the first to try new technologies

11. I prefer to see wait and see how a new technology works for the first group of users before choosing to adopt it in its early stage

12. I think cryptocurrency has potential to be a major payment method in the future

13. Making deposits and receiving winnings in the form of cryptocurrency doesn’t interest me

**Drivers of Cryptocurrency Use**

**Trust as a Driver**

14. I need to trust the online gambling company I am dealing with before considering conducting any online transaction with them

15. I don’t trust using cryptocurrency to make payments as much as using other traditional payment methods (i.e. credit cards, online banking, PayPal)

16. I trust using online payments methods that utilize intermediaries, such as banks, more than decentralized systems such as cryptocurrency

**Security as a Driver**

17. Security is important to me when conducting online payment transactions

18. I believe making transactions with cryptocurrency through blockchain technology is a secure transaction method
19. Current encryption and passwords are sufficient for security and safety when making deposits or withdrawals in the online gambling websites

20. The fact that cryptocurrencies are unregulated (not backed by any government or banking system) doesn’t bother me

**Anonymity as a Driver**

21. I am concerned about my privacy while making online transactions

22. I prefer to gamble online because of the privacy/anonymity associated with it

23. I am interested in the notion that cryptocurrency has stronger privacy measures to keep my personal information anonymous compared to other online payment methods

**Usability as a Driver**

24. I need to fully understand how cryptocurrency works before I can consider using it

25. I prefer using the simplest payment method available for online transactions

26. I am interested in the notion that cryptocurrency has stronger privacy measures to keep my personal information anonymous compared to other online payment methods

27. I need to fully understand how cryptocurrency works before I can consider using it

28. I prefer using the simplest payment method available for online transactions

29. Cryptocurrency is too complex for me to consider using

30. I think cryptocurrency is better suited as an investment tool than a payment tool