



Raising the Stakes: The Use and Future Adoption of Cryptocurrency within Online Gambling in Ireland

Master of Science in Finance Dissertation

Author	Aislinn Cantwell
Supervisor	Matthew Hudson
Award	MSc in Finance
College	National College of Ireland

Submitted to the National College of Ireland, August 2020

Abstract

With increasing accessibility and expanding acceptance of cryptocurrency through a range of markets and industries, (such as financial markets, the auto industry and online gambling), the financial and technological world has witnessed a growing interest in the use of this form of payment transaction making today. A stern focus has been placed on the regulation aspect of digital currencies as a result, with various governments throughout the world giving high priority to discussions regarding the implementation of cryptocurrency regulation, most notably regarding tax and its acceptance as a form of payment.

Some consider it a hotbed for criminal activity so ban the use entirely (for instance Vietnam), a few deem the market as too small to warrant regulation to be introduced yet (United Kingdom), while others consider the technological element to cryptocurrency as a strong potential for developing their own e-currency (Library of Congress, 2019). Sweden is one of the countries considering this, a country of significance for the basis of this dissertation.

In respect to the use of cryptocurrency within online gambling today, it is important to note how cryptocurrencies such as Bitcoin, have become an accepted means of payment in a range of gambling organisations. Building on research conducted and results revealed in an existing study regarding the use of cryptocurrency in online gambling by two students of a Swedish University in 2018, this dissertation will explore if alternate results would be garnered in relation to the public opinion on the acceptance of cryptocurrency as an online gambling method of payment in 2020 within Ireland. This dissertation aims also to focus on the viewpoint of participants in an Irish setting (managers of Irish gambling providers and their customers) who were not included in the above-mentioned study. It was interesting to discover if the attitudes of Irish participants of online gambling will vary from participants in the previous research and if so, to what degree.

It was found that the issue of trust, ease of use, the regulation and governance of the online gambling transactional technology would possibly need to feature as central messages should this payment method become used within the online gambling industry. Government regulation and auditing of OGP and online gambling may serve to facilitate the evolution of trust in security, anonymity and fairness with the service offering.

Declaration

Submission of Thesis and Dissertation

National College of Ireland Research Students Declaration Form (*Thesis/Author Declaration Form*)

Name: Aislinn Cantwell

Student Number: 18118461

Degree for which thesis is submitted: MSc in Finance

Title of Thesis: Raising the Stakes: The Use and Future Adoption of Cryptocurrency within Online Gambling in Ireland

Date: 28th August 2020

Material submitted for award

- A. I declare that this work submitted has been composed by myself.
- B. I declare that all verbatim extracts contained in the thesis have been distinguished by quotation marks and the sources of information specifically acknowledged.
- C. I agree to my thesis being deposited in the NCI Library online open access repository NORMA.
- D. **Either** *I declare that no material contained in the thesis has been used in any other submission for an academic award.
Or *I declare that the following material contained in the thesis formed part of a submission for the award of
-
- (State the award and the awarding body and list the material below)*

Signature: _____

Acknowledgements

With the end of the long, yet fascinating, process of researching and completing this dissertation, a massive thank you must firstly be offered to all the encouraging and enthusiastic participants who took the time to either be interviewed or submitted responses in the survey. Without their help, this dissertation would not have gathered the information needed for fruitful completion.

Appreciation must also be expressed towards all those in National College of Ireland who were imperative to the successful completion of this dissertation – Matthew Hudson, the supervisor who provided support and guidance throughout the process, always in a prompt and kind manner; Laura McCormack, the classmate and friend who supported and advised me consistently from the very beginning of the MSc in Finance journey in 2018 to official dissertation submission, through a constantly positive and uplifting attitude; fellow classmates who ensured the journey over the past two years was as motivating and enjoyable as possible.

Last but not least, immense gratitude must be given to my family – father Mark, his partner Ria and sisters Dearbhla and Finola; friends – in particular Kristiana Sirjajeva, Laura Joyce, Catherine Golden and Laura Blackwell; and work colleagues – Alicia Romero and Helen Saunders, for all their support and encouragement through this educational journey who all helped me proportionality balance study, work and life in general.

“None of us got to where we are alone....” – Harvey MacKay

Table of Contents

Abstract	i
Declaration	ii
Acknowledgements	iii
Table of Contents	iv
List of Tables	vi
List of Figures	vii
Chapter 1: Introduction	1
1.1 Choice of Topic	1
1.2 Background	2
1.3 Research Question	3
1.4 Research Purpose	3
Chapter 2: Literature Review	4
2.1 Cryptocurrency and Gambling Addiction	4
2.2 Cryptocurrency Price Volatility	5
2.3 Consumer Behaviour in Online Gambling	6
2.4 Mixed Methods Approach	7
Chapter 3: Research Methodology	9
3.1 Research Philosophy	9
3.2 Research Strategy	12
3.3 Data Collection	13
3.4 Qualitative Methods	13
3.5 Quantitative Methods	14
Chapter 4: Research Findings	16
A. Qualitative Findings	
4.1 Managers Knowledge of Cryptocurrency / Blockchain & Innovative Technology	16
4.2 Managers perceptions regarding the online gambling industry	18
4.3 Cryptocurrency use in Online Gambling	19
4.4 Managers perceptions regarding customer base using cryptocurrency	19

B. Quantitative Findings	
4.7 Quantitative Study Demographics	20
4.7.1 Background Information	20
4.7.2 Online Gambling Habits	25
4.7.3 Opinions on Cryptocurrency and Blockchain	27
Chapter 5: Discussion	30
<hr/>	
5.1 Research Question 1	30
5.2 Research Question 2	31
5.3 Research Question 3	40
Chapter 6: Conclusions & Recommendations	41
<hr/>	
6.1 General Conclusions	41
6.2 Limitations of this Study	42
6.3 Suggestions for Further Research	42
References	43
<hr/>	
Appendices	46
<hr/>	
Appendix 1: Letter of Consent	46
Appendix 2: Interview Questions	47
Appendix 3: Survey	49

List of Tables

Table 1: Interview Themes & Corresponding Questions	2
Table 2: Attitudes towards the 'New'	31
Table 3: Respondents attitudes towards Cryptocurrency as a future payment method	32
Table 4: Respondents attitudes towards Cryptocurrency as a means of exchange	33
Table 5: Perceptions of complexity versus simplicity of competing payment and transactional methods	33
Table 6: Respondents attitudes towards trust & OGPs	34
Table 7: Respondents attitudes towards trust & method of payment	35
Table 8: Respondents attitudes towards security & online payments	36
Table 9: Perception of Cryptocurrency and its Regulation	37
Table 10: The Privacy Issue and Its Perception	38

List of Figures

Figure 1: Gender	1
Figure 2: Birth Country	2
Figure 3: Employment Status	3
Figure 4: Education Level	4
Figure 5: Annual Income Level	5
Figure 6: Online Gambling Frequency	6
Figure 7: Method of Payment	7
Figure 8: Forms of Online Gambling	8
Figure 9: Cryptocurrency Knowledge	9
Figure 10: Cryptocurrency Use	10
Figure 11: Blockchain Technology Knowledge	11

Chapter 1: Introduction

The rationale behind this research is to determine whether the Irish perspective on cryptocurrency and its use in online gambling today varies from the results discovered through similar research in 2018 based in Scandinavia (Lehtonen, 2018). It will be interesting to discover if the attitudes of Irish participants of online gambling will vary from participants in the previous research and if so, to what degree. Firstly, the author gives a clear overview of cryptocurrency and its prospects, followed by the development of a theoretical foundation after a review of relevant literature on this subject area. The above areas of exploration led to the proposition of the research question, which is explored through the chosen methodology to determine if in fact our argument regarding the opinions of Irish people on cryptocurrency will differ from that in the 2018 study. Potential issues researching an area with a relatively short lifespan and general anonymity will also be discussed.

1.1 Choice of Topic

The author's interest in considering the area of cryptocurrency as the basis of research for their dissertation stemmed from the increasing publicity of this form of payment within online transactions in recent years. This, along with the introduction of it as a trading option for users of popular digital banking app Revolut in 2017, which further introduced the unbeknownst world of cryptocurrency to a more mainstream audience, brought an exciting and contemporary method of payment to the forefront of the financial sector. Furthermore, the author has experience working in a global professional services firm that has a blockchain practise within its technology and digital sector, which struck additional interest when wading through the idea generation phase of the dissertation process.

With cryptocurrency becoming increasingly more popularized, the uses for it are broadening. With the online aspect of cryptocurrency usage, the merger of one of the largest Irish based betting firms – Flutter Entertainment (nee Paddy Power Betfair plc) – with a Canadian rival of similar valuation and revenue – The Stars Group – was announced during this idea phase in October 2019 (RTE, 2019). This merger, in conjunction with the anonymity it can provide, led the author to infer that a prime industry to explore the potential use of this mode of payment, is within the online gambling function. Irish betting firms don't currently offer cryptocurrency as a method of payment on their online business, hence this research could offer valuable information to said firms, as to whether cryptocurrency could have the potential to become as big a player in

the online payment transactions, as those currently available (such as credit cards and online banking).

1.2 Background

Online Gambling in Ireland

The motivation for using the Irish perspective on online gambling and its link with cryptocurrency comes from the increase in media discussing online gambling and the easy methods of obtaining cryptocurrency available to the people of Ireland in recent years. The publication of the inaugural government report on gambling in February 2019, conducted by the Department of Health, suggests that online gambling has become an important topic of interest for the wellbeing of the Irish population. A news article from December 2019 revealed that an estimated €9.8bn was gambled by Irish punters over a range of activities during the year, not only online gambling, which has given this country the title of seventh highest gambling country in the world (Michael, 2019). As a result of the link between gambling and cryptocurrency gaining traction in media coverage, eyes are opening to the potential risks that face users of online gambling. This could potentially encourage such users to switch to a more secure, less obvious method of payment for this activity - cryptocurrency.

Overview of Cryptocurrency

A wide variety of cryptocurrency is available with one of the most notorious being Bitcoin. This is a digital currency in which an owner can process a payment securely to another party, without the service of an external financial organisation, which decreases potential transaction costs, increases anonymity, while securely managing the preservation of trust (Nakamoto, 2008). With advantages of cryptocurrency including total anonymity, little to no transaction fees, protection from governments and use in countries in which gambling is prohibited, there is no doubting why cryptocurrencies are becoming more prevalent in the online gambling world.

This increase in cryptocurrency usage has also sparked inspiration among certain countries regarding what the future of their financial outlook may look like. Such a country is Sweden, which is seen by researchers in Stockholm School of Economics as a leader in the market of Bitcoin, and whose government sees the security that blockchain technology provides resulting in the consideration of rolling out its own e-currency (Business Sweden, 2018). With cryptocurrency's future looking bright, it is interesting how the results of the 2018 study suggested that although consumers and the online gambling industry were favourable towards the prospects of cryptocurrency, it wasn't fully accepted as of yet within the confines of online gambling. The dissertation will explore whether

similar results are achieved from an Irish perspective, considering the advancements in the accessibility of cryptocurrency since 2018.

1.3 Research Question

Given that cryptocurrency has the potential to be prominent in the online gambling industry in the foreseeable future; and that access to cryptocurrency is becoming more accessible to the general public, Irish gambling organisations will need to incorporate this in their business. Below are the proposed research questions, in similar form to the research questions in the base study (Lehtonen, 2018), for further investigation in this dissertation:

1. How do market leaders in the Irish online gambling industry envision the introduction of cryptocurrency as a potential method of payment in their business?
2. What would motivate an online gambler to choose cryptocurrency as their method of payment as opposed to using a bank or credit card?
3. Do Irish betting firms and their customers share similar opinion on whether cryptocurrency is a feasible method of payment for online gambling?

Keywords: Cryptocurrency; Gambling; Addiction; Irish Online Gamblers

1.4 Research Purpose

The intention of this research was to investigate whether the potential for cryptocurrency as a method of payment within the Irish online gambling industry exists among those who partake in the activity. If so, could those working within betting organisations in Ireland see the use of cryptocurrency as an integral part in the future of their business operations. With this in mind, these two distinct sets of stakeholder views require examination (Lehtonen, 2018). Similarly, as with the base thesis study, a similar mixed-method approach is adopted in conducting the research for this dissertation.

For this form of payment to become usable to Irish customers, betting organisations would need to be able and willing to include cryptocurrency in their income, hence obtaining the perceptions of those working in the industry is paramount. This, as indicated by Lehtonen (2018) is accomplished through a qualitative study, therefore interviewing managers in the online gambling industry was identified for this research approach. Should this form of payment be offered by said organisations, would the Irish consumers be willing to use it? Lehtonen (2018) explored this question via the quantitative method of

application of a questionnaire, with the intention of examining consumer perceptions and whether they would be willing to deviate away from the traditional payment methods of online gambling. This was accomplished well through a four-pronged framework in the base thesis study – trust, security, usability and anonymity – as such, a similar approach was followed in this study.

Chapter 2: Literary Review

With cryptocurrency coming into existence 10 years ago, it could be anticipated that the potential literature regarding this specific area could be slightly more limited than other topics of interest. However, there are several interesting cryptocurrency and online gambling articles, available. Research into online gambling has been ongoing for a number of years. Griffiths (2003) discussed the situational and structural aspects influencing online gambling addiction. Situational aspects are identified as the means which facilitate access for the addiction. Structural aspects being the means by which reinforcement and maintaining factors attendant to the addiction. Technology plays a role in both and he notes that:

“Analysis of the technological components of situational and structural characteristics in gambling activities indicate that situational characteristics impact most on acquisition and that structural characteristics impact most on development and maintenance. Furthermore, the most important of these factors appear to be accessibility of the activity and event frequency” Griffiths (2003, p.565)

Online gambling is recognised therefore, to carry a definite risk for being an addictive, activity among its users, and this has been addressed within the legal system in Ireland since 2003 (Leading Gambling Ireland, n.d.). First the author will look at the link between cryptocurrency and gambling addiction. Next, a focus will be put on cryptocurrency and its price volatility, which is a determining factor with cryptocurrency’s increase in popularity. Consumer behaviour regarding online gambling will also be addressed through a four-factor approach. Finally, the mixed-method research applied in this study is discussed. This section will mainly refer to research papers, newspaper articles and government publications, all of which were sources found using a range of key search terms.

Key Search Terms: *Ireland, Cryptocurrency, Online Gambling and Gambling Addiction*

2.1 Cryptocurrency and Gambling Addiction

An interesting paper around the use of cryptocurrency gambling among regular gamblers concluded that those who have a high severity of problem gambling are more likely to partake in cryptocurrency trading than those who don't (Mills, 2019). This is largely related to how accessible cryptocurrency has become with certain platforms offering new forms of cryptocurrency which can encourage people to partake in this activity. This article concluded that future testing needs to be conducted on the link between crypto gambling and level of gambling severity of users. With gambling addiction in Ireland being highlighted as "one of the most serious epidemics" by the manager of an Irish addiction treatment center (Hennessy, 2018), the introduction of cryptocurrency into the online gambling world adds another potential risk zone for Irish gamblers.

Young (1999) posits that three internet related factors support technology to encourage and maintain online gambling activity which Young calls the ACE model (Anonymity, Convenience, Escape). Cryptocurrency can be therefore be considered as an evolution of online gambling, and an adjunct which increases the structural aspects of the technology in their maintenance of the online gambling activity. Online gamblers, knowing that their transaction will be conducted in a fair manner and without potential extra expenses that are incurred through the third-party involvement, may increase the amount they spend. Indeed, the idea that online gambling could be increased due to cryptocurrency is supported by Gainsbury (2017), when examining how the removal of a third-party regulator could encourage online gambling.

This potential increase in cryptocurrency use for gambling could raise the level of crypto-trading addiction and online gambling addiction as a result. Such a case has been realised with a rehabilitation center in Scotland now treating people with crypto-trading addiction (Griffiths, 2018). Griffiths' article included a quote from a managing director of an Irish financial advisory firm which accurately portrays how this form of addiction compares to share trading – *"Previously, I would have described cryptos as 'shares on steroids'; now I would say they're shares with jetpacks and boosters and then some"*. This aligns with Mills' article on how those with a gambling problem may have a strong correlation to be involved in cryptocurrency gambling.

2.2 Cryptocurrency Price Volatility

The price volatility of cryptocurrencies is another reason for its interest and intrigue among online gamblers. For example, the average price of Bitcoin to date in August 2020 of approximately \$11,376 pales in comparison to its all time high of approximately \$19,700 in December 2017 (CoinDesk, 2020). This volatility in price for Bitcoin could encourage online gamblers to buy into other cryptocurrencies in the hope they too will hit a significant high price in the future. Industry reports suggest that the online gambling

market will reach approximately \$90m by 2024 (Mordor Intelligence, 2019), and with the public's attitudes to cryptocurrency changing from an unsecured, possibly risky, asset to one whose recent injection of popularity is causing a highly addictive epidemic, the topic of regulation will come into play.

In the United States, regulation related to cryptocurrencies such as Bitcoin will bring areas including prediction markets and online gambling which denominate bets in cryptocurrency into focus (Brito, 2014). At the time of writing, Bitcoin regulation at a federal level is not yet defined, due to the various regulatory agencies in the US having varying viewpoints on cryptocurrency (Yakubowski, 2019). Britto seems to understand that this industry of online gambling through cryptocurrency is here to stay, so suggests that policy makers should consider the adaptation of cryptocurrency into policy before the cost of enforcing current regulation outweighs the benefit of said regulation. Irish law does not yet appear to have anything related explicitly to cryptocurrency however they are employing a wait-and-see attitude on this matter (Library of Congress, 2019). The question of whether the lax approach by the Central Bank of Ireland, who would be classed as the competent Irish authority for such a payment transaction (McLaughlin, 2019), regarding cryptocurrency should be more focused on this area today. This is an interesting aspect to concentrate on once the results of the methodology in this dissertation are completed.

2.3 Consumer Behavior in Online Gambling

Lehtonen (2018) developed a series of four factors influencing the perception and use of cryptocurrency by online gamblers. Two of these can be argued to have overlapping similarities with Young's ACE model (1999). Lehtonen considers trust, usability, security and anonymity as influencing factors on the perception of cryptocurrency. Lehtonen's usability and anonymity align with Young's convenience and anonymity. It might be further posited that trust is a related factor to anonymity and security.

Trust as a driver of perception, is described by Lehtonen as being important as it is of itself volatile and brittle. Lehtonen discusses the damaging effects trust of technology, particularly financial technology arising from the 2008 financial crash, which was generated in large part by unsupervised financial technology. Oddly, Lehtonen notes that the birth of cryptocurrency as a response to the 2008 financial crash citing Rao (2014, p.7) in doing so.

Security is discussed by Lehtonen as being an important driver of perception and customer experience because of the need for security of the payment and pay-out transactions online, and as an assurance against cheating and of fairness in the gambling

algorithms. These points are respectively observed by Meuter et al. (2003, p. 904) and Gainsbury et al (2013, p. 237).

Anonymity is noted by Madey (2017, p. 25) as a highly favoured aspect of cryptocurrency. Lehtonen (2018, p.32) develops the point that while it is not a guaranteed level of privacy, it is perceived as being quite sufficient and it does in fact *“maintain levels of privacy in transactions that are not widespread in transactions made through other mediums such as credit cards”*. Lehtonen notes that while transactions are not private when entered into the blockchain process, the privacy and anonymity is relatively well secured albeit not guaranteed.

Usability is posited by Lehtonen (2018, p.33) for exploration as a potential barrier for the situational aspects of online gambling as *“...one would need to first understand how the technology works before implementing it.”* This would possibly impact both the perceptions of the online gamblers and the managers of the online gambling organisations. So, it may be that the adoption by either or both sides, could lead the transaction to lag in some ways. This could be the case since the understanding of the currency and processing technologies are not immediately understood. However, where exactly the manager of the online gambling organisation is concerned can be found in Turpin (2014). This research notes that the absence of regulating processing charges within cryptocurrency transactions, may prove to be perceived as a cost saving aspect, which can be passed on to the customer and is more advantageous than the use of debit, credit charges and payment processing services such as PayPal. This is due to banks and other clearing houses being constrained by regulation, which doesn't apply to cryptocurrency - yet.

2.4 Mixed-Method Approach

Based on their literature review, Lehtonen posited the use of a mixed-methods approach. This involved qualitative interviewing with thematic analysis of managers perceptions of cryptocurrency within online gambling organisations. Lehtonen identified the following structure for their thematic review which will be reviewed for the Irish population of online gamblers – *“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.”* Lehtonen (2018, p.37). Lehtonen cites Nowell et al. (2017, p. 4) and Braun & Clark (2006, p. 87) positing that thematic analysis follows a six-phase process:

1. Yourself with the data, including triangulation data sources.
2. Generating initial codes, a coding framework and processing the coding of same through this framework

3. Searching for themes and distributing coded data across these themes.
4. Reviewing themes, ensuring that themes are supported by the data gathered.
5. Defining and naming themes, ensuring discreet specific and clear definition and labelling of each theme.
6. Producing the report, delivering an analysis, a set of findings which link to the research question and literature review.

Thematic analysis is noted by Lehtonen as being an iterative process which loops between the six steps repetitively.

A quantitative research approach was used by Lehtonen to explore the perceptions of the online gambling community towards cryptocurrency use in their activity. The approach is justified by Lehtonen citing Saunders et al., (2016, p.439) *“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).”* The self-completed online questionnaire was chosen as the method due to the need to capture a sufficiently large sample to ensure reliability and validity, the constraints of resource upon Lehtonen and the fact the web environment was an appropriate environment and familiar to online gamblers. Lehtonen justified the use of closed end questionnaire design because *“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).”*

Lehtonen at same time also identifies the disadvantage of this approach in that data may be lost to a close end questionnaire design, which might have been captured by open end questioning. However, on balance the efficiency of the closed end questioning approach was selected and controlled by careful question construction to ensure that the relevant data could be captured by the instrument. As the data was likely to be somewhat subjective with varying degrees of strength of agreement in response to the questions posed, a Likert scale approach was adopted. The Likert scale construction involved a scale from 1 to 5, where 1= strongly disagree and 5 = strongly agree.

Ethical research methods are critical in any research, but particularly relevant given the element of potential addictive nature that online gambling has for participants. On this critical consideration, Lehtonen (2018, p.50) cites Saunders et al (2016) – *“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).* If for example anonymity is

offered as a condition of participation, it simply must be maintained in order for the study to be ethical (Bell, 2010, p. 48).

Now that the author has established the benefits and hazards regarding cryptocurrency use, the lack of cryptocurrency regulation within Ireland currently, consumer behaviours within online gambling, along with the method selected for this study, this dissertation will continue in chapter 3 which details the research methodology adopted for this work in greater detail.

Chapter 3: Research Methodology

The research task for this dissertation is to assess if similar outcomes arise by following an approach and methodology previously undertaken within a Master's Thesis (Lehtonen, 2018) regarding the use of cryptocurrency in online gambling, which was conducted within a Scandinavian population. This dissertation explores its methodological application and outcomes, but within an Irish population and in the current time period of 2020. Furthermore, in investing time into this task, a prima facie review of their approach was considered for this dissertation. Lehtonen & Werle's understanding of these approaches was triangulated with those of other researchers and the citations referenced by them in their study. In other words, in taking their position on their methodology used, they appear to have prima facie taken an approach consistent with other researchers' epistemological and ontological positions and assumptions. Would it be reasonable therefore to conduct a similar research study using their approach and philosophy?

3.1 Research Philosophy

Lehtonen & Werle (2018), having considered the various research philosophies in approaching their study, cite Saunders et al. (2016) in identifying five underlying epistemological approaches; positivism, critical realism, interpretivism, postmodernism and pragmatism. Their approach opted for a pragmatist and subjectivist inquiry. Given the cultural and sociological aspects of the topic, as it relates to the utility of cryptocurrency within same, the authors undertook a mixed methodological study using both qualitative and quantitative methods to explore this topic. A brief overview of that approach is discussed below.

Positivism:

Positivism aims to develop hypotheses, develop theory and to empirically predict future phenomena encompassed by any given hypotheses and theory. Bechtel, (2013, p.44) argues that practitioners in scientific philosophy must move beyond the “normative”, towards “*being pragmatic commentators on science, explicating what is revealed by empirical inquiries*”. However, Lehtonen & Werle provide a useful critique of this approach given the nature of the subject and potential preconceptions and biases originating from social mores and norm. Citing Collis and Hussey (2014, p. 45), Lehtonen & Werle (2018, p.8) state 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*”, in other words, value free research and data is not realistic, and within the topic for research, is not a valid prima facie assumption to hold in conduction such research. The understanding of positivism held by Lehtonen & Werle concurred with other researchers understanding.

Critical Realism (CR):

Within CR, it is posited that the empiricism of Positivism is insufficient to explain reality, and that in fact positivist approach limits access to the truth or reality of a phenomenon. CR argues for three distinct epistemological and ontological levels which are intertwined relationally through social experience and it is a fallacy to attempt to separate them. Those levels or dimensions within CR are the Real, Actual and the Empirical. The Real being the fundamental causal sources or tendencies of a phenomenon, the Actual being events emanating from the real tendencies, the Empirical being the observations and measurement of those events, and occasionally the real sources for the phenomenon. There are contingent and relational aspects within and between each of these dimensions or levels. “*critical realists regard properties and events both as necessarily contingent and as contingently necessary*” Jessop (2005, p. 42). Citing Saunders et al (2016), Lehtonen & Werle note that “*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)*”. Direct realism being as defined strictly sensorial data. Again, the position taken by Lehtonen & Werle (2018) on CR is consistent with other viewpoints.

Interpretivism:

Interpretivism is an approach which, like CR above, disagrees with a purely positivist approach. As with the CR approach, the Interpretivist approach critiques Positivist ontology for failing to account for the various dimensions of reality, and in particular,

ontological social and cultural realities. Interpretivism seeks to understand the social and cultural meaning layers which are applied to the understanding of a phenomenon. Goldkuhl (2012, p.12) identifies the need *“to work with these subjective meanings already there in the social world; i.e. to acknowledge their existence, to reconstruct them, to understand them, to avoid distorting them, to use them as building blocks in theorizing”*. Lehtonen & Werle are ad idem with other researchers *“interpretivism argues that humans and their social worlds cannot be studied in the same manner as physical phenomena.....social reality is in fact affected by the act of investigating it”*.

Postmodernism:

Postmodernism was developed in the late twentieth century in reaction to perceived inadequacies of the modernist, and in particular, a positivist approach. Postmodernism emphasises a scepticism towards empirical knowledge similar to CR and Interpretivist approach but goes further to argue the subjectivist and relativist nature of reality. Postmodernism critiques previous approaches for being politically and ideologically disingenuous, and can therefore be used in repressing the holistic, subjective and relative nature of reality. Foucault (2012, p.27), a proponent of postmodernism, captured the approach when he stated *“There is no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time power relations”* and emphasising subjectivity involved within sociological and cultural power relationships, which infuse reality and knowledge of reality, and must be understood to understand the subjective reality experienced by humans. This would suggest a high degree of subjectivism applies in approaching the research topic. Lehtonen & Werle (2018) did not mention this approach in detail, and perhaps that is an omission in logic. However, given the very subjective and relativist nature to the underlying principles and assumptions within postmodernism, it may have been superfluous to do so, having a partial overlap with Interpretivism.

Pragmatism:

Pragmatism argues that what is useful from any of the philosophical (ontological and epistemological) approaches can, and should be, deployed in order to access a holistic understanding of a given phenomenon. Citing Collis, J. & Hussey, R. (2014), Lehtonen & Werle state that *“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)”*. They note also *“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). The internal support within the citations and referencing for their argument for a pragmatic approach was well supported.

Lehtonen & Werle observe that Subjectivism supposes that social phenomena are created through the perceptions of the social actors associated with the particular phenomena (Saunders et al., 2009, p. 111) and that reality is socially constructed, and each person has their own (Collis & Hussey, 2014, p. 47). Prima facie is therefore the approach, given the potentiality of value laden perceptions influencing knowledge and understanding of online gambling, and indeed the phenomena of cryptocurrency adopting a subjectivist approach, which would allow for the subjectivist nature and consideration of the data obtained. Indeed, a stated goal for Lehtonen & Werle was that they *"were looking to understand the behavioural tendencies of online gamblers when it comes to being offered cryptocurrency as an alternative payment option"*. Their research assumption was that *"the social actors are affecting the reality surrounding them"*.

Lehtonen & Werle discuss three approaches to research and its analysis, namely induction, deduction and abduction. Deduction is defined as being *"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)"*; Induction as *"research begins by collecting data to explore a phenomenon in order to generate or build theory (Saunders et al., 2016, p. 145)"*. Lehtonen & Werle argue that inductive research is more focussed on context and meaningful objects or events suggestive of smaller sample sizes and more in-depth inquiry within those sample. However, they opt for abduction as a design approach. Again, this is consistent with the pragmatist approach discussed below and is described by them as *"abduction combines both approaches while practicing the constant comparative method (Suddaby, 2006, p. 639)"* (Lehtonen, 2018, p.10).

Lehtonen & Werle adopted a subjectivist ontological approach within a pragmatist epistemological methodology and implemented a mixed methodology using both qualitative and qualitative methods. Having consideration for their treatment of their literature review of methodology and with additional triangulation provided within this dissertation for doing so, they were prima facie consistent in their logic for adopting a mixed methods approach.

3.2 Research Strategy

With a clear understanding of the most appropriate approach to follow for the purposes of completing the study, and philosophy behind said approach, it is important to develop a comprehensive plan to ensure the research questions may be duly answered, and the objectives to do so are intelligible. Using the research philosophy portrayed above as a base, the most appropriate strategy to follow in this study is mixed methods, hence qualitative and quantitative studies are incorporated into the foundations of the strategy.

The research design for this thesis is to rerun the methodology which Lehtonen developed and followed to ascertain if their methodology produces comparable results. Therefore, the approach will be simply to compare the results of the mixed method instruments of Lehtonen's study with those of the application of Lehtonen's approach in an Irish context. This study's focus is not to reconstruct and run the modelling and hypotheses testing which Lehtonen posited but to compare the outcomes of each study. Hence, this dissertation will review and compare the quantitative results of each study using Lehtonen's questionnaire and to compare the qualitative results in reference to the themes which Lehtonen had developed.

3.3 Data Collection

This section focuses on the methods of data collection applied during the research stage, in which both a qualitative and a quantitative manner was explored through this study being mixed methods in nature. As discussed above, both methods offer a selection of collection opportunities of both a primary and secondary nature, the most effective and thorough means of data collection which align with the abductive approach while addressing the interpretation subjective data needed to be selected for use. Although both forms of data have specific advantages and disadvantages, the basis upon which this study will benefit most from is primary in nature. This is established through the need for the author to get a full understanding regarding the concept of potentially using cryptocurrency as a method of payment within online gambling, hence both parties involved in such transactions were approached for this study. The perspectives of an organisation involved in online gambling was explored through qualitative research, while that of the consumer was analysed through quantitative research. With the topic bearing themes of a sensitive nature, ethical considerations and anonymity were naturally implemented through the research phase.

3.4 Qualitative Methods

Primary research was conducted in a qualitative manner through interviews with managers in a selection of Irish gambling firms (Appendix 2). The reasoning for this type of data collection was to get a deep insight into whether this form of payment could

possibly be brought into the Irish betting firms' repertoire of payments, should those working within these firms believe their customers would be willing to adopt cryptocurrency as a method of payment. This included questions from the areas regarding:

1. Managers level of cryptocurrency / blockchain knowledge and its technology in online gambling.
3. Managers perception of the online gambling industry.
4. Managers views on the use of cryptocurrency in online gambling.
5. Managers perceptions about their customers using cryptocurrency for online gambling.

Table 1 gives an overview of the above themes and their corresponding questions for reference.

Question Number	Themes
Q1, Q2, Q3	Interviewees introduction & background
Q4, Q5, Q6, Q7, Q8, Q9, Q10, Q11, Q12, Q13	Interviewees perceptions of cryptocurrency and innovative technology
Q14, Q15	Online gambling industry
Q16, Q17	Cryptocurrency links with online gambling industry
Q18, Q19, Q20, Q21	Customer-base perceptions regarding cryptocurrency

Table 1: Interview Themes & Corresponding Questions

These interviews were organised through contacting managers working within Irish betting firms through a detailed search on LinkedIn, while also through mutual acquaintances who were aware of the topic of study the author was conducting, hence were able to . To ensure all interviewees were confident that any data collected would remain confidential, pseudonyms were assigned to each interviewee and the option to withdraw at any point, without hesitation or consequence, was reiterated by the author before each interview (Appendix 1). The author originally had four plausible interviews lined up, however due to unforeseen personal reasons one of the interviewees could not partake, hence the total number of interviewees was three. Interviewee 1 is a manger based in one of the leading Irish betting firms that has a global presence also, Interviewee 2 manages betting firms in the Midlands on a more localised level and Interviewee 3 is based in the same firm as Interviewee 1, however in a different department.

3.5 Quantitative Methods

Primary research was conducted through a quantitative research method using an anonymous questionnaire aimed at members of the public based within Ireland, with the aim of getting an overview of their opinions and usage of cryptocurrency in this manner (Appendix 2). This method was selected largely due to the ease of use and wide reach of potential users through its online nature.

A “snowball sampling” method of obtaining required responses was chosen by word-of-mouth in the form of email and messages through WhatsApp, while also through the posting of the survey through sites such as LinkedIn and Facebook. The description along with the link to the survey highlighted the need for responses to come from those based in Ireland, and preferably those who already engage in making payments online. Sections of this questionnaire included:

- 1. Background Information:** Here, the respondents’ gender, age range, education level, employment status and income level were required in order to gain an overview of the circumstances for those who potentially may be interested in using cryptocurrency for future online gambling.
- 2. Online Gambling Habits:** This section sought to reveal the respondents’ frequency of online gambling, method of online payment and forms of online gambling they partake in, to see how current gambling habits are arranged.
- 3. Interest in Innovative Technologies:** Should a betting firm decide to introduce cryptocurrency as a method of payment, customers need to be willing to accept a payment option that is relatively new to the financial world, that purely exists due to innovative technology.
- 4. Opinions regarding Cryptocurrency:** A potential customer’s level of knowledge regarding cryptocurrencies, cryptocurrency ownership, cryptocurrency use and general blockchain knowledge are essential in forming an opinion as to whether cryptocurrency is a valid method of payment for online gambling. This section of the survey aimed to provide the author with an overview of where the potential customer’s opinions lay regarding cryptocurrency trust, security, privacy and usability.

This survey was created within the well-designed and user-friendly survey site Typeform, and so the option was there for the author to select whether questions were mandatory,

hence must be answered or not. To ensure the analysis of the survey questions was consistent, all questions were mandatory, which no objections were noted to the author by those who tested the survey before release or by anyone who had completed it.

Chapter 4: Research Findings

Presented in this chapter are the results of both the qualitative and quantitative methods applied during the research stage. First, the author will present the results of the qualitative method, which involved interviews to gain the managerial perceptions of potential cryptocurrency use in Irish betting firms. Then, the findings of the quantitative method, which are based on the Irish consumers opinions, are discussed.

A. Qualitative Findings

Section A discusses the empirical findings of the interviews conducted during this study. Firstly, the author defines their findings regarding the managers understanding of cryptocurrency and blockchain. Following on from this, they provided their opinions regarding cryptocurrency and the feelings about innovative technology within their field of work. Managers' perceptions about the online gambling industry were then discussed, followed by their views on cryptocurrency use within the industry. Finally, the managers impressions about their customers potentially using cryptocurrency will be discussed.

4.1 Managers Knowledge of Cryptocurrency / Blockchain & Innovative Technology

The interview participants were firstly asked about their own understanding of cryptocurrency and blockchain technology, with the purpose being to decipher whether the level of knowledge they have in these areas could be at a stage where this form of payment could be brought into this industry in Ireland, any time in the foreseeable future, along with simply assessing how feasible this could be with current members of the online gambling workforce.

Regarding the interviewees' knowledge of blockchain technology and its value, all shared a similar stance that the value of this to the online gambling industry has high potential through the anonymity aspect of it, however there are alternative payment methods that can be used by their consumers that offer similar degree of anonymity, such as Skrill or Neteller. Interviewee 1 further stated that *"one of the challenges a lot is with what we call KYC requirements or requirements to know your customer and to make sure that you know who you're transacting with - can they afford to play to the level that they're playing to, and so from what I know about cryptocurrency, that would be one of the concerns that I have in terms of the value to us"*. This suggests that damage to their business' understanding of customers might be affected should cryptocurrency or blockchain technology in general become a preferred method of payment due to the anonymity it provides. Interviewee 2 stated how their personal level of blockchain technology is *"quite low"*, hence they couldn't comment specifically on how their business might be able to adapt should this become a wanted payment method by their consumers. Interviewee 3 simply stated their belief regarding the value of blockchain technology is that *"it could be a billion-dollar industry"* in the future, considering how the technology industry is shaping up today.

When discussing their level of cryptocurrency experience and the reasons for using or not using it, Interviewee 1 stated their personal experience was low with the reasoning being due to their timing of being introduced to cryptocurrency, *"it felt like it was a bit of a bubble at that point"* and from an investment standpoint on a personal basis, they *"had no real need for maintaining that level of security.... the likes of Revolut, which you could argue is maybe a competitor in terms of the virtual cards that you can create"*, hence their need for a secure payment method has already been met. Interviewee 2 revealed they have zero experience with this payment method and Interviewee 3 revealed they have some experience with cryptocurrency but insisted on said level being *"quite low and that it was purely from a personal standpoint rather than anything to do with how it could be used in their industry"*.

The topic of disruptive technologies was a strong point of conversation for Interviewee 1, who is based in a firm that's creation of their peer-to-peer betting platform is the reason for their considerable success within the UKI, hence ample market share as a result. *"It allowed people to match against, similar to trading a currency even, they would set a price and someone on the other side of the market then would either buy or sell the price"*

and we then just take a commission so there's no risk involved. So that massively disrupted the betting industry and created a price war." This unsurprisingly led Interviewee 1 to believe that cryptocurrency is indeed a disruptive technology with a strong potential to dramatically disrupt the market. Interviewee 2 also believes cryptocurrency is a disruptive technology with Interviewee 3 putting this down to the fact that *"cryptocurrency isn't yet regulated in Ireland, hence at the minute it is definitely classed as disruptive"*.

The perceptions of the interviewees regarding the need for their firm to adopt cryptocurrency as a method of payment split the group, with Interviewee 2 having a strong sense that it isn't necessary in their business, while Interviewee 1 and 3 both agree that although it isn't essential for their business at present, should they not incorporate cryptocurrency into their business, in future they may be left *"kicking ourselves saying why didn't we have cryptocurrency?"*. Interviewee 1 went further into description about cryptocurrency's current USP being the anonymity it provides, and the question of whether this will still be applicable should regulation come into effect for this payment option is an important one when considering if the need for this payment method is a must for their firm.

The biggest barrier to the use of cryptocurrency within online gambling, according to both Interviewee 1 and 3 is the regulation, or lack of, regarding cryptocurrency currently in Ireland. Looking at the use of this payment method within a publicly traded firm, strict rules would need to be implemented so the firms can *"hold themselves to a high standard"*, thus need to be wary of the potential taking advantage of gaps in local markets where regulation isn't yet set. Interviewee 2 believes cryptocurrency won't be used within their business soon, hence, they do not perceive there to be any impact on their firm should it become a method of payment within the industry in Ireland and so, hasn't regarded the regulatory side of it previously. With this, the future benefits of introducing cryptocurrency use in online gambling could be limited once strong regulation is put in place, with Interviewee 1 interestingly bringing Swedish gambling regulation into the conversation – *"they're just becoming stricter and stricter....called responsible gaming limit so when they initially sign up they're not allowed to be logged in for extended periods of time in the likes of like Sweden"*. Should stricter regulation be implemented with cryptocurrency use in this industry, again anonymity may come to the forefront, potentially discouraging consumers to use this method when gambling.

Regarding innovative or disruptive technology in this industry, Interviewee 2 interestingly suggests that loyalty of customers can be disrupted when too much distance is placed between punters and staff, hence when too many technology innovations are introduced. Interviewee 3 however, sees it as *"essential for the growth of every business, as innovation and/or disruptive technology allows for diversification and development"* so would be vital to long-term growth of a firm. Interviewee 1 also agrees that disruptive

technology has essentially led to numerous examples of companies that have flourished as a result of their innovation.

4.2 Managers perceptions regarding the online gambling industry

The online gambling industry is a massively competitive industry particularly in the area of brand awareness. Interviewee 1 classes the spending on media as one of the *“best examples of how competitive it’s getting between these brands that are just investing in assets to grow brand awareness...high profile sponsorships where the price trebled over the course of a two-year period”*. Such tactics advertising the attractive deals on offer can have positives and negatives for the firms and competition is rife between firms. Interviewee 2 recounted a conversation heard between customers in a betting store the previously day which revealed that *“when you sign up with Bet365 you get 100.00 free bets when you lodge €10 into your account. He said he’d use this and then close it”*. Interviewee 2 further lamented another betting firm’s online gambling tactics through *“Paddy Power’s attempted to close their shops with the ambition to be a solely online operating bookmaker, however they lost a lot of revenue as the shops were nearly required for marketing/advertising purposes”*. Interviewee 3 lauds the competitive environment of online gambling for ensuring the firm is on top form through the customers having *“various different sites to choose from at the touch of a button, so you need to ensure your site stands out and draws the customer in”*.

4.3 Cryptocurrency use in Online Gambling

This section looked at seeing if managers if this industry believe that cryptocurrency is a viable option as a payment method and whether there is a specific section of the industry that would be most suited to accepting this payment option. Regulation, particularly that in the European market, was again brought up by Interviewee 1 as a reason why cryptocurrency may not be viable in online gambling – *“across the UK, Ireland, Spain, Sweden, those types of places, I think the regulations are too strict and the requirements to ensure that people can afford to gamble what they’re playing with”*. Similarly, Interviewee 2 doesn’t believe it to be a necessary payment method to offer within their firm with other methods such as debit or credit cards still within the getting-used-to phase for some consumers. Interviewee 3 was the most optimistic out of the group with cryptocurrency almost certainly being a viable option in the future.

Regarding whether a particular online gambling sector that would be most viable for cryptocurrency use currently exists, Interviewee 1 doesn’t believe so as *“they’re all kind of*

held largely by the same rules in terms of their requirements". Interviewee 2 did suggest that online roulette and jackpots could be more of a viable option, while Interviewee 3 considers is an option for the majority of online gambling sectors.

4.4 Managers perceptions regarding customer-base using cryptocurrency

The interviewees were asked for a description of their customer-base with the aim of linking if the potential use of cryptocurrency by consumers would be somewhat aligned with the results of similar demographics from the quantitative study. Interviewee 1's customer-base was described as being a *"more sophisticated customer.....money centric is another term that we might use to describe them as motivated by trying to win"* who do this through spotting a gap of which operator they will win the most money from when placing the same bet across multiple operators. Hence, line up quite well with the type of consumer that they would associate with cryptocurrency users – *"from very light reading on the topic (cryptocurrency) it tends to be educated people and radically high earners who are adopting us outside of the stereotypes around the illicit activity that is being used for"*. Interviewee 1 believes that their customer-base would ever so slightly be ore receptive to using cryptocurrency as a method of payment, along with receiving it through winnings.

Interviewee 2's customer-base differs from that of Interviewee 1 as they would tend to be more traditional gamblers, hence older males who use gambling as hobby more so than playing to win – *"it is difficult to entice them into changing anything let alone to get them to wrap their heads around cryptocurrency."* However, does suggest that the younger generation would be the more apt customer-base for cryptocurrency use.

Interviewee 3's customers would be in the 40 – 60 age group with sports betting being the most preferred segment to gamble in. Like Interviewee 1, technology and its constant development is popular with their customer-base and *"can see that a large majority of our traditional gamblers have used and/or using online gambling"*. This led the interviewee to conclude that with sufficient, yet not overbearing, regulation, they could envisage their consumers potentially taking to cryptocurrency as a payment option should they be *"adequately educated about cryptocurrency"*.

B. Quantitative Findings

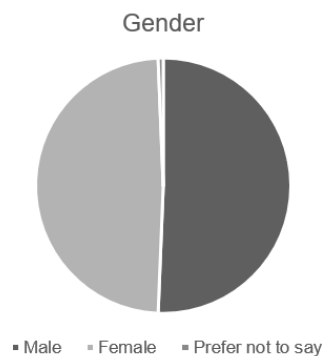
Section B of this chapter provides a detailed analysis of how the quantitative aspect of this study was performed. First, the demographics of the survey are presented, followed by the results of the Cronbach's Alpha testing. Next, descriptive statistics are shown which gives a meaningful overview of the data collected. Finally, the relationship between what initiates the use of cryptocurrency and the enthusiasm of online gambling users to select cryptocurrency as their chosen method of payment for online gambling is presented through regression analysis.

4.7 Quantitative Study Demographics

The total respondents to the survey was slightly higher than the desired amount with 157 people clicking into the survey, 156 of which consented to being part of this survey, hence only their results are included in the following analysis. The required demographics were split into 3 areas – background information, online gambling habits, and opinions on cryptocurrency and blockchain.

4.7.1. Background Information

The first question within this section was based on the user's gender, and the option "prefer not to say" included beside "male" and "female" to ensure all respondents felt conformable answering this mandatory question. Out of the 156 usable survey results, the majority participants were male with 79 responses (50.6%), with female responses amounting to 76 (48.7%), hence 1 user selecting prefer not to say (0.6%). This moderately balanced gender balance is a stark contrast to that in the base thesis which had 132 males to 17 female's response rate. Figure 1 displays a visual portrayal of the gender balance within the results of the survey.



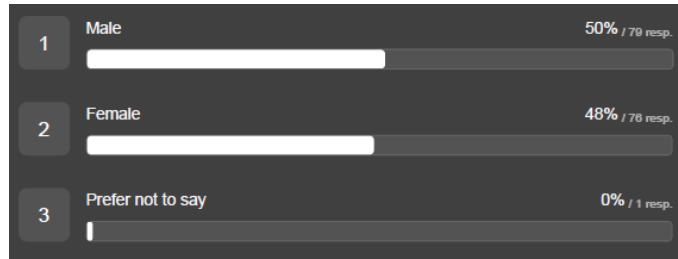


Figure 1: Gender

The second question looked at deciphering what country the respondents were born in, predominantly expecting to see the majority being born within the island of Ireland, be that in the Republic and Northern Ireland, with this study looking at online gambling within Ireland. However, with Ireland being as multicultural as it is, a significant number of responses for “Elsewhere” was anticipated. Most of the respondents were born in the Republic of Ireland with a 68.6% response rate (107 responses). Those born outside of Ireland followed with a 26.9% response rate (42 responses), while those born in Northern Ireland made up the lower spread of nationalities at 4.5% (7 responses). The dominance of respondents born in the Republic of Ireland fell in line with the author’s expectations and can further be interpreted by the sampling techniques utilised by the author, who like some respondents, would fall into the “Elsewhere” category, despite having lived in Ireland for most of their life. Figure 2 displays a visual representation of the place of birth of those who responded to the survey.

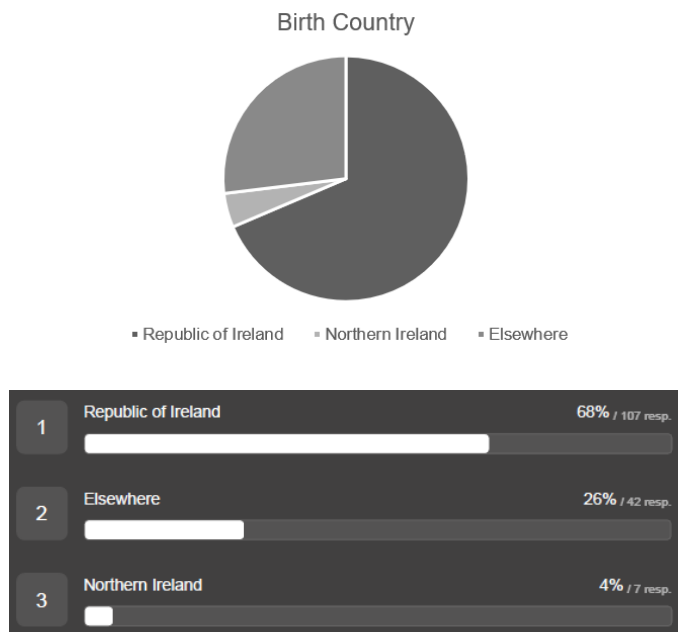


Figure 2: Birth Country

The next background question looked at the employment status of the respondents. The highest represented group were those in full-time employment with 123 responses (78%). There was a stark jump down in respondents in the second highest category which were those who were employed part-time with 10 responses (6.4%). Following this, were the self-employed respondents with 8 (5.1%), just one respondent higher than those who are unemployed and seeking employment where 7 people (4.5%) selected this as their status. Students were next in line with 5 responses (3.2%) with homemakers making up the last 2 respondents with 2 (1.3%). 1 respondent selected the “Other” option and manually typed in “Casual Employment” which could potentially be classed as “Employed Part-Time”. Figure 3 below visually represents the employment status of respondents.

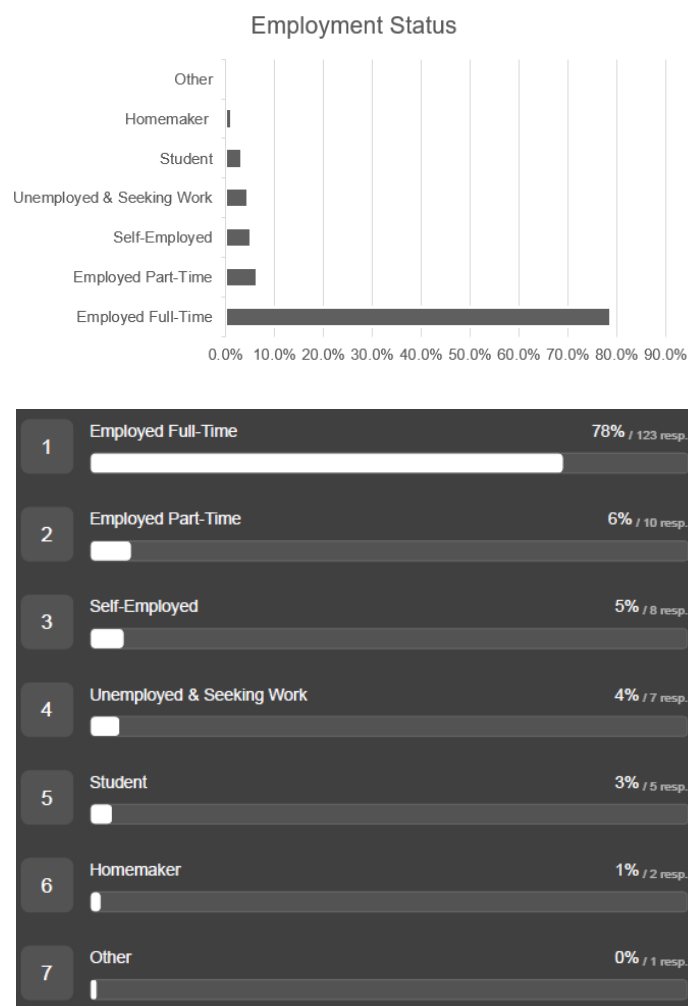


Figure 3: Employment Status

Education level was the next area for respondents to answer with Third Level education narrowly controlling the majority of respondents with 78 (50.0%), closely followed by Postgraduate with 75 responses (48.1%). 3 respondents selected Secondary Level which

made up 1.9% of the share. Figure 4 below depicts a visual representation of the employment status of respondents.

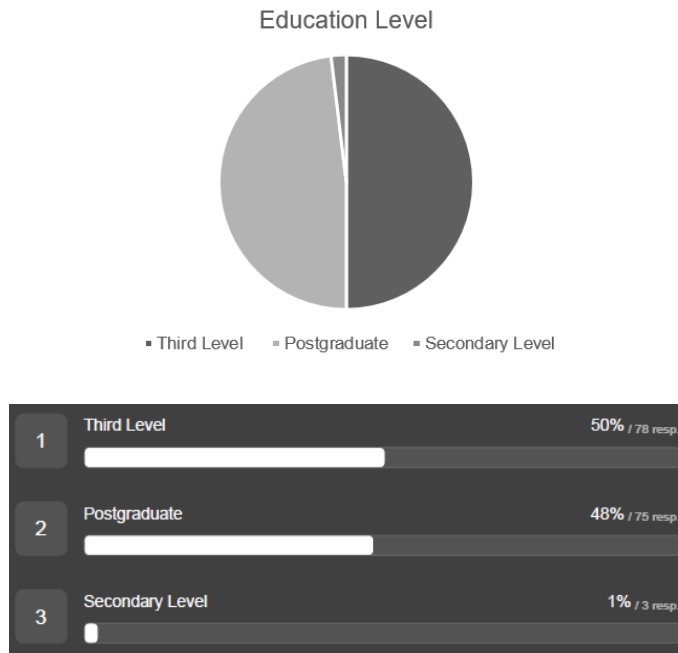


Figure 4: Education Level

Unlike the base thesis, respondent's marital status was not requested as it was decided to be of little importance for the purposes of this study, hence Annual Income Level was the final area within the background questions section. Most of the respondents placed their income within the €31,000 - €40,000 with 34 (21.8%). The €20,000 - €30,000 bracket placed second with 24 people selecting this area (15.4%), closely followed up by the €41,000 - €50,000 section with 23 responses (14.7%). The highest bracket, Greater than €90,000, placed fourth with 21 responses (13.5%). The median number of responses of 18 were within the €51,000 - €60,000 area (11.5%). Less than €20,000 was chosen by 9 respondents (5.8%) and the joint bottom two ranges with 8 responses each are the €71,000 - €80,000 and €61,000 - €70,000 ranges. Figure 5 represents visually the annual income level of the respondents.



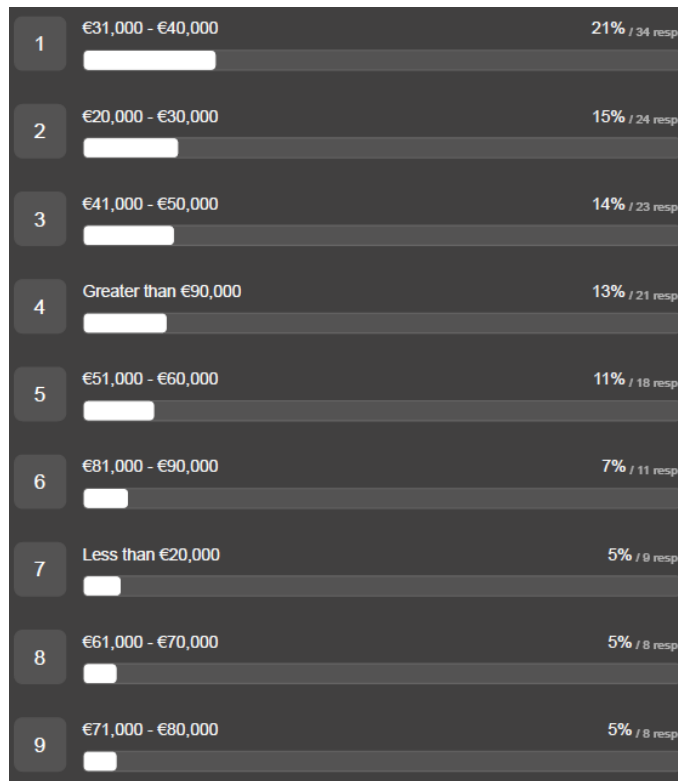
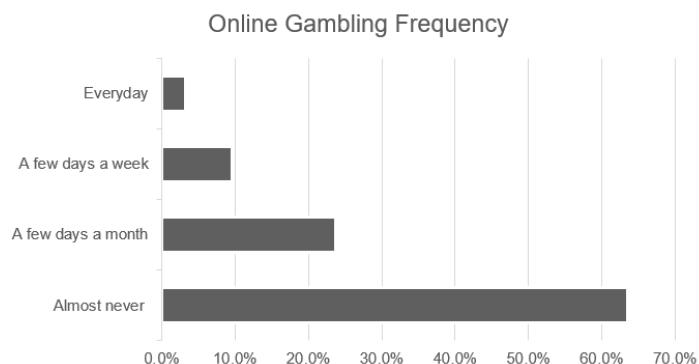


Figure 5: Income Level

4.7.2. Online Gambling Habits

The first question regarding online gambling was aimed at how frequent the respondents were to partake in online gambling. 63.5% of respondents said, “Almost never” (99 responses) which is in stark contrast to the lowest selected option of “Everyday” which had a 3.2% response rate (5 responses). 37 people selected “A few days a month” (23.7%) while only 15 chose “A few days a week” (9.6%). Interestingly, 4 out of 5 who selected “A few days a month” were male with the fifth respondent selecting “Prefer not to say” as the gender. 61 of those who chose “Almost never” were female while only 39 were male. Figure 6 depicts how often the respondents engage in online gambling.



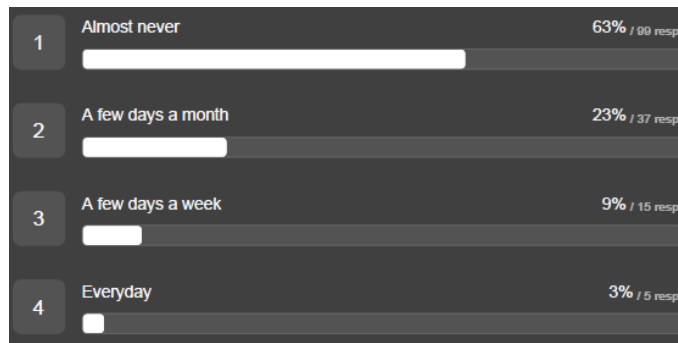


Figure 6: Online Gambling Frequency

The form of payment chosen when online gambling was also determined with a card, be that debit or credit, was the most popular method with 101 responses (64.7%). Internet banking through tools such as PayPal had 17 responses (10.9%) with mobile payment getting 12 responses (7.7%). Cryptocurrency was only selected by 4 respondents (2.6%). 22 respondents chose Other (14.1%) with all users saying they mainly deal in cash when gambling, hence could be easily suggested as those who selected “Almost never” in the previous question when speaking about their frequency of online gambling usage. Figure 7 vividly highlights these results.

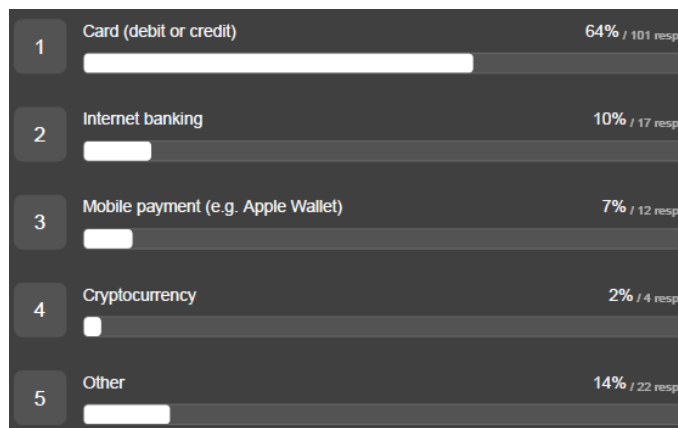
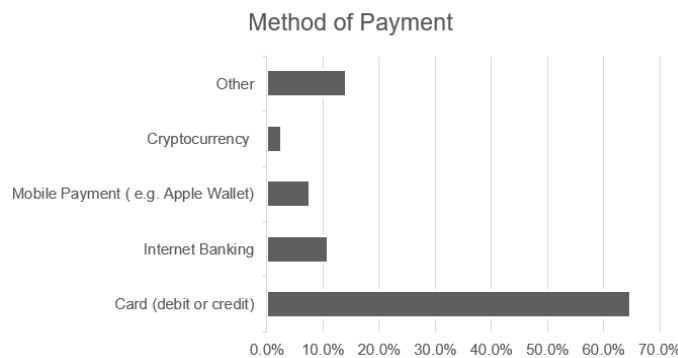


Figure 7: Method of Payment

The final question in this section sought to determine which method of online gambling was most often utilized. Lotto was the most popular answer with 65 people choosing this from the list (41.7%). Sports betting wasn't far behind with 52 respondents choosing it (33.3%). Online poker or card games was the third most popular option with 20 selections (12.8%), which shone in comparison to online casino games which only received 5 votes (3.2%). The least popular method of online gambling was bingo which only 2 respondents chose (1.3%). 12 respondents (7.6%) chose "Other", with 1 answer listing loot boxes and the rest of the comments insinuating that most of their gambling isn't conducted online. Figure 8 shows these results in a visual representation.

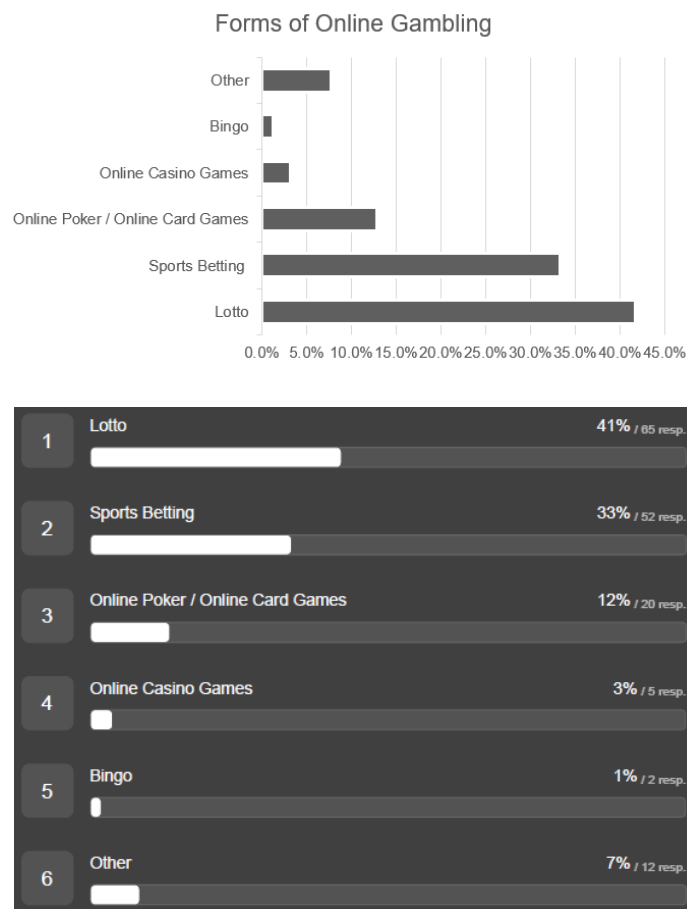


Figure 8: Forms of Online Gambling

4.7.3. Opinions on Cryptocurrency and Blockchain.

The final section of the demographic questions was based around the areas of cryptocurrency and blockchain technology. The first question within this section got the respondents to rate their cryptocurrency knowledge on a scale of 0 to 5, with 0 suggesting a poor level of knowledge and 5 suggesting expert level. Most of the

respondents (53) chose 0 (33.8%), while the lowest grouping rated their knowledge as a 5 (2.5%). 38 response were received for those who rated their knowledge at 1 (24.2%), while 24 people rated it a 2 (15.3%). 22 responses were received for a rating of 3 (14.0%), with 6 fewer than this choosing a 4 rating (10.2%). Figure 9 below visually represents the level of cryptocurrency knowledge of respondents.

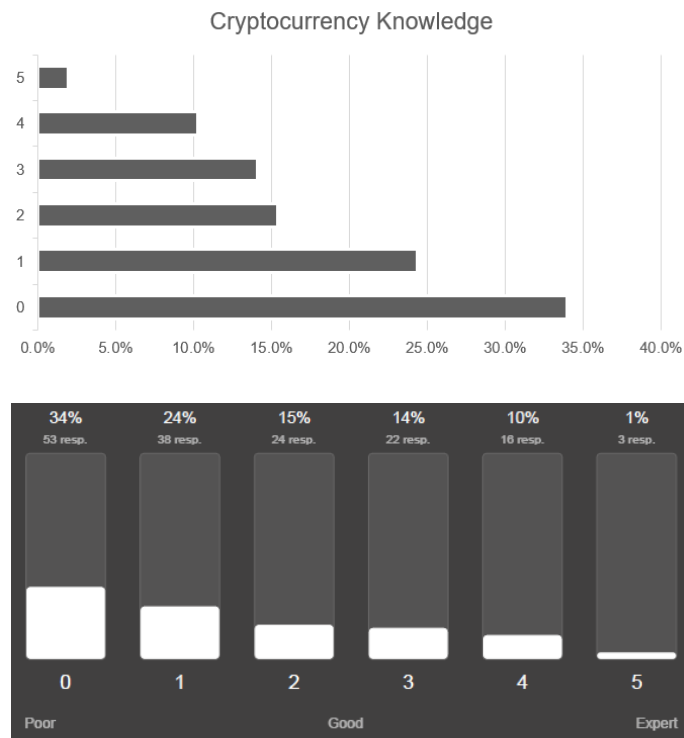


Figure 9: Cryptocurrency Knowledge

Cryptocurrency use was the second component of the section regarding the respondents' opinions on cryptocurrency and blockchain and 118 responses were received stating the respondent had never used cryptocurrency previously (75.8%). Rarely was the second most chosen answer with 19 (12.1%). 12 people selected that they sometimes use cryptocurrency (7.6%), with half that number choosing often (3.8%). 1 response was received for always (0.6%). Figure 10 represents visually the cryptocurrency use of the respondents.

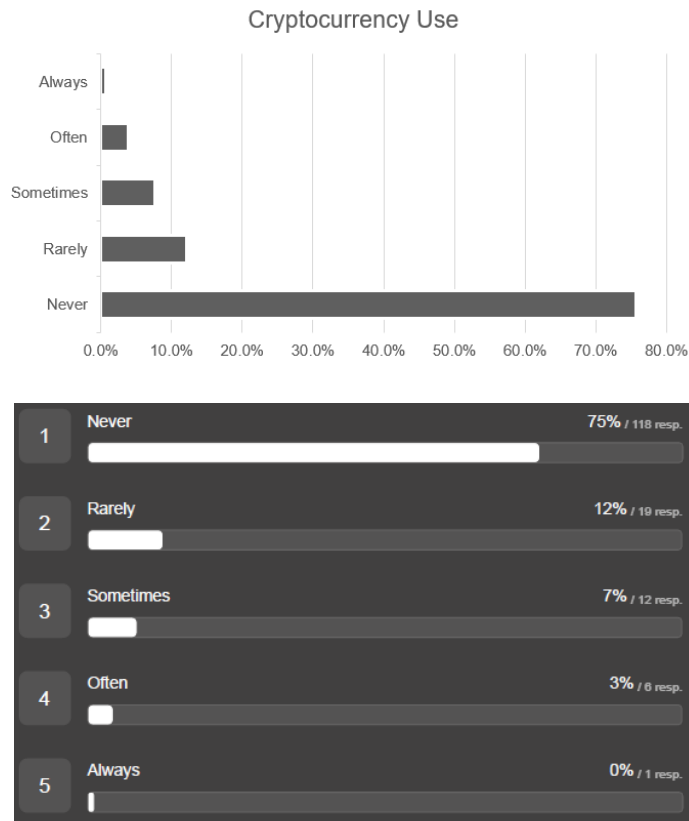
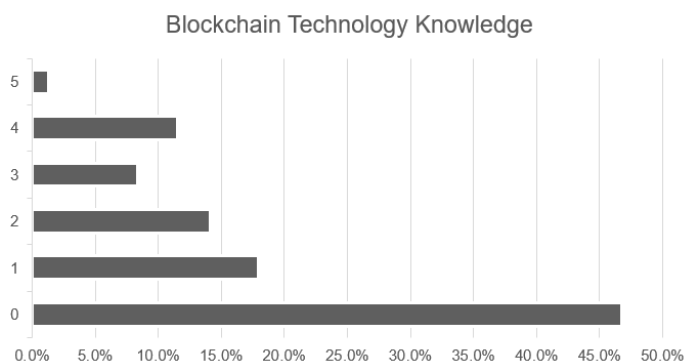


Figure 10: Cryptocurrency Use

The final question in the survey asked participants to rate their level of blockchain knowledge on a scale of 0 to 5. The score of 0 for poor knowledge was selected the most with 73 responses (46.5%), suggesting those who answered the survey were less knowledgeable with blockchain than with cryptocurrency. 38 responses were selected for a rating of 1 (24.2%) and 24 responses for a rating of 2 (15.3%). A good rating of 3 was selected by 22 respondents (14.0%) and slightly fewer of 16 chose a rating of 4 (10.2%). 4 responses were received for an expert rating of 5 (2.5%) which, again, is lower than those who selected 5 in the question regarding cryptocurrency knowledge. Figure 11 displays a visual portrayal of the level of blockchain technology within the results of the survey.



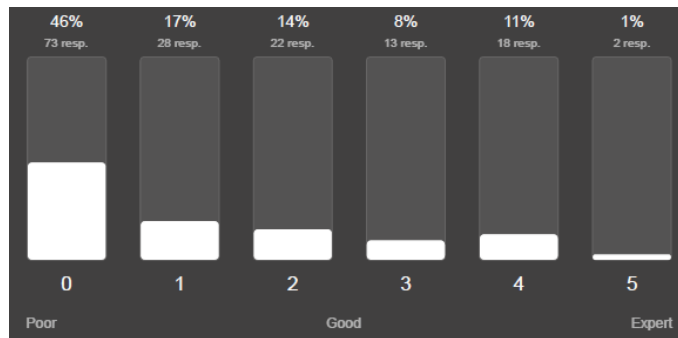


Figure 11: Blockchain Technology Knowledge

Chapter 5: Discussion

The three research questions as outlined and posed in Chapter 1 above, are discussed below in terms of the results of the qualitative and quantitative inquiry methods used. The research questions are as follows:

1. How do market leaders in the Irish online gambling industry envision the introduction of cryptocurrency as a potential method of payment in their business?
2. What would motivate an online gambler to choose cryptocurrency as their method of payment as opposed to using a bank or credit card?
3. Do Irish betting firms and their customers share similar opinion on whether cryptocurrency is a feasible method of payment for online gambling?

5.1 Research Question 1

How do market leaders in the Irish online gambling industry envision the introduction of cryptocurrency as a potential method of payment in their business?

Interestingly as a result of this study, the potential for cryptocurrency to become a popular method of payment for online gambling is still far from becoming as accepted as other, more traditional, forms such as debit or credit card. Although one manager believes that the potential for cryptocurrency use is not too far from becoming a preferred payment method, – *“Once regulated, it could provide high security and privacy for customers”* – this mentality was less enthused as a whole among the other managers approached for this study.

One recurring concerning theme related to the introduction of this as a popular method of payment for anything, not just online gambling, is regulation – *“I think the regulations are too strict”*. Granted, in some emerging economies this form of payment may be one of the more attractive payment options through its security and anonymity, along with its little or no regulatory shackles, there is a close eye on all publicly listed companies within this industry, and so the potential for a user’s anonymity to be compromised as a result of tight regulation, could deter some of the more savvy customers away from its use.

One key group that could be enticed to use cryptocurrency payments was suggested to be those who enjoy being early adopters within technology such as gamers and high earners who have the capacity to pursue cryptocurrency endeavours due to their greater levels of disposable income.

5.2 Research Question 2

What would motivate an online gambler to choose cryptocurrency as their method of payment as opposed to using a bank or credit card?

As discussed above, Figure 6 indicates a potential conservatism within, the population sampled, towards a preference for the established methods of payment. This perhaps suggests that a current and substantial challenge for online gambling providers (OGP) to grow and expand their services by using cryptocurrency as transaction medium.

The above response to the questionnaire used for the sampled population demonstrates the conservatism innate to that population towards technology adoption in general. The extent of that conservatism is further elucidated in Table 2 Attitudes to the New which contains the response to two related questions as follows:

I prefer to wait and see how a new technology works for other users before choosing to adopt it

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	20	12.8	12.8	12.8
	2	76	48.7	48.7	61.5
	3	31	19.9	19.9	81.4
	4	27	17.3	17.3	98.7
	5	2	1.3	1.3	100.0
	Total	156	100.0	100.0	

I am receptive towards trying new things

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	45	28.8	29.0	29.0
	2	94	60.3	60.6	89.7
	3	13	8.3	8.4	98.1
	4	3	1.9	1.9	100.0
		Total	155	99.4	100.0
Missing	System	1	.6		
	Total	156	100.0		

I like to be the first to try new technologies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	21	13.5	13.5	13.5
	2	58	37.2	37.2	50.6
	3	48	30.8	30.8	81.4
	4	28	17.9	17.9	99.4
	5	1	.6	.6	100.0
	Total	156	100.0	100.0	

Table 2: Attitudes towards the 'New'

The responses to the above three statements indicate that amongst Irish respondents there is a tendency towards being conservative where new technology such as cryptocurrency is concerned. They also suggest that at least 50% or more of the population while not adverse to new technology are not likely to be first or early adopters of a new technology such as a cryptocurrency.

This has possibly resulted in the perception of the Irish sampled population towards cryptocurrency being somewhat underdeveloped due to this lack of knowledge of and understanding of cryptocurrency as a technology for transaction payments online as detailed below in Table 3: Respondents attitudes towards the Cryptocurrency as a future payment method.

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

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	21	13.5	13.5	13.5
	2	51	32.7	32.7	46.2
	3	57	36.5	36.5	82.7
	4	23	14.7	14.7	97.4
	5	4	2.6	2.6	100.0
	Total	156	100.0	100.0	

Table 3: Respondents attitudes towards the Cryptocurrency as a future payment method

Again, the above table is suggestive that potentially more than half of the Irish population is either quite unfamiliar or lack strong confidence in cryptocurrency technology. There is however, some indication of openness to more information and education about cryptocurrency technology in online gambling settings within the responses tabulated in Table 4: Respondents attitudes towards Cryptocurrency as a means of exchange, the sampled population

Making deposits and receiving winnings in the form of cryptocurrency doesn't interest me

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	22	14.1	14.1	14.1
	2	52	33.3	33.3	47.4
	3	45	28.8	28.8	76.3
	4	33	21.2	21.2	97.4
	5	4	2.6	2.6	100.0
	Total	156	100.0	100.0	

Table 4: Respondents attitudes towards Cryptocurrency as a means of exchange

As discussed in section 1.4 Research Purpose, above, Lehtonen (2018) had identified four key elements which they wished to explore as part of that study namely trust, security, usability and anonymity. Usability was is perhaps an issue affected by the lack of understanding and the complex nature of cryptocurrency itself as well as the processing platforms such as Blockchain. Simplicity versus complexity of the transactional processing systems was also explored when addressing the usability aspect

of the cryptocurrency technology as potentially indicated in Table 5: Perceptions of complexity versus simplicity of competing payment and transactional methods below.

I prefer using the simplest payment method available for online transactions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	54	34.6	34.6	34.6
	2	73	46.8	46.8	81.4
	3	13	8.3	8.3	89.7
	4	15	9.6	9.6	99.4
	5	1	.6	.6	100.0
	Total	156	100.0	100.0	

Cryptocurrency is too complex for me to consider using

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	12	7.7	7.7	7.7
	2	41	26.3	26.3	34.0
	3	46	29.5	29.5	63.5
	4	49	31.4	31.4	94.9
	5	8	5.1	5.1	100.0
	Total	156	100.0	100.0	

Table 5: Perceptions of complexity versus simplicity of competing payment and transactional methods

Simplicity or complexity may also possibly be influencing perceptions influencing trust in the above table. The responses to the above two question suggest that for online gambling providers to attract users, the method of use must be simplified and understandable. This suggests perhaps that online gambling providers may need to simplify the setup of crypto accounts with strong assurances of privacy with security being explained simply and persuasively. Online gambling providers may need to secure reputable external auditors, IT security and governance scrutiny professionals to certify, monitor and simplify their online accounting processes for customers. In summary therefore the responses of the Irish population sampled above, potentially indicate the direction of travel which online gambling providers need to consider in order to address the resistive perceptions within the population sampled. The message is that its usage needs to be understandable and uncomplicated for users to adopt the technology. The legend for use in relations to the following tables is that where a table shows items 1 up to 5, the strength of agreement to the statement is increasing; where there is a two-item table 1 means No and 2 means Yes

In terms of the trust aspect within this study, responses addressing trust in OGPs Table 6: Respondents attitudes towards trust & OGPs below indicate that for the Irish population sampled, trust in the OGP itself is a key factor. Taking the issue of lack of knowledge or perhaps confidence in the technology an OGP may need to present itself as a “trusted advisor” in created this add-on role by providing high quality and uncomplicated education around the technology in order to reduce conservatism and increase trust at the same time.

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

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	83	53.2	53.5	53.5
	2	60	38.5	38.7	92.3
	3	11	7.1	7.1	99.4
	4	1	.6	.6	100.0
	Total	155	99.4	100.0	
Missing	System	1	.6		
Total		156	100.0		

Table 6: Respondents attitudes towards trust & OGPs

It should also be mentioned here that the response to this question concerning the trust factor could indicate either that online gambling may not be a major interest and so trust is not a major issue for the respondents or that there is trust in online gambling providers as being fair and unlikely to cheat customers. The caveat here is, as mentioned in the limitations, due to sampling method that the majority of respondents were not engaging online gambling. The issue of trust is potentially key, as it possibly permeates each of the other perceptions, the potential effect of this is indicated within Table 7: Respondents attitudes towards trust & method of payment

I trust using online payment methods that utilize intermediaries such as banks more than decentralized systems such as cryptocurrency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	45	28.8	29.0	29.0
	2	78	50.0	50.3	79.4
	3	21	13.5	13.5	92.9
	4	11	7.1	7.1	100.0
	Total	155	99.4	100.0	
Missing	System	1	.6		
Total		156	100.0		

I don't trust using cryptocurrency to make payments as much as using other traditional payment methods

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	39	25.0	25.0	25.0
	2	62	39.7	39.7	64.7
	3	32	20.5	20.5	85.3
	4	21	13.5	13.5	98.7
	5	2	1.3	1.3	100.0
	Total	156	100.0	100.0	

Table 7: Respondents attitudes towards trust & method of payment

Within the responses of the sampled Irish population, a lack of trust is potentially being indicated in both cryptocurrency itself and by comparison with other online payment methods. A conservative response is noted for responses above towards use of new technology, such as cryptocurrency. This potential resistivity, though slightly less, is still strongly suggested when compared to traditional methods of payment clearing. Again, a caveat being that most respondents did not actually participate in online gambling. It does have the implication that a potential resistance exists more generally though in a wider population which could be considered a constraining factor for OGP's introducing cryptocurrency as a transaction medium within their services.

Security of transacting online in cryptocurrency was examined amongst the Irish population. The response to the question of security in making cryptocurrency transactions online indicated in Table 8: Respondents attitudes towards security & online payments, that there was a negative perception towards that security (response 1 (No); response 2 (Yes)).

The response to the question demonstrates that security is possibly a very strong concern for online consumers of payment services and cryptocurrency evoking a negative perception from those sampled. The issue of security is further demonstrated when considering knowledge of the platform Blockchain on which cryptocurrency is processed. Indeed, the integrity of OGP's own security for those transactional systems also evoked a negative response within the Irish population sampled. OGP's therefore have another challenge in addition to negative perceptions of trust regarding the technology in general but which potentially extends to OGP's own internal transactional technology and processes. The abstract notions of technology of password protection, privacy and encryption, compete with the physical and self-secured payment methods such as PayPal and credit or debit cards which are established and more readily understood and therefore felt to be more secure.

Security is important to me when conducting online payment transactions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	128	82.1	82.1	82.1
	2	28	17.9	17.9	100.0
Total		156	100.0	100.0	

I believe making transactions with cryptocurrency through blockchain technology is a secure transaction method

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	23	14.7	14.7	14.7
	2	34	21.8	21.8	36.5
	3	86	55.1	55.1	91.7
	4	13	8.3	8.3	100.0
Total		156	100.0	100.0	

Current encryption and passwords are sufficient for security and safety when making deposits or withdrawals in online gambling websites

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	14	9.0	9.0	9.0
	2	62	39.7	40.0	49.0
	3	55	35.3	35.5	84.5
	4	23	14.7	14.8	99.4
	5	1	.6	.6	100.0
Total		155	99.4	100.0	
Missing	System	1	.6		
Total		156	100.0		

Table 8: Respondents attitudes towards security & online payments

The responses in the latter two questions above in Table 8 above possibly indicate that either the knowledge of the technology blockchain and cryptocurrency is potentially facilitating perceptions of lower trust, or that there is still a gap in understanding within the population which drives a lower level of trust as a result.

At the same time regulation of the technology and of the OGP's using same, is possibly a key factor in addressing the negative perceptions of both trust and security. Therefore, the trading environment and infrastructure may need further regulation by governments in order to address these perceptions. Table 9: Perception of Cryptocurrency and its Regulation below is possibly indicating that for the Irish population sampled, the absence of same is causing some negative perception about the currency and technology.

The fact that cryptocurrencies are unregulated not backed by any government doesn't bother me

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	11	7.1	7.1	7.1
	2	26	16.7	16.7	23.7
	3	33	21.2	21.2	44.9
	4	68	43.6	43.6	88.5
	5	18	11.5	11.5	100.0
	Total	156	100.0	100.0	

Table 9: Perception of Cryptocurrency and its Regulation

In addressing regulation, a government role could therefore be viewed as a potential facilitation for positive perceptions of the technology, OGPs and the use of the technology within OGP services. Lehtonen's fourth and final element of their study addressed the issue of "anonymity" (synonymous with privacy). Where such regulation of the technology and OGPs would seek to ensure and enforce privacy or anonymity, this may address another negative perception among those sampled within the Irish population. At possible reason for the resistance threading through responses concerning perceptions of new technology and crypto currency may have much to do with the issue of personal privacy or anonymity. Table 10: The Privacy Issue and Its Perception below present possible issues for OGPs in this regard.

Privacy concerns

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	42	26.9	26.9	26.9
	2	76	48.7	48.7	75.6
	3	19	12.2	12.2	87.8
	4	19	12.2	12.2	100.0
	Total	156	100.0	100.0	

Privacy in online gambling

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	27	17.3	17.3	17.3
	2	27	17.3	17.3	34.6
	3	59	37.8	37.8	72.4
	4	33	21.2	21.2	93.6
	5	10	6.4	6.4	100.0
	Total	156	100.0	100.0	

Interest in cryptocurrency privacy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	20	12.8	12.8	12.8
	2	61	39.1	39.1	51.9
	3	58	37.2	37.2	89.1
	4	14	9.0	9.0	98.1
	5	3	1.9	1.9	100.0
	Total	156	100.0	100.0	

Table 10: The Privacy Issue and Its Perception

The above responses from the Irish population sampled, potentially suggest that for cryptocurrency to achieve common usage amongst the sampled population, privacy or anonymity will also be concerns which must be addressed in communication of the application cryptocurrency in online gambling usage, its accounting setup and payment processing for an increase in interest to support the growth in interest and adoption. There are potential negative perceptions towards general privacy and anonymity being indicated above. The perception of anonymity or privacy in regard to online gambling, while possibly a lesser potential concern than general privacy online, is still a potentially substantial issue for OGPs. The interest potentially being indicated here by the sample of Irish population surveyed is lower than the concern for same when it comes to online privacy and online gambling anonymity. This may be indicating that the time of the survey, Cryptocurrency and its use for transaction in online gambling has not been regarded as a priority for this sample of the Irish population. It might be argued that if

cryptocurrency was perceived as particularly relevant or important facet of lifestyle, then the interest in its anonymity and privacy perhaps should present a greater magnitude in the responses

5.3 Research Question 3

Do Irish betting firms and their customers share similar opinion on whether cryptocurrency is a feasible method of payment for online gambling?

Overall, it can be determined that the Irish betting firms that participated in this study potentially believe that it could be a feasible payment option in the future, however, only if regulation wasn't as heavily enforced on it as it is currently in some regions.

From the results of the survey, currently it seems the Irish population are not familiar enough with cryptocurrency and therefore do not trust in it as a method of payment. If betting agencies were to adopt it as a secure method of payment the younger generation who participated in this survey would be likely to use cryptocurrency as a method of payment in betting. Based on survey results if cryptocurrency was to be adopted by betting agencies as a method of payment there is potential for it to be successful in Ireland. This aligns with the interviews carried out with managers in this field.

Chapter 6: Conclusions & Recommendations

The final chapter of this paper will discuss the purpose of this study, along with addressing the theoretical background to this research. Furthermore, limitations and further research suggestions within this area will be discussed.

6.1 General Conclusions

The rationale behind this research is to determine whether the Irish perspective on cryptocurrency and its use in online gambling today varies from the results discovered through similar research in 2018 based in Scandinavia (Lehtonen, 2018). Through the methods used in this study, there were some limitations, particularly of note regarding the snowball method of sampling in the quantitative study. Potential negativity within the Irish population sampled in perceptions as discussed in the tables:

- Use of cryptocurrency and its adjunct technologies are not well understood.
- Security of cryptocurrency applications and their use within online gambling.
- Privacy or anonymity in use of cryptocurrency at all and in online gambling.
- The foregoing potentially negative perceptions potentially undermine trust.

OGPs potentially have a serious challenge in increasing overall market size for cryptocurrency based online gambling service offerings. This was reflected within the interviews undertaken with the OGP managers. However, there may possibly be two ways that these negative perceptions could be addressed or converted to positive perceptions. As there is little appreciation and understanding within the Irish population sampled. OGP's invest in educational programmes with simple instructional design of the key concepts of cryptocurrency, its processing platforms such as Blockchain.

As part of an online and mainstream media Public Relations campaign, the issue of trust, ease of use, the regulation and governance of the online gambling transactional technology would possibly need to feature as central messages within such a campaign. Finally, government regulation and auditing of OGP and online gambling may serve to facilitate the evolution of trust in security, anonymity and fairness with the service offering. It will possibly take such a co-ordination of these elements to begin to shift perceptions towards the positive.

6.2 Limitations of this Study

Regarding the qualitative section of this study, only three managers were interviewed, however two more would have been preferable to follow the base thesis closer. The author had four interviews originally lined up, however one manager had to decline due to unforeseen circumstances and there wasn't enough time to find another person to interview. Furthermore, interviewees from a broader range of online gambling firms would enhance the review due to potential differing strategies of the firms. With the current global pandemic, face-to-face interviews were not suitable, thus better rapport could have been achieved had these been conducted in person.

Limitations were also prevalent through the methods in which the quantitative section of the study was achieved. With the survey being predominantly shared online, with the option for others to reshare, the appropriate respondent, in this case regular online gamblers, may have been diluted. As noted in the findings, a large proportion of those who submitted responses were not regular gamblers. With this, the most popular form of online gambling selected was "Lotto", which although classed as a method of online gambling, could potentially be excluded to ensure the most relevant methods of gambling associated with betting firms were selected, to better coordinate with the qualitative study.

6.3 Suggestions for Further Research

With this type of study being mixed method in nature, stronger results could have been achieved should a more detailed analysis have occurred utilising more methods of analysing the data such as Triangulation. A larger sample size for the quantitative study, within a narrower scope to ensure keen online gamblers are the bulk of the respondents, would ensure a more sculpted result could be generated. With the Covid-19 pandemic currently ongoing, it would be interesting for future research to be conducted to see if cryptocurrency use may increase due to the lockdown conditions, which has seen an increase in usage and has surpassed levels pre-pandemic, according to an article released in August 2020 regarding CCO of DAOWallet, Glen Bullen, who sees cryptocurrency as a silver bullet post-Covid-19 (Unknown, 2020).

References

- Bell, J. (2010). *Doing Your Research Project: A Guide for First-Time Researchers in Education, Health and Social Science*. 5th Edition. Maidenhead McGraw-Hill Open University Press.
- Braun, V. & Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative Research in Psychology*. 3 (2), pp. 77-101.
- Brito, J., Shadab, H.B. and Castillo O'Sullivan, A. (2014). *Bitcoin financial regulation: Securities, derivatives, prediction markets, and gambling*. Columbia Science and Technology Law Review.
- Business Sweden. (2018). *Mining the future: Why Sweden is leading the cryptocurrency revolution*. Available: <https://www.business-sweden.se/en/Invest/industries/Data-Centers-By-Sweden/news-and-downloads/investment-news/nyhet-13-okt/>. Last accessed 16th July 2020.
- CoinDesk. (2020). *Bitcoin*. Available: <https://www.coindesk.com/price/bitcoin>. Last accessed 26th August 2020.
- Collis, J. & Hussey, R. (2014). *Business Research Methods: A Practical Guide for Undergraduate and Postgraduate Students*. London, UK: Palgrave MacMillan Education.
- Department of Health. (2019). *Ministers publish first set of data on gambling in Ireland*. Available: <https://www.gov.ie/en/press-release/5f337f-ministers-publish-first-set-of-data-on-gambling-in-ireland/?referrer=/blog/press-release/ministers-publish-first-set-of-data-on-gambling-in-ireland/>. Last accessed 16th July 2020.
- Foucault, M. (2012). *Discipline and punish: The birth of the prison*. Vintage.
- Gainsbury, S.M. and Blaszczyński, A. (2017). *How blockchain and cryptocurrency technology could revolutionize online gambling*. *Gaming Law Review*, 21(7), pp.482-492.
- Gainsbury, S., Parke, J. & Suhonen, N. (2013). Consumer Attitudes Towards Internet Gambling: Perceptions of Responsible Gambling Policies, Consumer Protection and Regulation of Online Gambling Sites. *Journal of Computers in Human Behaviour*. 29 (1), pp. 235-245. <https://doi.org/10.1016/j.chb.2012.08.010>
- Goldkuhl, G. (2012). Pragmatism vs interpretivism in qualitative information systems research. *European Journal of Information Systems*, 21(2), pp.135-146. <https://doi.org/10.1057/ejis.2011.54>

- Griffiths, M. (2003). Internet gambling: Issues, concerns, and recommendations. *CyberPsychology & Behavior*, 6(6), pp.557-568. Available: <https://doi.org/10.1089/109493103322725333>
- Griffiths, M.D. (2018). *Hot topics in gambling: gambling blocking apps, loot boxes, and 'crypto-trading addiction'*. *Online Gambling Lawyer*, 17(7), pp.9-11.
- Hennessy, M. (2018). *Ireland's gambling epidemic: 'Find a corner and you'll be left alone 'til you're penniless'*. Available: <https://www.thejournal.ie/gambling-ireland-2-4211658-Sep2018/>. Last accessed 16th July 2020.
- Jessop, B., (2005). Critical Realism and the Strategic-Relational Approach. *New Formations: A journal of culture, theory and politics*, (56), pp.40-53. Retrieved from: <https://core.ac.uk/download/pdf/71861.pdf>
- Legal Gambling Ireland. (n.d.). *Ireland Gambling Laws Explained*. Available: <https://www.legalgamblingireland.com/laws/>. Last accessed 16th January 2020.
- Lehtonen, L and Werle, N. (2018), *Hedging Your Bets: The Prospects of Cryptocurrency Use in Online Gambling: A Mixed-Methods Study*. Masters thesis, Umeå University, Umeå.
- Library of Congress. (2019). *Regulation of Cryptocurrency Around the World*. Available: <https://www.loc.gov/law/help/cryptocurrency/world-survey.php#ireland>. Last accessed 16th July 2020.
- Madey, R.S., 2017. *A Study of the History of Cryptocurrency and Associated Risks and Threats* (Doctoral dissertation, Utica College).
- McLaughlin, M., Ryan, P., Devlin, C., Dillon, I., McBride, D. (2019). Ireland: Blockchain And Cryptocurrency Regulation 2020. Available: <https://www.mondaq.com/ireland/fin-tech/862190/blockchain-and-cryptocurrency-regulation-2020#:~:text=There%20is%20no%20specific%20cryptocurrency,payment%20services%20and%20securities%20law..> Last accessed 20th July 2020.
- Meuter, M.L., Ostrom, A.L., Bitner, M.J. & Roundtree, R. (2003). The Influence of Technology Anxiety on Consumer Use and Experiences with Self-service Technologies. *Journal of Business Research*. 56 (11), pp. 899-906. [https://doi.org/10.1016/S0148-2963\(01\)00276-4](https://doi.org/10.1016/S0148-2963(01)00276-4)
- Michael, N. (2019). *€10bn staked by Irish gamblers in 2019 dubbed a 'very worrying' statistic*. Available: <https://www.irishexaminer.com/breakingnews/ireland/10bn-staked-by-irish-gamblers-in-2019-dubbed-a-very-worrying-statistic-972076.html>. Last accessed 16th July 2020.

Mills, D. (2019). *Preliminary findings on cryptocurrency trading among regular gamblers: A new risk for problem gambling?* *Addictive Behaviors*. 92, 136-140.

Mordor Intelligence. (2019). *Online Gambling Market - Growth, Trends and Forecast (2019 - 2024)*. Available: <https://www.mordorintelligence.com/industry-reports/online-gambling-market>. Last accessed 16th July 2020.

Nakamoto, S. (2008). *Bitcoin: A peer-to-peer electronic cash system*. URL: <https://bitcoin.org/bitcoin.pdf>

Nowell, L.S., Norris, J.M., White, D.E. & Moules, N.J. (2017). Thematic Analysis: Striving to Meet the Trustworthiness in Criteria. *International Journal of Qualitative Methods*. 16 (1), pp. 1-13.

Rao, S. (2014). *Turning Bitcoins into the Best-coins*. Tartu, Estonia. University of Tartu

RTE. (2019). *Flutter Entertainment and Stars Group to merge in 'transformational' deal*. Available: <https://www.rte.ie/news/business/2019/1002/1079565-flutter-entertainment-deal/>. Last accessed 16th July 2020.

Saunders, M., Lewis, P. & Thornhill, A. (2009) *Research Methods for Business Students*, 5th Edition. *Essex: Pearson Education*.

Saunders, M., Lewis, P. & Thornhill, A. (2016) *Research Methods for Business Students*, 7th Edition. *Essex: Pearson Education*.

Tashakkori, A. & Teddlie, C. (2010). *Mixed Methods in Social and Behavioural Research*, 2nd Edition. Sage: Thousand Oaks, California.

Turpin, J.B. (2014). Bitcoin: The Economic Case for Global, Virtual Currency Operating in an Unexplored Legal Framework. *Indiana Journal of Global Legal Studies*. 21 (1). pp. 335-368. <https://www.repository.law.indiana.edu/ijgls/vol21/iss1/13>

Yakubowski, M. (2019). *Why is the US Not Yet a Leader in Crypto Regulation? Experts Answer*. Available: <https://cointelegraph.com/news/why-is-the-us-not-yet-a-leader-in-crypto-regulation-experts-answer>. Last accessed 16th July 2020

Young, K. (1999). *Cyber-disorders: the mental illness concern for the millennium*. Presented at the 108th Annual Meeting of the American Psychological Association, Boston. <https://doi.org/10.1089/cpb.1999.2.475>

Unknown. (2020). *Crypto corner: A post-Covid acquisition tool*. Available: <https://egr.global/technology/opinion/crypto-corner-as-a-post-covid-acquisition-tool/>. Last accessed 12th August 2020.

Appendices

Appendix 1: Letter of Consent

Hello,

My name is Aislinn Cantwell and I am a MSc in Finance student in National College of Ireland who is currently conducting research for my dissertation based on the area of cryptocurrency and the potential use of this within the online gambling industry. As part of this research, I am conducting interviews with the aim of getting an insight into this area with those who have expertise within this industry. Just to note, your participation is completely voluntary. Please read the information below for an overview of the study and how this interview will be conducted.

Topic:

The purpose of my research in this area is to get an insight into whether the use of cryptocurrency within online gambling has the potential to become a method of payment that customers will use along with or as opposed to the traditional method of cash or card. With increasing acceptance of cryptocurrency through a range of markets and industries, there has been an increasing interest in the use of this form of payment transaction today, and so a question is raised as to whether betting organisations in Ireland could see this as a method of payment in future.

Procedure:

By volunteering in the interview process of this study, you will be asked to share your perceptions towards the potential for cryptocurrency to be used in your industry. The interview will be conducted over Microsoft Teams, Zoom or by phone, based on your preference, with the interview lasting no longer than 30 minutes. Once data has been collected and analysed, you will be sent a copy to ensure you are satisfied with the answers provided, along with the opportunity for you to provide extra information or feedback.

Confidentiality:

All information collected throughout this study will remain confidential and no identifiable data will be used in the dissertation. Pseudonyms will be assigned to all participants and company names.

Participation and Withdrawal:

Interview participation is completely voluntary, and you may withdraw without consequence of any kind, at any point. The option to refuse an answer to any questions you are not comfortable answering is also available to you.

Many thanks for your time carrying out this section of the research and please do not hesitate to contact me (email below) should you have any further questions regarding the interview process.

Appendix 2: Interview Questions

SECTION 1 - Introduction

- Q1.** What is your current position in the firm?
- Q2.** How long have you worked in this position?
- Q3.** How long have you worked in this industry?

SECTION 2 - Cryptocurrency & Innovative Technology

- Q4.** What do you think the value of blockchain technology is to the online gambling industry?
- Q5.** Do you have experience trading or using cryptocurrency?
- Q6.** What reasons have led you to using (not using) cryptocurrency?
- Q7.** Describe how in your view disruptive technologies have been implemented within online gambling.
- Q8.** Do you believe cryptocurrency is a disruptive technology?
- Q9.** Do you perceive a need for your company to adopt cryptocurrency as a payment option?
- Q10.** What kind of impact do you perceive as occurring from your company by including cryptocurrency as a payment option?
- Q11.** Describe any restrictions you believe could be major barriers to the use of cryptocurrency as a payment method.
- Q12.** What are the future benefits of cryptocurrency being used in online gambling?
- Q13.** Do you believe innovation and/or disruptive technology is vital to the long-term growth of the company?

SECTION 3 - Online Gambling Industry

- Q14.** Describe the current competitive environment for online gambling
- Q15.** Thinking about the online gaming products you offer, describe in your opinion which products experience more competition.

SECTION 4 - Link Between Cryptocurrency and the Online Gambling Industry

- Q16.** Do you see cryptocurrency as a viable option to be used in the online gambling industry?
- Q17.** Do you feel any specific division of online gambling would be more accepting towards adopting cryptocurrency?

SECTION 5 - Perceptions of Customer-Base Towards Cryptocurrency

Q18. How would you describe your customer-base?

Q19. Do you believe that innovative and disruptive technology, such as cryptocurrency, is something that could entice traditional gamblers to try out online gambling?

Q20. Do you believe that your customer base would be more receptive towards adopting cryptocurrency as a method of paying-to-play and to receive winnings?

Q21. If answered "No" for Q20, which customers do you believe would be more receptive towards using cryptocurrency in online gambling?

SECTION 6 - Closing

Q22. Is there anything you feel like we've left out from any of the previous questions that you would like to comment on?

Appendix 3: Survey

Overview

This was created as part of research for a dissertation by a MSc in Finance student based in National College of Ireland regarding the area of cryptocurrency & online gambling. The student would like to invite you to complete this survey which will take approximately 10 minutes. The data collected as part of this survey is completely anonymous and no personal identifiable information will be collected. Data collected will be destroyed after 10 years. You are free to withdraw from this survey at any time without giving a reason.

SECTION 1 – Consent

1a. Do you consent to being part of this survey?

SECTION 2 – Background Information

2a. Gender:

Male
Female
Prefer not to say

2b. Age:

Manually input

2c. Birth Country:

Republic of Ireland
Northern Ireland
Elsewhere

2d. Employment Status:

Student
Employed Full-Time
Employed Part-Time
Self-Employed
Unemployed & Seeking Work
Homemaker

2e. Education Level:

Secondary Level
Third Level
Postgraduate

2f. Annual Income Level:

Less than €20,000
€20,000 - €30,000
€31,000 - €40,000
€41,000 - €50,000
€51,000 - €60,000
€61,000 - €70,000
€71,000 - €80,000
€81,000 - €90,000
Greater than €90,000

SECTION 3 – Gambling Questions

3a. How often do you gamble?

Everyday
A few days a week
A few days a month
Almost never

3b. What's your most used method of payment for gambling?

Internet banking
Card (debit or credit)
Mobile payment (e.g. Apple Wallet)
Cryptocurrency

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

Online Poker / Online Card Games
Sports Betting
Online Casino Games
Lotto
Bingo

3d. How would you rate your knowledge of cryptocurrency?

Scale 0 – 5:
0 = Poor
3 = Good
5 = Expert

3e. How often do you use any form of cryptocurrency?

Never
Rarely
Sometimes
Often
Always

3f. *How would you rate your knowledge of blockchain technology?*

Scale 0 – 5:

0 = Poor

3 = Good

5 = Expert

SECTION 4 – Interest in Innovative Technologies

4a. *"I am receptive towards trying new things"*

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

4b. *"I like to be the first to try new technologies"*

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

4c. *"I prefer to wait and see how a new technology works for other users before choosing to adopt it"*

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

4d. *"I think cryptocurrency has potential to be a major payment method in the future"*

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

4e. *"Making deposits and receiving winnings in the form of cryptocurrency doesn't interest me"*

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

SECTION 5 – Cryptocurrency Trust

5a. *"I need to trust the online gambling company I am dealing with before considering conducting any online transaction with them"*

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree

5b. *"I don't trust using cryptocurrency to make payments as much as using other traditional payment methods (e.g. credit cards, online banking, PayPal)"*

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree

5c. *"I trust using online payments methods that utilize intermediaries, such as banks, more than decentralized systems such as cryptocurrency"*

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree

SECTION 6 – Cryptocurrency Security

6a. *"Security is important to me when conducting online payment transactions"*

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree

6b. *"I believe making transactions with cryptocurrency through blockchain technology is a secure transaction method"*

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree

6c. *"Current encryption and passwords are sufficient for security and safety when making deposits or withdrawals in the online gambling websites"*

Strongly agree
Agree
Neither agree nor disagree
Disagree

Strongly disagree

6d. *"The fact that cryptocurrencies are unregulated (not backed by any government or banking system) doesn't bother me"*

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

SECTION 7 – Cryptocurrency Anonymity

7a. *"I am concerned about my privacy while making online transactions"*

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

7b. *"I prefer to gamble online because of the privacy/anonymity associated with it"*

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

7c. *"I am interested in the notion that cryptocurrency has stronger privacy measures to keep my personal information anonymous compared to other online payment methods"*

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

SECTION 8 – Cryptocurrency Usability

8a. *"I need to fully understand how cryptocurrency works before I can consider using it"*

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

8b. *"I prefer using the simplest payment method available for online transactions"*

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

8c. *"Cryptocurrency is too complex for me to consider using"*

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree

8d. *"I think cryptocurrency is better suited as an investment tool than a payment tool"*

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree

Conclusion

Great news - you have completed the survey! Your time and effort answering these questions is greatly appreciated and a quick reminder that all data is completely anonymous. Just to note, this is the last opportunity to withdraw from the study should you wish to do so, ***otherwise please hit the "Submit" button below.*** Have any questions or queries? Please feel free to email the author of the dissertation or their supervisor:

Student: x18118461@student.ncirl.ie Supervisor: matthew.hudson@ncirl.ie

