

**The consumers' usage of social media and search engines when searching for  
Bitcoin, using the Technology Acceptance Model**

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A research treatise submitted in partial fulfilment of the requirements for the degree  
of

Bachelor of Commerce Honours in Business Management

in the Faculty of Business and Economics Sciences, at

the Nelson Mandela University

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**Date: 26 October 2018**

## **DECLARATION**

I, Travis Thornton Benn, declare that the entire body of work contained in this research assignment is my own, original work; that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Nelson Mandela University will not infringe any third-party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

T.T. Benn

26 October 2018

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## ACKNOWLEDGEMENTS

I would like to express my thankfulness and sincere gratefulness to all of the people who have been by my side. I would like to say thank you to all those that have helped inspire and embolden me in finishing my research study. This entire research study would not have been possible if it was not for the following:

- To Dr. Nelmapius for his excellent guidance, assistance and understanding shared towards my research study. Not only did this help me finish this research study, it also helped me gain interest and an awareness towards research in the future.
- The Business Department at the Nelson Mandela University (NMU) for always keeping me up to date with my studies and always providing such a high level of quality, I am immensely grateful and honoured.
- To all of the respondents who participated in my research study and who supported me in obtaining the data needed. Without your help, this research study would not have been possible to complete.
- To my mom, Bronwyn Benn and my dad, Troy Benn, for always motivating me and showing me the way throughout the year. Thank you for giving me the opportunity to obtain a tertiary education.
- To my class mates. Thank you for always giving me motivation and added help throughout the year. I appreciate the efforts put in. The added expertise and leadership made my studies more excitable and enjoyable.
- A distinctive mention must be given to my girlfriend, Ciara and all of my friends who have supported me throughout my research study and who have been there to help in every single way possible. The support from you guys is greatly appreciated.
- Most importantly to God, for always being there and pushing me to achieve the best I possibly could. Our talks late at night were by all means motivational. Thank you for always being there for me and showing me the right paths.

## **ABSTRACT**

**Title:** The consumers usage of search engines and social media when searching for bitcoin, using the Technology Acceptance Model

**Researcher:** Travis Benn

Firstly, the aim of this research study was to investigate the consumers usage of both search engines and social media, when searching for bitcoin. This research study has made use of the Technology Acceptance Model (TAM) to help distinguish between the consumers perceived ease of use and perceived usefulness of search engines and social media.

Secondly, a quantitative study was undertaken in the form of a questionnaire which was handed out to a sample population of 100 participants. The questionnaire comprised of both demographic information as well as statements regarding consumers perceived ease of use and perceived usefulness of search engines and social media. The questionnaire also comprised of statements referring to the amount of bitcoin search online by consumers. These questionnaires were randomly handed out to students on the Nelson Mandela University, in Port Elizabeth.

Thirdly, the results reveal that more than half of the sample population agree that both search engines and social media have improved the quality of bitcoin awareness. The findings affirm overall that both search engines and social media give consumers greater control over bitcoin investment processes. The most prominent findings came from consumers stating that they are willing to spend a fair bit of their time searching for bitcoin information as well as the majority of time that consumers spend online, is partly because they are searching for bitcoin.

Fourthly, it was identified that the online environment is not a safe place at all due to its vulnerability to hackers as well as misleading informational websites, however with the changing landscape of technology, social media and search engines are becoming more and more trusted by consumers.

Lastly, managerial as well as theoretical implications have been highlighted about the various outcomes of this study together with future research recommendations

on the topic of the consumers usage of search engines and social media when searching for bitcoin, using the Technology Acceptance Model.

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## CHAPTER 1

### INTRODUCTION AND BACKGROUND TO THE STUDY

#### 1.1 INTRODUCTION AND BACKGROUND TO THE STUDY

In recent years, the increase in the use of the internet has been one of the most accessible ways of accessing information. Organizations and consumers are using search engines as well as social media devices for their required information of personal preference. The trends of recent times have shifted towards the use of technology with the view of making use of the benefits that are attached with the ever transforming and changing landscape of technology. There are many benefits and risks when using search engines and social media that need to be looked at attentively to give necessary feedback to the users of search engines and social media. Some of these benefits include the likes of time savings, comprehensiveness, access to advanced search and increased brand awareness. Looking at the times we are living in now, criminality has found its inroads to the system of technology. Hackers are using the technology to get personal information relating to that of consumers (Yurovskiy, 2015: 1-7).

According to Yakimn and Kose (2010:487) Search Engine Optimization (SEO) is the process of enabling the web site to be on the first page of the search engine. Keywords are the most common used methods to rank the web site on the search engine results.

There are also other avenues that have been investigated to see if the benefit of using search engine optimizations will be successful in marketing the products to the consumers. The challenge here is that there is a lack of face to face interaction. Depending on the safety of the website, the consumers information can be stolen and even used by hackers. The user needs to be extra vigilant when using social media and search engine optimisation (Bosstanshirin, 2014: 1-10).

The research has shown that the use of search engine optimization has increased in recent years. Google is regarded as the most popular search engine optimization amongst the rest like Yahoo, Bing and others (Moreno & Martinez, 2013: 564-580).

Having consulted several studies, it was found that search engine optimization together with the use of social media will enable the technology to be used efficiently and effectively. The use of search engine optimization has increased and there are areas of improvements that need to be considered as well, whereby the researcher will elaborate on these improvements in the literature chapter. There are concerns regarding the use of search engine optimisations. The studies have shown that there are websites who lack security and privacy. (Gupta, Miglani, & Sundriyal, 2013: 1).

Though there are concerns and challenges that come with search engines and social media, there are also opportunities to be explored such as encouraging more engagement with consumers, social sharing from various websites, increased brand awareness and improved search engine optimisation rankings on the use of search engine optimization and social media. The future promises new safety features for the users of search engines as well as social media to curb the vulnerability of websites. In modern times we are cautioned to be careful when using search engine optimization as the environment of technology is very uncertain and ever so changing (Raisinghani, 2005: 1-5).

The use of search engines and social media is becoming more and more popular in most industries in the world of business. Today, Google is the most popular used search engine on the internet. Google receives over three billion online searches daily, more than any other search engine. Search engines and social media provides numerous opportunities to be explored by both business and consumers, such as allowing for advertising of various businesses, making sure websites are not only user friendly but also well designed. Further opportunities that search engines and social media provide is the various information about a business that one may not have known without going on a search engine and furthermore, search engines allow one to look at multiple sources when searching a topic (Yurovskiy, 2015: 1-7).

The use of cryptocurrencies has been on the rise in recent years and has the unique potential to interrupt and retransform the already existing financial structure of today (Raymaekers, 2015: 30-40). One of the biggest known cryptocurrencies today is bitcoin. Bitcoin is a huge digital distributed currency which was launched through a white paper by pseudonymous developer Satoshi Nakamoto. The system is disruptive

and disintermediating nature has powered the incredible growth of the financial technology space over recent years (Roos, 2015: 1).

According to Peterson (2013: 298-308), cryptocurrencies are becoming a new and undisputable hazard to the already existing financial environment. Cryptocurrencies do however have the potential together with their unique means of technology to bring about a huge change in the portion of the forever growing world's population out of poverty (Forbes, 2015:1).

With the rise in the use of e-commerce, cryptocurrencies are becoming more and more popular, especially bitcoin. Cryptocurrencies's strategic implications to not only consumers but also businesses are typically unknown. With bitcoin the current largest and most favourable cryptocurrency with a market capitalization of a massive \$3.5 billion, makes one believe, how far cryptocurrencies can actually develop (Coinmarketcap, 2015: 1).

Bitcoin has gone from a doubtful computer algorithm to what is now a world recognised way of doing business as well as making payments from not only a one-to-one method of payment but also a one-to-many and even a many-to-one form of payment. With the rapid acceptance and acknowledgement of cryptocurrencies as a whole, many researchers and marketing professionals have remained at ease due to the sceptical nature of them and the unknowingly future of the new and evolving digital currency (Luther, 2015: 397- 402).

Even though the nature of cryptocurrencies is very sceptical and unclear, many businesses are still making use of such digital currencies to make transactions and payments. Cryptocurrencies are now acknowledged by a wide range of different consumers and businesses from different parts of the world, which has ultimately lead to the rise in the usage of search engines and social media (Geier, 2015: 1).

Though search engines are becoming popular, it also has its own challenges that needs to be overcome if it is to continue making a productive contribution to business activities. The challenges include not only the vagueness of a businesses's websites but also the fact that not many people have access to the internet and do not know how to search on a search engine. Proper investigation needs to be conducted to ascertain the benefits and costs of using search engine optimisation. The consumers

are also eager to make use of search engines and social media, which has updated, accurate and informative web sites (Killoran, 2013: 1).

This investigation will give an indication of whether the consumers usage of search engines and social media when searching for bitcoin, using the Technology acceptance model is optimised to their greatest potential. Marketers are always on the search for the best method that can be used to market services and products to the intended target market. There are several studies that have been conducted on this topic, including the likes of Alexander Kern where the Technology Acceptance Model was analysed on block chain technology. The researcher believes there is a need to conduct a similar study in Port Elizabeth, Eastern Cape Province, South Africa. The research will assist both businesses and consumers to help overcome the many challenges and obstacles faced with using search engines and social media to promote the willingness to take on the numerous opportunities that search engines and social media promote.

There are lots of instruments at the consumers disposal to make use of, in reaching the search engine, to name a few; personal computers, tablets, interfaces and smart devices. An interface is a collection of methods and is a reference type, used in java. All these instruments mentioned here can be connected to the internet and serve as a source to gain expert advice and even awareness into various information pertaining to bitcoin.

In recent time, there are many search engines and social media that are used worldwide. According to Moreno and Martinez (2013:4), Google has a market share of about 83%. The findings of Moreno and Martinez (2013:4) suggest that Google is the most preferred search engine by the users. Many companies need to use the preferred search engine to convey messages and increase brand awareness to potential consumers. The consumers on the other hand need to make use of the preferred search engine to source needed information.

Search engines have a responsibility to authenticate the information supplied to be loaded on their index. The accurate information on the web sites that are found on search engines will enable the consumers to trust the search engine for future use.

The search engines can reach more people and can assist consumers to make use of informed decisions (Jansen & Molina, 2006: 1).

Search engines come with many different costs, namely; inaccurate information, paid listings, algorithm ratings and old information on the web page that the search engine has listed. The use of search engines by consumers will grow as consumers trust search engines as a reliable source of information. There are benefits in using the search engines like saving time, environment, (carbon emission), wear and tear, money, to name a few. There have been search engines in the past that help the environment by planting trees in response to consumers searching with specific search engines. A search engine that does this is called, Ecosia (Davis, 2006: 1-40).

## **1.2 PROBLEM STATEMENT**

The use of search engines as well as social media has increased as customers and businesses are using them more to do shopping or search for information. Raisinghani (2015:1) alludes to the fact that there are about 7 000 000 web sites created each day and there are about 2.1 billion web sites created yearly. Where the production is pushed, the quality tends to be compromised.

Davis (2006) discovered that the first five Google results, when searching a specific topic, gets 67% of all clicks by users, as it is the first five that the user will see. This is evidential in saying that search engines are not being used to their optimal level. As an entrepreneur, it should be the goal to appear within those top five clicks, which could result in more business. The better a websites Search Engine Optimization strategy, the more user friendly the website will be. By sharing blogs and comments, the credibility of the website as well as the optimisation of social media will be improved.

Investigating the consumersq usage of search engines and social media, when searching for Bitcoin, using the Technology Acceptance model will assist both businesses and consumers to use search engines and social media more effectively and efficiently. All social media platforms will be consulted as different consumers use different social media when searching for bitcoin. With this being said, the study will not only highlight the growing opportunities that come with using search engines and

social media, but it will also establish the various shortcomings and dangers that fall within search engines and social media.

With the increase of internet users in recent times, research needs to be conducted to see how the users make use of search engines as well as social media to do not only their daily operations, but also the amount of time spent using search engines and social media to search for bitcoin information and make investment processes.

The use of search engines and social media needs to be optimised by consumers and businesses so that they can maximise on the various benefits that come with using a search engine or a potential social media. These benefits include: the speed, visibility, mobility, the quality and visual factors of searching for bitcoin, using a search engine or social media.

There have been a limited number of studies that have been conducted on cryptocurrencies, from not only a user's perspective but also that of the outlook of businesses. (Van Hout & Bingham, 2013: 385-391).

The research will be conducted by making use of a literature review and analysing the data that will be collected by the form of questionnaires from various consumers in the Port Elizabeth area.

The research should be conducted to give both consumers and businesses the opportunity to know the costs and benefits of using search engines and social media, when searching for bitcoin, in the Port Elizabeth area.

### **1.3 RESEARCH OBJECTIVES**

The research objectives are divided into three objectives namely: Primary objective; Secondary objectives and Methodological objectives.

#### **1.3.1 PRIMARY STUDY OBJECTIVE**

The primary objective of this study is to investigate the consumers' usage of search engines and social media when searching for Bitcoin, using the Technology Acceptance Model.

### **1.3.2 SECONDARY STUDY OBJECTIVES**

SO1 To investigate the perceived ease of use associated with the use of search engines and social media.

SO2 To investigate the perceived usefulness associated with the use of search engines and social media.

SO3 To investigate whether search engines are preferred over social media when searching for bitcoin.

SO4 To investigate whether search engines and social media has improved the awareness of bitcoin.

SO5 To investigate when most of the search for bitcoin is happening online.

### **1.3.3 METHODOLOGICAL OBJECTIVES**

To achieve the above primary and secondary objectives, the following Methodological objectives have been identified:

MO1 To determine and design a suitable questionnaire for the research topic that will be used in order to gather data.

MO2 To administer the questionnaires to respondents from the sample.

MO3 To ensure that the data collected from respondents is valid, trustworthy and credible for this research study.

MO4 To carefully contemplate any potential ethical considerations, including that of confidentiality and risk to respondents.

MO5 To analyse the data collected from the respondents using an excel spreadsheet and split the data into sections that can be quantified in order to create ranking tables that represent the data.

The above mentioned 5 methodological objectives will be used in the process of formulating the questionnaire to do investigation within the Port Elizabeth area on the consumers usage of search engines and social media when searching for Bitcoin, using the Technology Acceptance model. These methodological objectives will be

helpful in forming the basis for the design, sampling, instrument design, data collection and lastly data analysis.

#### **1.3.4 RESEARCH HYPOTHESES**

##### **Hypothesis 1:**

The ease of use will increase search results for bitcoin information.

##### **Hypothesis 2:**

The usefulness of search engines and social media will increase the usage of both search engines and social media.

##### **Hypothesis 3:**

The usage of search engines will be most preferred over social media when searching for bitcoin.

##### **Hypothesis 4:**

The usage of search engines and social media has improved the awareness of bitcoin.

##### **Hypothesis 5:**

Most of the search online for bitcoin by consumers will happen late at night.

#### **1.3.5 RESEARCH QUESTIONS**

- Do individuals prefer using social media instead or search engines when searching online?
- Is the usage of search engines and social media increasing?
- Is the usage of search engines and social media improving brand awareness?
- Are search engines being optimised fully?
- Is social media being optimised fully?

#### **1.4 BRIEF RESEARCH DESIGN AND METHODOLOGY**

The research will be conducted using a quantitative research method due to the analysis of numbers involved in the research. The reason why the quantitative approach will be used is partly due to the fact that this method will help answer the

researchers research questions better than a qualitative approach. The chosen method will enable the researcher to find out if the consumers in the Port Elizabeth area are aware of search engine optimization, together with the wide range of costs and benefits associated with the usage of search engines and social media. The questionnaires will be completed by the general consumers and will be analysed to ascertain if the consumers are using the search engines properly and whether the consumers are aware of the associated fears when using search engines and social media. The researcher will be observing the respondents throughout the answering of the questionnaire.

There have only been a few research studies conducted on the topic of search engines and social media when searching for Bitcoin, using the Technology Acceptance Model of which their literature will be consulted together with analysed data from the collected questionnaires.

Investigating the consumers usage of search engines and social media when searching for Bitcoin, using the Technology Acceptance Model will be carried in depth in both a literature review and an analysis from the data collected.

A sample size of one hundred individuals will be purposely selected for the researcher to gather and collect valuable research data. The reason why the sample size is restricted to one hundred individuals is partly due to there only being one researcher involved throughout this study. The valuable research data will be helpful to the researcher to make assumptions and to help provide future research studies with valuable information. Data will be collected from the one hundred respondents using a well-structured questionnaire (see Appendix A).

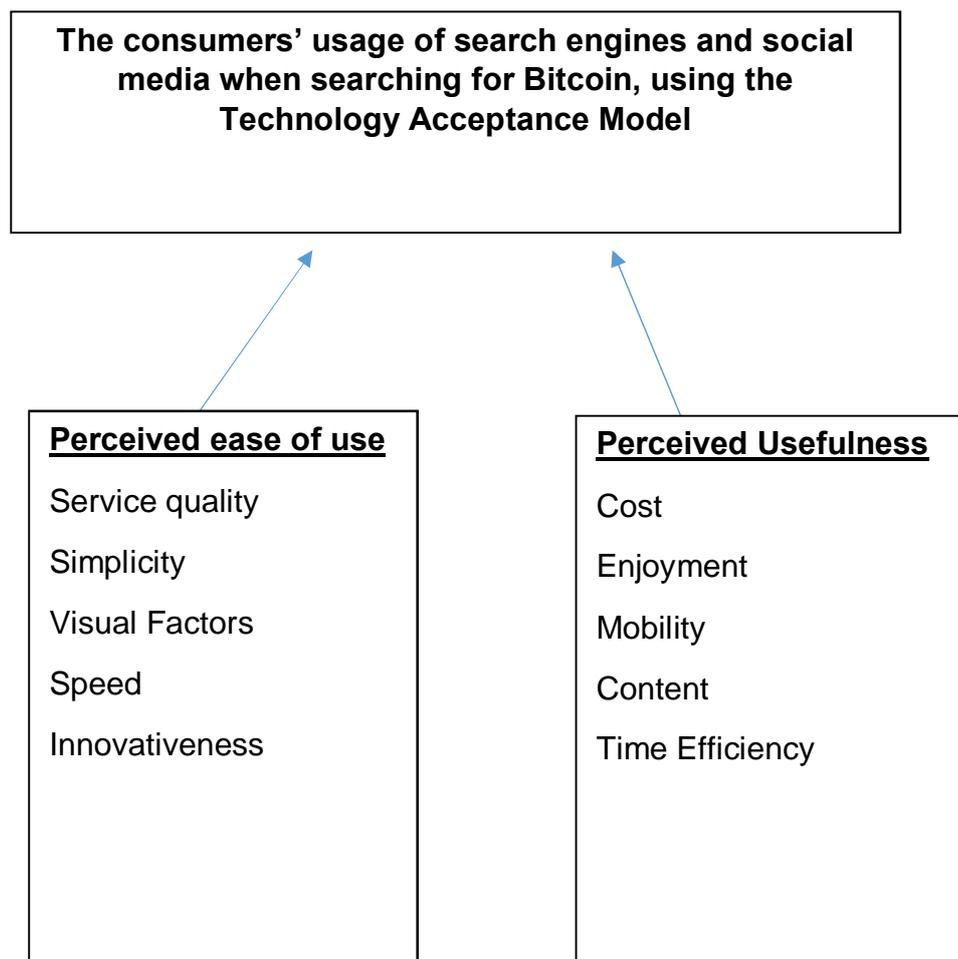
There is a wide range of questions within the questionnaire that will help draw conclusions based on the customers perceived usefulness of search engines and social media, the customers perceived ease of use of search engines and social media as well as the amount of time individuals spend searching for bitcoin online.

When the respondents are completing the respective questionnaires, sufficient time should be given to prevent any pressurised or rushed answers. It is vitally important to note that the questionnaire itself will not bring any harm or risk to the potential participant and will meet all the ethical considerations that should be within a

questionnaire. The questionnaire will begin with an introductory paragraph stipulating and detailing the main purpose of the research study and will highlight the concepts of confidentiality and consent.

The below diagram will form the integral part of the research as it is the researcher's foundation and building blocks for gathering information and making assumptions when conducting the study.

**Figure 1.1: Items of perceived ease of use and perceived usefulness**



### **1.5 SCOPE AND DEMARCATION OF THE STUDY**

This study only focuses on the usage of search engines and social media for when individuals are wanting to search for information online, pertaining to bitcoin. The reason why search engines and social media will be used is partly due to the fact that these two tools are most commonly used by individuals all over the world.

The geographic scope of this research study will only be conducted in the Nelson Mandela Bay, in the Eastern Cape, South Africa, because there is a need for a research study within this geographic scope on the consumers usage of search engines and social media, when searching for bitcoin using the Technology Acceptance Model. The sampling technique for this research study is non-random convenience sampling.

## 1.6 CONTRIBUTION OF THE STUDY

The intended contribution of this research study is that the researcher will be identifying the usage of not only search engines but also that of social media by consumers and individuals, when searching for online information pertaining to bitcoin.

The researcher will be making use of the Technology Acceptance Model, whereby perceived ease of use and perceived usefulness will be used to investigate the use of search engines and social media.

These two factors will form the integral part of this research study.

## 1.7 DEFINITION OF KEY CONCEPTS

**Perceived ease of use:** Perceived ease of use is defined by (Davis, 1989: 982-1003) as the degree to which a person believes that using the system will be free of effort.

**Perceived usefulness:** Perceived usefulness is defined by (Davis, 1989: 982-1003), as the extent to which a person believes that using a particular technology will enhance his or her job performance.

**Bitcoin:** The definition of bitcoin has not yet been forged, however bitcoin can be defined as a cryptocurrency, e-currency, digital money, virtual money or even e-money (Ly, 2014: 587-608).

**Technology Acceptance Model:** The Technology Acceptance Model (TAM) is an information systems theory that models the decision-making process by which

consumers may or may not adopt and implement a new technology.+(Folkinshteyn & Lennon, 2017: 1).

## **1.8 STRUCTURE OF THE STUDY**

The structure of this research study will be as follows:

Chapter 1: Introduction and background to the study

Chapter 2: Literature review on the consumers usage of search engines and social media when searching for bitcoin, using the Technology Acceptance Model

Chapter 3: Research design and methodology

Chapter 4: Empirical results

Chapter 5: Summary, conclusions and recommendations

References/List of sources

## **1.9 STUDY TIME FRAME**

This research study took place over the 2018 academic year. The research study started in February 2018 and ended on the 26 October 2018. The questionnaires that were established, were handed out over a period of two months namely: June and July.

## CHAPTER 2

### LITERATURE REVIEW ON THE CONSUMERS' USAGE OF SEARCH ENGINES AND SOCIAL MEDIA

#### 2.1 INTRODUCTION

Search Engine Optimization is the art, craft and science of promoting web traffic or web users to websites. Web traffic is crucial to any web-based business. One of the simplest core practises in improving search engine optimization is to have web designs that are user-friendly and easy to use (Davis, 2006: 1-40).

According to Khan (2017), search engine optimization can be defined as the process of optimizing the visibility of a website or webpage in a search engines unpaid results for a certain keyword. It has been discovered that the first five google results when consumers search something gets 67 % of all clicks by users, as it is the first 5 results that the user will see.

As discussed in chapter one, the use of the internet by consumers and businesses has increased in recent times. The unclear nature of the internet's environment has also grown over recent years, whereby hackers as well as misleading websites, otherwise known as scam websites have made the use of search engines and social media a little less trustworthy (Roos, 2015: 1).

It should be the ultimate goal for businesses and entrepreneurs to appear within the top 5 clicks, which could result in more business. The better the search engine optimization strategy, the more user-friendly the website will be. Sharing blogs and comments improves the credibility of the website and search engine optimization (Khan, 2017: 1).

The consumers usage of search engines and social media when searching for Bitcoin, using the Technology Acceptance Model can be broken down into the following factors, namely; Perceived ease of use and Perceived usefulness. The researcher will focus on these factors throughout the literature review, in which various items will be evidential to these specific factors.

The researcher will provide an overview of bitcoin and blockchain, followed by an introduction to the technology acceptance model. The researcher will then be analysing the perceived ease of use and perceived usefulness of search engines and social media. This will be followed by the cost effectiveness, digital use, the sense of trust and risk and lastly the shortcomings of search engines and social media.

## **2.2 OVERVIEW OF BITCOIN AND BLOCKCHAIN**

Bitcoin is a huge digital distributed currency which was launched through a white paper by pseudonymous developer Satoshi Nakamoto. The system's disruptive and disintermediating nature has powered the incredible growth of the financial technology space over recent years (Roos, 2015: 1).

Satoshi Nakamoto designed the first ever fully-decentralised cryptocurrency known as Bitcoin in 2008 (Nakamoto, 2008: 28). A use of a public ledger makes all transactions of Bitcoin noticeable. The public ledger exists in a distributed peer to peer network consisting of a wide range of multiple computers which are run and operated by individuals known as "miners". The main purpose of these miners is to make sure that each and every single transaction is run through the ledger and to verify the validity of every single transaction taking place (Roos, 2015: 1).

Authenticated transactions are evaluated by other mining nodes to make sure that there is no risk or potential fraud involved as well as double spending. After a miner successfully resolves a block, otherwise known as "multiple unresolved transactions", the miner is remunerated with Bitcoins for their valiant effort (Roos, 2015: 1).

"Electronic commerce acceptance is broadly described as the consumer's engagement in electronic exchange relationships" (Pavlou, 2003: 69-94). The various electronic exchange relationships are linked to that of day to day transactions from retailers to consumers and lastly the setting up of private as well as monetary information. These relationships are needed to make the necessary purchases of any particular products and services that customers are willing to purchase (Pavlou, 2003: 69-94).

The uncertainty of the internet itself is partly due to the very unpredictable nature of the growing technology space and the rapidly expanding blockchain technology. There are always new innovative designs of technology on a regular basis. The unpredictable

nature of the internet is beyond the complete control of the consumer or the retailer themselves as it is the internet itself that manipulates and influences consumers' decisions (Pavlou, 2003: 69-94).

Blockchain makes sure that consumers are left happy. Blockchain guarantees the best quality online security standard through the use of cryptography currently. Blockchain does this by making use of Distributed Ledger Technology (DLT) and Public Key Infrastructure (PKI), however there are still very problematic issues that could possibly hinder with the processes (Pavlou, 2003: 69-94).

It is important to note, that Pavlou (2003) highlights behavioural and environmental risks into the following magnitudes:

- Economic Risk . Which is the possibility of potential monetary loss.
- Privacy Risk . Which is the opportunity to unveil private information about the consumer.
- Performance Risk . Which relates to Defective technological infrastructure.
- Time Risk . Which relates to the potential loss of time that is associated with researching as well as learning about the technology.

It is important to remark that the unpredictable nature of the internet and trust less environment that comes with Blockchain may eliminate or at least reduce the various risks highlighted from a technological perspective (Pavlou, 2003: 69-94).

### **2.3 Technology Acceptance Model (TAM)**

The Technology Acceptance Model (TAM) is an information systems theory that models the decision-making process by which consumers may or may not adopt and implement a new technology (Folkinshteyn & Lennon, 2017: 1).

The original Technology Acceptance Model (TAM) was initially founded by Davis (1986) and uses the Theory of Reasoned Action (TRA), which was originally suggested by Arjen and Fishbein (1980) as its speculative basis (Roos, 2015: 1).

The adoption of a specific given technology is based on two main concerns: Perceived usefulness and Perceived ease of use by the intended user. TAM has not only been used to analyse technology acceptance in a variety of mediums including industry specific analysis, like healthcare but has also been successfully applied to explain

differences in respect to gender perception and social usage of technology (Folkinshteyn & Lennon, 2017:1).

Pavlou (2003) extends the innovative design of the Technology Acceptance Model in a way that meets various aspects relating to applications, such as mobile applications as well as the internet. The actual utilisation of the TAM model, branches from the idea that e-commerce is deeply driven by technology (Pavlou, 2003: 69-94). The model that Pavlou (2003) proposes, inaugurates additional unique drivers that are ideal and critical to the acceptance of different online based applications, these include the likes of  $\pm$ Perceived Risk $\pm$  and  $\pm$ Trust $\pm$ . The fact that the online market is very vulnerable and uncertain, makes these two key drivers very important when it comes to the usage of the e-commerce environment. It is also important to note, that the e-commerce environment is a very uncertain one, as it poses threats to potential users and customers by hackers on a regular basis (Pavlou, 2003: 69-94).

### **2.3.1 PERCEIVED EASE OF USE**

Perceived ease of use is defined by (Davis, 1989) as  $\pm$ the degree to which a person believes that using the system will be free of effort. $\pm$  Davis also argues that the importance of perceived ease of use is well supported and backed up by the research of (Bandura, 1982) on the theory self-efficacy, which can be defined as  $\pm$ judgements of how well one can execute courses of action to deal with prospective situations $\pm$  (Folkinshteyn & Lennon, 2017: 1).

Today, it is difficult to imagine a business without having its own website. A very significant advantage of online marketing is that it eliminates all geographical barriers from the practice of buying and selling, making it easily accessible. Using internet marketing can further reach targeted customers more effectively. When using search engines to the customers $\pm$ highest potential, internet marketing can be personalised. Internet marketing is not only highly targeted but offers and programs can be personalised to match the consumers $\pm$ unique set of means as well as other consumer behaviours your targeted audiences display (Yurovskiy, 2015: 1-7).

The simplicity within websites as well as on social media platforms, like Facebook has enhanced the use of both search engines and social media in a way that makes

marketing between businesses and marketers more efficient and durable (Yurovskiy, 2015: 1-7).

In today's society, the advancement in technology is expanding as new innovative designs and forms of technology take shape. The speed at which websites operate is increasing on a day to day basis, which ultimately attracts new potential customers to more websites and social media platforms, like Facebook (Folkinshteyn & Lennon, 2017:1).

Communication between various businesses and its consumers has been enhanced over the years due to the fact that the internet can now provide consumers with a range of different information due to its availability 24 hours a day, 7 days a week (Lane, 1996: 22-25).

With technology rapidly growing, marketers have adapted both search engines and social media to suit what customers prefer most. The ease of use of both search engines and social media have improved over the years due to their innovativeness as well as the visual factors, such as colours, logos, and brightness. It is this that ultimately makes users of social media and search engines want to use them over again for work purposes, such as making transactions, looking up various information on Facebook or Instagram and for business purposes (Folkinshteyn & Lennon, 2017:1).

### **2.3.2 PERCEIVED USEFULNESS**

Perceived usefulness is defined by (Davis, 1989: 982-1003), as the extent to which a person believes that using a particular technology will enhance his or her job performance. Perceived ease of use and perceived usefulness work together in tandem to stimulate a user's attitude towards a specific technology. This attitude in turn notifies the user's behavioural intention, which not only results in the actual use of the system but also that of the relative level of technology acceptance by a user (Folkinshteyn & Lennon, 2017:1).

The usefulness of search engine optimisation is clearly evident throughout the world of business today. Internet marketing helps build relationships. In saying this,

traditional marketing is one way and there is very little or even no interaction between that of an advertiser and the final consumer. Upon looking at internet marketing, engagement and commitment is the key and being able to not only intermingle with the preferred targeted audience but also to relate to one another when doing business together. In communicating with the use of technology, this can help build relationships and further better customer-supplier relationships. When relationships are built upon the use of internet marketing, higher levels of trust are built and this generates greater customer loyalty (Yurovskiy, 2015: 1-7).

The use of technology has an empowering effect especially on small businesses since the internet can extend market reach and operational efficiency of small and medium enterprises (SMEs) (Dholekia & Kshetri, 2004: 311).

In detail, the internet creates a sense of democratised environment in which marketing has been rationalised in a way that even small businesses are given a greater chance to not only promote but also brand their products on a much larger gauge (Jobber, 2004: 1-14).

Consumers are free from the danger of accidents in the sense that online marketing has the possibility of tracking. The internet enables the measurement of everything taking place on it. The number of various clicks that a specific promotional piece receives or gains and the amount of website traffic is easily measured. In doing this, the marketer is enabled to track the consumer to his or her website and understand his or her respective behaviour and interests (Yurovskiy, 2015: 1-7).

Personalisation which also comes with customisation is without a doubt another important aspect pertaining to marketing online, through the use of the internet. Personalisation refers to tailoring products and services to customers' preferences based on their online, registered purchased history (Yurovskiy, 2015: 1-7).

Personalisation results in the formation of sustainable relationships with a range of different and unique consumers ; as Riecken (2000) puts it %personalisation is about building customer loyalty by building a meaningful one-to-one relationship; by understanding the needs of each individual and helping satisfying a goal that efficiently and knowledgeably addresses each individual's need in a given context+.

The internet helps various marketers to gather information pertaining to consumers. For instance, consumers can be welcomed with specific targeted offers whenever they visit a particular website. So with the help as well as the aid of gathered data of customer preferences, the various websites can be customised for the relative target audience which brings about a cumulative interaction and builds up a sense of intimacy between the marketer and the respective consumer (Bhui & Ibrahim, 2013: 223).

This is very important due to the fact that traditional modes of marketing such as, TV, mass media and newspapers to name a few cannot be moulded by their users unique set of needs, preferences and demands. Personalisation and customisation is considered a major advantage and an opportunity of online marketing when using search engines for search engine optimisation as well as social media marketing (Bhui & Ibrahim, 2013: 223).

### **2.3.2 COST EFFECTIVENESS**

The use of search engines has made life much simpler and efficient. Every marketer wants to and likes to save money while getting great results from search engine optimisation. Unfortunately, by always looking to save money on search engine optimisation, the marketer will often look at the least important issue of logically assigning their marketing budget across various alternative tactics, of which, search engine optimisation is most likely to be the most cost effective (Lyngbo, 2012:1).

The use of search engine optimisation is not easy to grasp for marketers today. There are many competitors. Google itself rates websites based on as many as 200 ranking criteria and is always tweaking the algorithm regularly, up to 600 times a year. There is a good reason why, as a client, an individual should not focus on the cost alone but rather to concentrate on the key performance indicators of one's business, such as the profit per sale, the conversion rate and the cost per acquisition, to name a few (Lyngbo, 2012:1).

Search engine optimisation and social media services vary in price depending on what an individual is wanting. The best and most efficient search engine optimisation strategy starts by evaluating the various needs and problems of a business's potential clients. It will then organise a search engine optimisation magnet to gain and attract

only the most applicable leads out of the vast number of online web surfers (Lyngbo, 2012:1).

However, setting up an individual's website to do this effectively is not easy. Building laser focused landing pages which are directed at sub-segments of a business's targeted audience can draw an overflow of applicable traffic that transforms nicely into customers. In getting this right, takes not only time but also resources (Lyngbo, 2012:1).

Search engine optimisation is one of the most cost-effective marketing strategies in the sense that it targets users who are thoroughly and actively looking for a business's products and services online. Social media's marketing strategies also target consumers who are actively looking online for potential products or services. With the help of search engine optimisations inbound nature, businesses save money as opposed to outbound strategies like cold-calling. Cold-calling can still be an effective strategy, but the leads generated cost 61 percent more than the respective leads generated by the likes of an inbound strategy like SEO. Search engine optimisation and social media aim at users who are actively searching for products and services from various businesses. The traffic resulting from search engine optimisation is much more practised than many other alternative marketing strategies, like social media, resulting in cost-savings for companies (Machin, 2017:1).

As opposed to traditional mass media marketing, internet marketing is much more cost-effective in the sense that internet marketing does not require ludicrously large amounts of investment as internet marketing has a much higher return on investment than any other forms of traditional methods. Internet marketing is also cost-effective as it allows marketers to target interested customers directly. Internet marketing channels are much cheaper and efficient when compared to traditional media channels and in many if not all cases, websites can generate traffic even for free (Yurovskiy, 2015: 1-7).

### **2.3.3 DIGITAL USE**

Internet marketing delivers immediate results. Real time marketing tools can bring businesses more benefits and opportunities than other marketing tools. In today's generation, with the internet and technology evolving on a day to day basis, internet marketing is characterised with real time interactions with specific targeted customers. A business can be connected much more effectively with targeted customers after engaging with these interactions (Yurovskiy, 2015: 1-7).

What a customer gets is immediate results based on the marketing efforts of businesses. The results are way above average conversions to either sales or leads every time a specific targeted consumer visits a business's landing page, social media or website (Yurovskiy, 2015: 1-7).

Internet marketing can reach a wider or even international audience. Since the vast number of internet marketing activities are done online, various businesses are not bound and restricted to brick-and-mortar limitations when trying to reach out to a much more widespread targeted audience. The world has become much smaller since the introduction of search engines and social media, allowing businesses from across the global market to do business with one another as if they were just a few blocks away from each other (Yurovskiy, 2015: 1-7).

With the use of technology and the advancements in time, geographical distances between customers of businesses are now meaningless with internet marketing. This allows businesses to not only reach, but also interact with other businesses and targeted customers more than they could have before while using traditional marketing methods (Yurovskiy, 2015: 1-7).

As part of just about any digital marketing strategy, Search Engine Optimisation (SEO) is integral to driving customers to a specific business via online platforms. Effective marketing demands it (Pronto marketing, 2018:1).

Due to the sense of time and the cost of time when faced with the digital use of search engine optimisation, most people tend to search on their respective mobile devices. Over the past few years, it is evident that the online mobile market has exploded, overtaking desktops years ago. Optimising websites for not only desktop browsers but also mobile devices are precarious and critical if a business is to rank well in search

engine results pages and social media pop-up advertisements (Pronto marketing, 2018:1).

With the targeted consumers having different preferences, businesses need to be on top of their game to maximise profits and gain revenue. Years ago, consumers did not trust the use of search engines and social media to understand conversational questions. With the advancements in technology and modification of the internet, consumers now feel comfortable in using search engines and social media to their advantage. Changes in search behaviours are usually subtle but will however affect various keywords that are to be most valuable to a business. Instead of a business focusing on keywords that will get more traffic, a business should focus on those specific keywords that translate into not only conversations but revenues and profits (Pronto marketing, 2018:1).

With search engines and the platforms on social media expanding, more and more criminals are seeking the expanding nature of search engines and social media as an opportunity to get personalised information of consumers. The uncertainty of this, plays an evidential role in consumers not wanting to use various search engines and social media when searching online. A significant portion of searches take place on a variety of alternative sites (Pronto marketing, 2018:1).

Scrapper sites are a thorn in today's world. Scrapper sites are websites that incorporate additional content from alternative websites, using web scraping. A lot of people use the same credit card information, mailing address information, user login and password information, on every site they visit. This is where criminals see an opportunity and pounce on it before they are noticed (Petrik, 2018: 1).

#### **2.3.4 SENSE OF TRUST AND RISK**

Bart, Shankar, Sultan & Urban (2005: 1-21) define trust in virtual environment as follows: "online trust includes consumer perceptions of how the site would deliver on expectations, how believable the sites information is and how much confidence the site commands".

Unfortunately, internet marketing also has many challenges and disadvantages. Internet marketing campaigns can be copied. A major danger when faced with internet marketing, through the usage of search engines and social media is that a specific

campaign can easily be manipulated and copied by a competitor. Many have done this with absolute disrespect for the legal consequences their actions may bring. Not only this, but trademarks as well as logos of businesses can be used to trick customers and take away a sizeable targeted market away from various alternative businesses (Yurovskiy, 2015: 1-7).

Also, these can be used for perpetrating negative and mistaken content as well as information about a business's brand, products or even services for that matter. This will in return ruin a business's online reputation and lose valuable targeted consumers. With this being said, consumers feel threatened by this sense of risk and trust between various businesses and its targeted consumers begin to decline. Long term and loyal relationships with targeted consumers fall away (Yurovskiy, 2015: 1-7).

The level of expertise and authorship can also be questioned with regards to the sense of trust and risk that consumers face. Business owners and digital marketers should aim to bring their online marketing campaigns to specific professional levels. If this is not done, business owners and digital marketers will not be taken seriously by their targeted customers. When it comes to traditional marketing or internet marketing, first impressions really do matter in terms of the consumers's usage of search engines and social media. Therefore, it would be to the business owners and digital marketers's greatest advantage to stay ahead of the game and be consistent and professional in whatever advertising channel they are displaying (Yurovskiy, 2015: 1-7).

Comprehensiveness of a business's products and services are often questioned in the sense that some brands have targeted audiences that may not be directly reached by various internet marketing channels. Many products and services target the elderly, which only a few of these are tech savvy, as it is this age group that is most interested in purchasing online. The elderly may not have access to or do not even know how to go online. Some may just not trust the use of search engines in any way what so ever. If this had to be the case, then businesses would just be wasting resources and time in marketing their respective products and services using search engines and social media (Yurovskiy, 2015: 1-7).

The lack of proofreading is evident within various websites in which internet marketing is very and highly dependent on technology, which can be prone to errors. Digital

marketing makes use of and is also highly dependent on the use of technology. Technology can break down and produce incorrect results that can negatively affect a business's internet marketing campaign. Non-working links to various and specific landing pages that do not work can ruin a business's hold of their specific targeted audience as well as lose great business (Yurovskiy, 2015: 1-7).

### **2.3.5 SHORTCOMINGS OF SEARCH ENGINES AND SOCIAL MEDIA**

There are various challenges of online marketing faced by businesses all over the world, namely; the problem of integrity, lack of face to face contact, security and privacy and lastly the lack of trust. When looking at the problem of reliability of search engines and social media, integrated marketing over the years has been a central subject (Clow & Baack, 2013:1).

One of the major problems with marketing campaigns is that they employ a range of offline and online promotion channels such as the internet, email and TV. Each item is used in isolation and lacks a marketing framework. A website will never be visited if there are no specific links to it. Viral marketing does not only require email but also social media websites to convey and communicate the message and search engines are impractical without specific websites to link to it. Within any marketing strategy, all components must merge and come together (Charlesworth, 2009, 341).

With consumers having a lack of face to face contact, places a challenge on search engine optimisation. A lack of face to face contact, places uncertainty on the consumer as not many individuals trust search engines without any personal contact. There is also a lack of trust between the marketer and the intended consumer. A lack of personal contact is a deficiency of online marketing between businesses and consumers, especially when consumers are using both search engines and social media when wanting to search for information online (Charlesworth, 2009, 341).

Internet transactions involve personal interaction between two parties and that is why some customers consider electronic modes of providing customer service impersonal. For this very reason, most customers rather prefer personal interactions within a physical contact store. These consumers tend to favour seeing the products and services physically and touching them with their hands rather than through online communication. To be more precise, for the types of products and services that rely

heavily on building personal relationship between that of buyers and sellers and the type of products that requires physical examination, internet marketing maybe less appropriate (Kiang & Chi, 2001: 159).

Information privacy is a major topic in today's forever changing technological landscape and needs to be taken into consideration. Nowadays, customers' personal data can now be shared easily with other companies using search engines and social media without even asking for permission or consent. The more confidential personal data is and is kept, such as usernames and passwords, the more protected users and consumers are of search engines and social media from hackers (Lantos, 2011: 74).

An alternative and another major problem when concerned with the security and risk of using search engines is pop-up ads. Pop-up ads are small windows, usually in rectangular boxes that contain both symbols and text that suddenly appears on a consumer's visual interface. These security and privacy problems are among challenges in the way of doing online marketing. In making sure that internet marketing is done effectively, depends on resolving the related problems (Drozdenko & Drake, 2002: 1-5).

Closely related with the severe problem of security and privacy is the big issue of trust on the part of customers. This is renowned to be a great challenge in the way of online marketing growth. Despite all the rapid growth in online marketing and the rapid advancements in technology, especially search engines and social media, many people still mistrust electronic methods of paying and still have uncertainty whether the purchased items will be delivered or not. This could be due to various websites being fraudulent in nature. In other terms, occurrence of online uptight has made customers hold negative and doubtful attitudes towards online transactions using search engines and social media (Warren, Davies & Brown, 2008: 3-233).

There is a lot more still to be done to build up the trust and convince the various targeted customers that interactions which take place in the virtual world are as materialistic and authentic as those happen in the real, offline physical world. It is a long process and still needs more time to be realised. It is imperious for those in charge of online marketing to not only understand but also to grasp the core and key concept of the new virtual world (Warren, Davies & Brown, 2008: 3-233).

One of the prominent realities of this new day and age is that today, consumer power and trust have both partnered to transfigure marketing. IT managers and marketers are faced with the challenge of changing the online environment to gain and retain online consumers. This has generated remarkable interest in learning about online trust and in mounting new site designs to respond to the amplified power of customers (Warren, Davies & Brown, 2008: 3-233).

## **CHAPTER 3**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 INTRODUCTION**

In this chapter, the researcher will be describing research methodology and research design. Research design will be broken down into two main parts: Data collection and Data analysis. Data collection can be further broken up into two main concepts, namely; Secondary data collection and Primary data collection.

The researcher will be discussing the population identified, the sample frame of this study, the sample itself, the specific sampling techniques and the research instrument used. Yin (2014) breaks down and describes research methodology as a rational plan that allows a researcher to not only pursue but also to reach a conclusion and provide an answer to a specific question. In simpler terms, it is a strategy or architectural design by which the researcher draws out a specific approach to problem-finding or problem-solving+(Buckley, Buckley and Chiang, 1976: 13).

Research design consists of a number of important decisions regarding the approach to the specific research problem as well as to the nature of data being collected. The various methods used to analyse and interpret the data are also based on these important decisions. The main aim of the research design is to guarantee that the various final conclusions of the research accurately address the research problem (Yin, 2014:1).

#### **3.2 RESEARCH DESIGN**

##### **3.2.1 DATA COLLECTION**

###### **3.2.1.1 SECONDARY DATA COLLECTION**

Secondary data can be defined as the specific data that already exists in sources and can be identified and used for research (Collis & Hussey, 2014:59).

For the purposes of this study, the secondary data collected was through previously published local and international literature. The specific data for this study was collected by means of books, journals, websites and reports.

Making use of previous studies on similar topics was also a reliable source of data as it contained useful information that related to this research study.

### **3.2.1.2 PRIMARY DATA COLLECTION**

Primary data can be defined as the data gathered from the actual research source. It is data which is obtained and acquired by a researcher from a first-hand source (Collis & Hussey, 2014: 59).

For this research study, the primary data was collected through a quantitative approach, by means of a questionnaire. The questionnaire was structured and consisted of the constructs investigated of this research study. The questionnaire was handed out to 100 respondents to complete. A quantitative approach was utilised as the data was represented numerically, which made the data easily quantifiable and measurable.

The collection of primary data calls for decisions based on the population, sample frame and sample.

### **3.2.1.3 POPULATION, SAMPLE FRAME AND SAMPLE**

A research sample is normally a large collection of individuals that are carefully chosen to be part of a scientific sample (Cargan, 2007:236). A population is ultimately the combined aggregate of all the possible elements that the researcher will make use of throughout an intended research study (Struwig & Stead, 2013:114).

The target population for this research study consisted of residents within the Port Elizabeth area that are using social media and search engines to acquire bitcoin information online.

The sample of a research study can be grasped as an adequate percentage of a population that represents the entire population (Stattrek.com, 2015:1).

A research population can be defined as a distinct collection of various objects or individuals that have similar characteristics. All individuals within a research population usually have a common characteristic (Cargan, 2007:236).

Leedy and Ormrod (2005:1) provide useful thresholds for choosing a specific sample size. These include the following:

- Population of +- 1500, 20 percent of the population should be an adequate sample size;
- Population +- 500, at least half of the population should be sampled;
- Populations that are less than 100 people, a survey should be conducted to the entire population, otherwise not adequate.

A sample frame can be defined as a numerical identifying tool that is used for individuals in an identified sample and information on the identified characteristics of which the population will be sampled on (BusinessDictionary.com, n.d.). Struwig & Stead (2013: 114) define a sampling frame as a list of all the sampling units in the population as well as the sample for the study. A sampling frame is drawn up from this list.

The sampling frame for this research study are all those individuals who fall within the Port Elizabeth area that use both search engines and social media when searching online for bitcoin. This sampling frame is suitable for the researcher as non-random, convenience sampling was used.

Therefore, the sample for this research study was represented by residents within the Port Elizabeth area, South Africa.

Cooper & Schindler (2014: 1-10), as well as Saunders, Lewis & Thornhill (2009) specifically focus on the importance of selecting correct sampling techniques for a given research project. A research sample represents an identified part of the population which the researcher has selected in an attempt to supply the answer to various research questions and to fulfil predetermined research objectives.

#### **3.2.1.4 SAMPLING TECHNIQUES**

In non-probability sampling, the chances of any potential individual of the population being chosen or selected is unknown and the particular selection of the sampling units is subjective as researchers rely mostly on personal judgement (Struwig & Stead, 2013:114).

In probability sampling, every single constituent in the population has an identified known non-zero probability of being selected and included in the sample (Struwig & Stead, 2013: 114).

Convenience sampling can be defined as a sample that is purely chosen on the foundation and basis of availability (Struwig & Stead, 2013: 116).

For the purpose of this study, non-random, convenience sampling was selected because they were easily and readily accessible and cooperative. This technique was used as the researcher saw that the population had a lot in common. The population spoke similar languages which the researcher could relate to and understand. One main reason why this technique was chosen above others was that the respondents were all in close proximity to the researcher.

### **3.2.1.5 RESEARCH INSTRUMENT**

For the purposes of this research study, a well-structured questionnaire was used. The questionnaire itself was based on the findings of the accurate and relevant information found within the literature review. A thorough exploration of the literature was used when conducting the questionnaire.

Open-ended questions can be defined as questions that are answered by the respondents at their own will and interest. This allows them to express themselves in terms of showing their own ideas that they think apply to a research study. When it comes to open-ended questions, no choices or alternatives are offered. These specific questions are appropriate since they highlight the subject in question and prompt wide-ranging reactions (Struwig & Stead, 2013: 102).

These types of questions are useful to make use of in questionnaires when a researcher needs further clarification. The open-ended questions influence the respondents less than the multiple-choice or dichotomous questions (Struwig & Stead, 2013:102).

For the purpose of this research study, the researcher made use of scaled-response questions within the questionnaire. Scaled-response questions gathers data on not only attitudes but also that of perceptions. These questions yield ordinal data and are most preferred to alternative forms of questions such as dichotomous questions, open-ended questions and multiple-choice questions as it is scaled-response questions that give the researcher more valuable information in terms of the respondents personal characteristics and traits. The scaled-response questions allows for the researcher to

establish what questions are being answered more towards an agreeing or disagreeing manner (Struwig & Stead, 2013:100-105).

The researcher worded the questionnaire in English only and assumed that all respondents would be able to understand and read the questionnaire with no difficulty. The researcher also made sure that the wording and length of the statements made absolute sense and that they were unpretentious and short.

Within the questionnaire, the researcher made use of a five-point Likert scale. The Likert scale, according to Bertram, (2008:1) is designed to convey a more than accurate measurement of a potential respondents opinion. However, the problem with the Likert scale is that of social desirability.

The questionnaire was divided into two main sections. The first section dispensed the various respondents demographic information, which consisted of their gender, age, home language spoken and their ethnic affiliation.

The second section dealt with the respondents perceived usefulness of search engines and social media, their perceived ease of use of search engines and social media as well as their interaction with bitcoin search online.

The questionnaire itself does not meet the criteria of reliability and validity as the findings show otherwise. This will be discussed in depth, in chapter four. In quantitative research, validity can be defined as the truth or the trustworthiness of the findings. It applies statistics to the construction of questionnaires as well as to the use of statistical hypothesis testing (Struwig & Stead, 2013:135).

Reliability is a test, seen as being reliable when that test can be made use of by a wide range of different researchers under conditions that are stable. At the same time, the results need to be consistent and not varying. Reliability imitates replicability and consistency over a period of time. Additionally, reliability can be defined as the degree to which a specific test is free from any measurement errors, since the more errors in a measurement occur the less reliable that test will be (Roos, 2015: 1).

The completed questionnaire that was handed out to the 100 respondents can be found in Appendix A.

### **3.2.2 DATA ANALYSIS**

Microsoft Excel was used to capture the respective data collected from the 100 respondents interviewed. The data captured was imported into a statistical programme such as Statistica. Descriptive statistics will be calculated from the respective data captured. The respective data captured from the respondents allowed for the analysis and interpretation to make valid conclusions to the respective hypotheses and research problems.

The mean score can be defined as the calculation of the arithmetic average of data (Lombaard et al, 2012:61). For this study, the mean score will be calculated and made use of throughout the research study to help the researcher identify potential trends as well as differences of the respondents.

For the purpose of this study, a five-point (5) Likert scale was used to complete the questionnaire by the respondents. According to (Bertram, 2008:1), Likert scales are used to attain participant preferences and agreements when referred to a specific statement or statements. The difference between the five-point Likert scale and the seven-point Likert scale is that the five-point Likert scale allows for a much better split between the agreement and disagreement towards a specific statement or statements.

### **3.3 SUMMARY**

The main purpose of this research study is to investigate the consumers usage of search engines and social media when searching for Bitcoin, using the Technology Acceptance Model. This research uses a quantitative strategy to help deliver an answer to the main research question in this study by analysing the characteristics and trends of numerical financial data.

This chapter has explained in great detail the methodological approach for this research study. This chapter has outlined the research design as well as the various methodological methods used for this research study. It has also outlined the importance of reliability and validity especially when analysing the research instrument.

The details and research results will be presented in the next chapter, together with the empirical findings from the respondents. This can be found in chapter four.

## **CHAPTER 4**

### **EMPIRICAL FINDINGS**

#### **4.1 INTRODUCTION**

Chapter 3 described the research design, methodology as well as the sampling techniques to be followed in conducting the research to investigate the consumers' usage of search engines and any form of social media when searching for Bitcoin, using the Technology Acceptance Model. In this chapter, the researcher will be providing a description based on the sample, where the researcher will highlight who the majority of respondents were, when the investigation was carried out.

After providing the sample description, the researcher will identify if the findings correspond to the literature, discussed in Chapter Two and whether the findings are what the researcher originally anticipated and expected based on the review of the literature. The researcher will primarily focus on the mean scores of the various items asked as well as the standard deviations amongst the respondents.

The researcher imported the results into the Statistica application tool. The results were then analysed through an Exploratory Factor Analysis. The results in the Exploratory Factor Analysis showed that the measuring instrument was not valid as the item loadings all loaded onto one factor only. This typically shows that the items of this research study are fairly correlated. It can also be said that the interpretation of the various items asked to the respondents were interpreted very similarly.

Therefore, because the measuring instrument could not confirm the validity of factors being investigated, the researcher will be resorting to interpret the average mean scores based on perceived ease of use, perceived usefulness and bitcoin search online of all the statements asked to the 100 respondents.

## 4.2 SAMPLE DESCRIPTION

100 questionnaires were distributed to the sample population, whereby the questionnaires were physically given to the various 100 respondents on the Nelson Mandela University campuses. All 100 of the questionnaires were printed in hard copies and given anonymously to the respective respondents.

The data gathered from the 100 respondents based on the demographics part of the questionnaire is of high importance to the researcher as it allows the researcher to gather and analyse the data of each respondent and shows who is represented within this research study's demographic section.

The demographics were characterised into four main sections, namely:

- Gender
- Age
- Home language spoken
- Ethnic affiliation

Further analysis can be shown in Table 4.1 below, whereby the table displays the frequency as well as the percentage of the four different sections investigated of the demographics of the 100 respondents investigated.

**Table 4.1 Gender description of respondents**

<u>GENDER</u>	<u>FREQUENCY</u>	<u>PERCENTAGE</u>
Male	54	54%
Female	46	46%
Total	100	100%

Table 4.1 shows that 54 of the investigated sample population were male respondents, while 46 were female respondents. With that being said, males constituted towards a 54% of the sample population of this research study, while females constituted towards 46% of the sample population.

**Table 4.2 Age description of respondents**

<u>AGE</u>	<u>FREQUENCY</u>	<u>PERCENTAGE</u>
18-25	55	55%
26-35	21	21%
36-45	6	6%
46-55	11	11%
56-65	5	5%
Over 65	2	2%
Total	100	100%

From table 4.2, it is evident that the researcher made use of different age categories for the respondents investigated. This made it easier to identify at what ages were most of the respondents investigated for this research study. These age categories consisted of (18 to 25), (26 to 35), (36 to 45), (46 to 55), (56 to 65) and individuals over the age of 65.

From table 4.2, the majority of respondents investigated for this research study fell within the 18 to 25 age category, while the least amount of respondents investigated fell within the over 65 age category. 55 respondents fell within the 18 to 25 age category, constituting to more than half of the sample population. 21 respondents made up the 26-35 age category, these respondents make up 21% of the sample population. Only 6 respondents fell within the 36 to 45 age category, meaning only 6% of respondents investigated were between the ages of 36 to 45. Between the ages of 46 to 55, only 11 respondents were investigated in terms of this age category. Respondents who were between the ages 56 and 65 constituted towards a percentage of 5%, of the total sample population. With no surprise at all, only 2 respondents fell within the age category of being over 65 and a total of 2% of the sample population.

**Table 4.3 Ethnic affiliation of respondents**

<b><u>ETHNIC AFFILIATION</u></b>	<b><u>FREQUENCY</u></b>	<b><u>PERCENTAGE</u></b>
Asian	0	0%
Black	23	23%
Coloured	9	9%
Indian	0	0%
White	68	68%
Total	100	100%

From table 4.3 it is evident that the majority of respondents were of white ethnic affiliation, constituting towards a 68% of the total sample investigated. 9 individuals were of coloured ethnic affiliation, whilst 23 were of black ethnic affiliation. From the above, one can draw a conclusion that there were no Asian nor Indian individuals investigated, partly due to the fact that the sampling technique was of a non-random, convenience sampling technique.

It is clearly evident that the majority of the individuals investigated were of young adults between the ages of 18 to 25. Respondents that were between the ages of 18 and 35 made up 76% of the total sample population, while respondents that were between the ages of 36 to 65 and over, made up 24% of the total sample population. It was also evident that more than half of the respondents investigated spoke English as their home language, regardless of their ethnic affiliation.

### **4.3 EMPIRICAL RESULTS**

The questionnaire, comprised of not only the demographics section but also included statements that were asked to the 100 respondents. These statements fell within three distinctive headings, namely: perceived ease of use, perceived usefulness and lastly bitcoin search online.

A total of thirty-seven statements were asked to the 100 respondents, of which twelve statements belonged to the heading perceived ease of use, eighteen statements belonged to the heading perceived usefulness and seven statements belonged to the heading bitcoin search online.

#### **4.3.1 FACTOR LOADING INTERPRETATION**

After conducting several analyses, using Statistica, the factor loadings, which can be seen in the figure below are very correlated. As a result of them being so correlated to one another, it has caused majority of the items to load onto just one factor. Only a handful of items cross-load onto different factors. This presents a problem when it comes to the interpretation of the data collected from the respondents. Respondents may have had a problem with the interpretation or the understanding of the various items asked to them during the research study investigation. This may have been due to the similarity of words or the misinterpretation among the respondents.

The result of items only loading onto one factor, suggests a problem. The measurement instrument of the factors under investigation can be reported as being invalid and irrelevant. The measuring instrument that was made use of within this study did not demonstrate the necessary validity that is required. The results of the data based on the Exploratory Factor Analysis can be seen in figure 4.1 below.

**Figure 4.1: Exploratory Factor Analysis**

	Factor Loadings (Unrotated) (Data collection from respondents) Extraction: Principal components (Marked loadings are >.400000)		
Variable	Factor 1	Factor 2	Factor 3
BSO1	-0.73377	-0.31214	-0.21047
BSO2	-0.68633	-0.26368	0.004523
BSO3	-0.63024	0.248028	-0.23819
BSO4	-0.73769	0.424388	-0.16145
BSO5	-0.71414	-0.2521	0.127148
BSO6	-0.69753	0.140519	0.018008
BSO7	-0.76325	-0.00887	-0.2947
PEU1	-0.69728	-0.03358	0.185019
PEU2	-0.6955	-0.21045	0.149623
PEU3	-0.62845	0.38762	0.146455
PEU4	-0.76907	0.014405	0.17843
PEU5	-0.71686	-0.01145	-0.0134
PEU6	-0.59186	-0.14247	0.041347
PEU7	-0.72518	0.040201	-0.16262
PEU8	-0.67332	0.107315	0.260575
PEU9	-0.77232	0.09331	-0.08083
PEU10	-0.71061	-0.0176	0.012057
PEU11	-0.74377	-0.12037	-0.20879
PEU12	-0.73796	-0.37338	-0.26062
PU1	-0.73398	0.085083	-0.01046
PU2	-0.73548	0.164601	0.210711
PU3	-0.75421	-0.23963	0.088955
PU4	-0.72177	-0.0344	0.076585
PU5	-0.6502	-0.18044	0.118277
PU6	-0.78408	0.044107	0.066208
PU7	-0.67954	-0.17755	0.098637
PU8	-0.67	-0.14192	0.055005
PU9	-0.73416	0.021202	0.011272
PU10	-0.69384	-0.0386	-0.47915
PU11	-0.76924	0.292609	-0.04452
PU12	-0.81215	0.220055	0.045856
PU13	-0.72161	-0.28802	0.258418
PU14	-0.75746	0.098923	0.1513
PU15	-0.73241	0.195622	-0.02241
PU16	-0.73636	0.011262	-0.27377
PU17	-0.73578	0.114213	0.288485
PU18	-0.6724	0.098727	-0.10063
Expl.Var	19.08496	1.353333	1.136474

Prp.Totl	0.51581	0.036577	0.030716
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#### 4.3.2 GRAPHICAL INTERPRETATION OF RESULTS

Data analysis was conducted further in respect to the mean as well as the standard deviations of the various factors identified in this research study. The following figures were piloted and conducted using a statistical program, called Statistica. The figures were formed for each variable for each factor discussed. The figures below, indicate the valid number of respondents that were conducted in this research study, which was typically 100 respondents. The figures also depict the minimum score as well as the maximum score that the respondents could have chosen according to a five-point Likert scale. Namely the minimum score that a respondent could have chosen was one and the maximum score a respondent could have chosen was five. Typically, one indicating that the respondent strongly disagrees and five depicting that the respondent strongly agrees. Furthermore, the figures below also show the various mean scores as well as the standard deviation of the different item statements asked to the respondents.

**Figure 4.2: Mean score and Standard deviation for perceived ease of use**

Variable	Descriptive Statistics (Data collection from respondents)				
	Valid N	Mean	Minimum	Maximum	Std.Dev.
PEU1	100	3.480000	1.000000	5.000000	0.984683
PEU2	100	3.400000	1.000000	5.000000	0.959166
PEU3	100	3.450000	1.000000	5.000000	0.876071
PEU4	100	3.330000	1.000000	5.000000	0.872410
PEU5	100	3.470000	1.000000	5.000000	0.953467
PEU6	100	3.420000	1.000000	5.000000	0.907524

PEU7	100	3.540000	1.000000	5.000000	1.004191
PEU8	100	3.540000	1.000000	5.000000	0.910165
PEU9	100	3.680000	1.000000	5.000000	0.881816
PEU10	100	3.580000	1.000000	5.000000	0.907524
PEU11	100	3.390000	1.000000	5.000000	0.915369
PEU12	100	3.380000	1.000000	5.000000	0.903106

**Figure 4.3: Mean score and Standard deviation for perceived usefulness**

Variable	Descriptive Statistics (Data collection from respondents)				
	Valid N	Mean	Minimum	Maximum	Std.Dev.
PU1	100	3.670000	1.000000	5.000000	0.970103
PU2	100	3.620000	1.000000	5.000000	0.987725
PU3	100	3.320000	1.000000	5.000000	0.947418
PU4	100	3.540000	1.000000	5.000000	0.910165
PU5	100	3.440000	1.000000	5.000000	0.941488
PU6	100	3.670000	1.000000	5.000000	0.895042
PU7	100	3.540000	1.000000	5.000000	0.887919
PU8	100	3.510000	1.000000	5.000000	0.943345
PU9	100	3.510000	1.000000	5.000000	0.899944
PU10	100	3.530000	1.000000	5.000000	0.953467

PU11	100	3.340000	1.000000	5.000000	0.885664
PU12	100	3.620000	1.000000	5.000000	0.880682
PU13	100	3.550000	1.000000	5.000000	0.942072
PU14	100	3.630000	1.000000	5.000000	0.955563
PU15	100	3.530000	1.000000	5.000000	0.899500
PU16	100	3.550000	1.000000	5.000000	0.942072
PU17	100	3.560000	1.000000	5.000000	1.003195
PU18	100	3.520000	1.000000	5.000000	0.910824

**Figure 4.4: Mean score and Standard deviation for bitcoin search online**

Variable	Descriptive Statistics (Data collection from respondents)				
	Valid N	Mean	Minimum	Maximum	Std.Dev.
BSO1	100	3.400000	1.000000	5.000000	0.948683
BSO2	100	3.330000	1.000000	5.000000	0.906146
BSO3	100	3.050000	1.000000	5.000000	0.817007
BSO4	100	3.370000	1.000000	5.000000	0.945040
BSO5	100	3.500000	1.000000	5.000000	0.888819
BSO6	100	3.420000	1.000000	5.000000	0.907524
BSO7	100	3.510000	1.000000	5.000000	1.014840

**Table 4.4: Summary of findings for Perceived ease of use (PEU factor)**

<b>Item code</b>	<b>Item statement</b>	<b>Mean score from respondents</b>
PEU1	My interaction with social media has been clear and understandable when searching for Bitcoin information.	3.48
PEU2	Overall, social media is easy to use when searching for Bitcoin information.	3.4
PEU3	Learning to navigate social media to access Bitcoin information is easier for me.	3.45
PEU4	The use of social media for Bitcoin investment processes does not confuse me.	3.33
PEU5	Social media is easy to navigate when searching for Bitcoin advice.	3.47
PEU6	Using social media enables me to have accurate information on Bitcoin investment processes.	3.42
PEU7	My interaction with search engines has been clear and understandable when searching for Bitcoin information.	3.54
PEU8	Overall, search engines are easier to use specifically when searching for Bitcoin information.	3.54
PEU9	Learning to operate with search engines to access Bitcoin information is easier for me.	3.68
PEU10	The use of search engines for Bitcoin investment processes does not confuse me.	3.58

PEU11	Search engines are easier to navigate when searching for Bitcoin advice.	3.39
PEU12	Using search engines enables me to have more accurate information on Bitcoin investment processes.	3.38

From table 4.4, one can see that there was a total of twelve statements comprising of perceived ease of use that were put to the 100 respondents. The researcher coded these items from PEU1 to PEU12, to make it easier to distinguish between the different item statements asked.

According to the item code PEU1, the total mean score from the 100 respondents investigated showed an average of 3.48. Indicating that on average, the respondents felt neutral towards their interaction with social media and it being clear and understandable when the respondents were searching for information regarding bitcoin.

With regards to the item code PEU2, it can be seen that on average, the 100 respondents investigated showed a total mean score of 3.4. This shows that the respondents felt neutral towards social media being easy to use when the respondents were searching for bitcoin information.

After looking at the item code PEU3, one can clearly see that the respondents felt neutral towards them learning how to navigate social media and making it easier for them to access bitcoin information. On average, the total mean score for the respondents investigated showed a score of 3.45.

With regards to the item code PEU4, it can be seen that on average, the respondents investigated showed a total mean score of 3.33, indicating that on average, the respondents felt neutral towards them not getting confused when using social media for bitcoin investment processes. This item statement had the lowest total mean score as opposed to the other item statements.

According to the item code PEU5, the total mean score from the 100 respondents investigated showed an average of 3.47. This shows again, that on average, the

respondents felt neutral towards social media being easier to navigate when the respondents wanted to search for bitcoin advice.

After looking at the item code PEU6, one can clearly see that the respondents felt neutral towards them using social media and it is enabling them to have accurate information with regards to bitcoin investment processes. On average, the total mean score for the respondents investigated showed a score of 3.42.

With regards to the item code PEU7, it can be seen that on average, the 100 respondents investigated showed a total mean score of 3.54. This clearly shows that on average, the respondents agreed that their interaction with search engines has been clear as well as understandable when searching for information pertaining to bitcoin.

According to the item code PEU8, the total mean score from the 100 respondents investigated showed an average of 3.54. Indicating that the respondents agreed that search engines are easier to use specifically when searching for bitcoin information.

After looking at the item code PEU9, one can clearly see that the respondents agreed towards the fact that learning to operate with search engines to access information pertaining to bitcoin was easier for them to make use of. On average, the total mean score for the respondents investigated showed a mean score of 3.68. This item statement had the highest total mean score as opposed to the other item statements.

According to the item code PEU10, the total mean score from the 100 respondents investigated showed an average of 3.58. This indicates that on average the respondents agreed in terms of them not getting confused when using search engines for bitcoin investment processes.

According to the item code PEU11, the total mean score from the 100 respondents investigated showed an average of 3.39. This shows one, that on average, the respondents felt neutral towards search engines being easier to navigate when the respondents wanted to search for bitcoin advice.

After looking at the item code PEU12, one can clearly see that the respondents felt neutral towards them using search engines and it is enabling them to have accurate

information with regards to bitcoin investment processes. On average, the total mean score for the respondents investigated showed a score of 3.38.

With this being said, the respondents showed the researcher that on average, most respondents preferred using search engines instead of social media when they wanted to search for not only bitcoin advice but also information regarding bitcoin itself as well as bitcoin investment processes.

Furthermore, based on the data from table 4.4 above, the average number of respondents for PEU1 to PEU12 showed a total mean score of 3.47, which clearly indicates that as a whole the respondents felt neutral when it came to responding to the various questions based on perceived ease of use in the questionnaire. It was also found that there was a total of 11 outliers for the factors PEU1 to PEU12. These results serve as different results to other results from the respondents. The reason why these were outliers, was due to the fact that they answered that they either strongly disagreed or disagreed in terms of questions relating to perceived ease of use. This was typically depicted by a score of either 1 for strongly disagree or 2 for disagree.

**Table 4.5: Summary of findings for Perceived usefulness (PU factor)**

<b>Item code</b>	<b>Item statement</b>	<b>Mean score from respondents</b>
PU1	Social media enables me to accomplish tasks more quickly than search engines when searching for Bitcoin information.	3.67
PU2	Social media has improved the quality of Bitcoin awareness in general.	3.62
PU3	Social media has increased the interest of consumers when searching for Bitcoin.	3.32
PU4	Social media makes it easier to obtain Bitcoin information.	3.54
PU5	Social media gives me greater control over Bitcoin investment processes.	3.44

PU6	The use of social media increases the effectiveness of performing Bitcoin purchases.	3.67
PU7	Using social media to search Bitcoin gives me access to a lot of information.	3.54
PU8	Social media provides thorough information on Bitcoins value price.	3.51
PU9	Using social media to search for information on Bitcoin is far better than using search engines.	3.51
PU10	Search engines enable me to accomplish tasks more quickly than social media when searching for Bitcoin information.	3.53
PU11	Search engines have improved the quality of Bitcoin awareness in general.	3.34
PU12	Search engines have increased consumers interest when searching for bitcoin.	3.62
PU13	Search engines make it easier to attain Bitcoin information faster.	3.55
PU14	Search engines give me greater control over Bitcoin purchases.	3.63
PU15	The use of search engines increases the effectiveness of performing bitcoin purchases.	3.53
PU16	Using search engines to search Bitcoin gives me access to a lot of information.	3.55
PU17	Search engines provide thorough information on Bitcoins value price.	3.56

PU18	Using search engines to search for information on Bitcoin is far better than using social media.	3.52
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From table 4.5, which connotes perceived usefulness, one can see that there was a total of eighteen statements asked to the 100 respondents. The researcher coded these items from PU1 to PU18, to make it easier to distinguish between the different item statements asked.

According to the item code PU1, the total mean score from the 100 respondents investigated showed an average of 3.67, indicating that on average, the respondents agreed that social media does enable them to accomplish tasks more quickly than what search engines do, when searching for bitcoin information. This item statement had the highest total mean score together with the item statement connoted by the item code PU6 as opposed to the other item statements.

From the item code PU2, the total mean score from all 100 respondents investigated showed an average score of 3.62. This clearly shows that on average, the respondents agreed towards the fact that social media has improved the quality that comes with bitcoin in general.

After looking at the item code PU3, one can clearly see that the respondents felt neutral towards social media increasing the interest of consumers when searching for bitcoin. This is backed up by the total mean score of 3.32 from the 100 respondents investigated. This item statement had the lowest total mean score as opposed to the other item statements.

With regards to the item code PU4, it can be seen that on average, the 100 respondents investigated showed a total mean score of 3.54. This clearly shows that on average, the respondents agreed that their usage with social media makes it easier for them to obtain information pertaining to bitcoin faster.

According to the item code PU5, the total mean score from the 100 respondents investigated showed an average of 3.44, indicating that on average the respondents felt neutral towards social media giving them greater control over various bitcoin investment processes.

With regards to the item code PU6, it can be seen that on average, the 100 respondents investigated showed a total mean score of 3.67. One can clearly see from this total mean score, that on average the respondents agreed that the use of social media as a whole increases the effectiveness of performing bitcoin purchases. This item statement had the highest total mean score together with the item statement connoted by the item code PU1 as opposed to the other item statements.

After looking at the item code PU7, one can clearly see that the respondents agreed towards the fact that using social media to search for bitcoin gives them access to a lot of information. On average, the total mean score for the respondents investigated showed a score of 3.54.

With regards to the item code PU8, it can be seen that on average, the 100 respondents investigated showed a total mean score of 3.51. This shows that the respondents, on average, agreed towards the fact that they believe that social media provides them with thorough information on bitcoins value price.

After looking at the item code PU9, one can clearly see that the respondents agreed towards them using social media to search for information pertaining to bitcoin and it being better than using search engines to search for bitcoin information. This is backed up by the total mean score of 3.51 from the 100 respondents investigated.

From the item code PU10, the total mean score from all 100 respondents investigated showed an average score of 3.53. This clearly shows that on average, the respondents agreed towards the fact that search engines enable them to accomplish tasks more quickly than social media when searching for various information relating to bitcoin.

From the item code PU11, the total mean score from all the respondents investigated showed an average score of 3.34. This clearly shows that on average, the respondents felt neutral towards the fact that search engines have improved the quality that comes with bitcoin in general as well as their awareness of bitcoin.

After looking at the item code PU12, one can clearly see that the respondents agreed towards the sense that search engines have increased their interest when searching for bitcoin. This is backed up by the total mean score of 3.62 from all 100 respondents investigated.

With regards to the item code PU13, it can be seen that on average, the 100 respondents investigated showed a total mean score of 3.55. This clearly shows that on average, the respondents agreed that their usage with search engines makes it easier for them to obtain information pertaining to bitcoin faster.

According to the item code PU14, the total mean score from the 100 respondents investigated showed an average of 3.63, indicating that on average the respondents agreed that their usage with search engines gives them greater control over various bitcoin purchases.

From the item code PU15, it can be seen that on average, the 100 respondents investigated showed a total mean score of 3.53. One can clearly see from this total mean score, that on average the respondents agreed that the use of search engines as a whole has increased the effectiveness of them performing bitcoin purchases.

After looking at the item code PU16, one can clearly see that the respondents agreed towards the fact that using search engines to search for bitcoin gives them access to a lot of information. On average, the total mean score for the respondents investigated showed a score of 3.55.

With regards to the item code PU17, it can be seen that on average, the 100 respondents investigated showed a total mean score of 3.56. From this, it is evidential that the respondents, on average, agreed towards the fact that they believe that search engines provide them with thorough information on bitcoins value price.

After looking at the item code PU18, one can clearly see that the respondents agreed towards them using search engines to search for information pertaining to bitcoin and it being better than using social media to search for bitcoin information. This is backed up by the total mean score of 3.52 from the 100 respondents investigated.

With this being said, it is evidential in table 4.5 that amongst the data gathered from the respondents, on average, the results showed the researcher that the respondents were fairly balanced among their usage of search engines and social media. Overall, when respondents used social media when searching online for bitcoin, the average mean score was 3.54. The exact same average mean score of 3.54 was also accumulated when the respondents used search engines in their aid when searching online for bitcoin. The 100 respondents, on average used both social media as well as

search engines to help them in their aid, when they wanted to accomplish tasks, make bitcoin purchases and obtain information pertaining to bitcoin. In terms of social media and search engines, the respondents did not use one more than the other, they were both optimised equally when it came to the respondents wanting improved quality or greater control over bitcoin investment processes.

Furthermore, based on the data from table 4.5 above, the average number of respondents for PU1 to PU18 showed a total mean score of 3.54, which clearly indicates that as a whole the respondents agreed in terms of them responding to the various questions based on perceived usefulness in the questionnaire. It was also found that there was a total of 10 outliers for the factors PU1 to PU18. These results serve as different results to other results from the respondents. The reason why these were outliers, was due to the fact that they answered that they either strongly disagreed or disagreed in terms of questions relating to perceived usefulness. This was typically depicted by a score of either 1 for strongly disagree or 2 for disagree.

**Table 4.6: Summary of findings for Bitcoin search online (BSO factor)**

<b>Item code</b>	<b>Item statement</b>	<b>Mean score from respondents</b>
BSO1	I search for bitcoin at least once a week.	3.4
BSO2	I check the value of bitcoin online every week.	3.33
BSO3	I am willing to spend a fair bit of my time searching for bitcoin per week.	3.05
BSO4	I search for bitcoin every time when searching online per week.	3.37
BSO5	I stay up late at night searching for bitcoin information per week.	3.5
BSO6	I search for bitcoin information more than once a week.	3.42

BSO7	I spend majority of my time online searching for bitcoin information per week.	3.51
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From table 4.6, which connotes bitcoin search online, one can see that there was a total of seven statements asked to the 100 respondents. The researcher coded these items from BSO1 to BSO7, to make it easier to distinguish between the different item statements asked.

According to the item code BSO1, the total mean score from the 100 respondents investigated showed an average of 3.4. Indicating that on average, the respondents felt neutral towards them searching for bitcoin at least once a week.

From the item code BSO2, the total mean score from all the respondents investigated showed an average score of 3.33. This clearly shows that on average, the respondents felt neutral towards the fact that they check the value of bitcoin online every week.

With regards to the item code BSO3, it can be seen that on average, the 100 respondents investigated showed a total mean score of 3.05. One can clearly see that on average, the respondents felt neutral towards them willing to spend a fair bit of their time searching for bitcoin per week. This item statement had the lowest total mean score as opposed to the other item statements.

After looking at the item code BSO4, it is evidential that the respondents felt neutral towards them searching for bitcoin every time when searching online per week. This is backed up by the total mean score of 3.37 from the 100 respondents investigated.

After looking at the item code BSO5, one can clearly see that on average, the respondents agreed towards the fact that they stay up late at night searching for bitcoin information per week. This is backed up by the total mean score of 3.5 from the 100 respondents investigated.

According to the item code BSO6, the total mean score from the 100 respondents investigated showed an average of 3.42, indicating that on average the respondents felt neutral towards the sense that they search for bitcoin information more than once a week.

With regards to the item code BSO7, it can be seen that on average, the 100 respondents investigated showed a total mean score of 3.51. One can clearly see that on average, the respondents agreed towards them spending majority of their time online searching for bitcoin information per week. This item statement had the highest total mean score as opposed to the other item statements.

With this being said, it is evidential amongst the data gathered from the respondents that on average, the respondents felt more neutral towards the various statements pertaining to bitcoin search online than agreeing towards them. It can also be said that on average, the respondents agreed that they were staying up late at night to search for bitcoin information per week. This shows that the majority of bitcoin search online happened during the night than the day. It can also be said that, on average, when respondents were online, the majority of the time that they spent online was partly because they were searching for bitcoin information.

Furthermore, based on the data from table 4.6 above, the average number of respondents for BSO1 to BSO7 showed a total mean score of 3.37, which clearly indicates that as a whole the respondents felt neutral when it came to them responding to the various questions based on bitcoin search online in the questionnaire. It was also found that there was a total of 15 outliers for the factors BSO1 to BSO7. These results serve as different results to other results from the respondents. The reason why these were outliers, was due to the fact that they answered that they either strongly disagreed or disagreed in terms of questions relating to bitcoin search online. This was typically depicted by a score of either 1 for strongly disagree or 2 for disagree.

Out of the 100 respondents investigated for this research study, 36 of them were regarded as outliers, making up a whole 36 percent of this research study.

#### **4.4 LITERATURE FINDINGS AND CORRESPONDENCE**

##### **4.4.1 PERCEIVED EASE OF USE**

According to the literature review chapter. Perceived ease of use is defined by (Davis, 1989) as the degree to which a person believes that using the system will be free of effort.+ Davis also argues that the importance of perceived ease of use is well

supported and backed up by the research of Bandura, (1982) on the theory self-efficacy, which can be defined as %judgements of how well one can execute courses of action to deal with prospective situations+(Folkinshteyn and Lennon, 2017).

With the total mean score of 3.47 from the respondents for this factor, shows one that on average the respondents were neutral when it came to the respondentsqfeelings of the ease of use of search engines as well as social media. Respondents felt neutral towards the perceived ease of use of search engines and social media as a whole when searching for bitcoin information online. In terms of this research study, it can be said that on average for perceived ease of use, the respondents felt neutral towards social media and search engines having service quality, it being speedy and simple when searching for bitcoin online.

#### **4.4.2 PERCEIVED USEFULNESS**

A study, conducted by Folkinshteyn & Lennon (2017), corresponds to the empirical findings based on this research study. Perceived usefulness is defined by (Davis, 1989), as %the extent to which a person believes that using a particular technology will enhance his or her job performance.+Perceived ease of use and perceived usefulness work together in tandem to stimulate a userq attitude towards a specific technology. This attitude in turn notifies the userq behavioural intention, which not only results in the actual use of the system but also that of the relative level of technology acceptance by a user (Folkinshteyn & Lennon, 2017).

With the total mean score of 3.54 from the respondents for this factor, shows one that on average the respondents agreed towards the actual usefulness of search engines and social media when they were searching for bitcoin in particular.

A study by Roos (2015:1), highlights that bitcoin is a huge digital distributed currency which was launched through a white paper by pseudonymous developer Satoshi Nakamoto. The systemq disruptive and disintermediating nature has powered the incredible growth of the financial technology space over recent years.

This may be partial to the fact that the usefulness of search engines and social media that the respondents felt was partially boosted by that of the disruptive and disintermediating environment of the technology space.

In terms of this research study, it can be said that on average for perceived usefulness, the respondents agreed that the use of social media and search engines had attractable content, the mobility of the search engines and social media did not confuse them and that the respondents enjoyed their time when searching for bitcoin information online.

#### **4.5 SUMMARY**

In conclusion to this chapter, it can be said that on average, the mean scores from all 100 respondents investigated fell within the mean range of 3.30 to 4, indicating that on average, the respondents were more inclined to the term *agree* when it came to answering the various statements in respect to the different factors.

With this being said, the respondents agreed that they preferred using search engines instead of social media when they wanted to search for not only bitcoin advice but also information regarding bitcoin itself and lastly bitcoin investment processes. Furthermore, the respondents also favoured the use of search engines than social media when searching for bitcoin information as it was more clear and understandable to them. It also provided them with more accurate information.

However, the respondents, on average used both social media as well as search engines to help them in their aid, when they wanted to accomplish tasks, make bitcoin purchases and obtain information pertaining to bitcoin. In terms of the respondents' perceived usefulness of bitcoin, it can be said that one was not used more than the other, they were both optimised equally when it came to the respondents wanting improved quality or greater control over bitcoin investment processes.

The majority of respondents fell within the age category of 18 to 25. These respondents made up 55% of the total sample population. 54 respondents of the 100 investigated were male and 46 were of female gender. This indicates a fair distribution between gender associations for this research study. It must be mentioned that the majority of the respondents investigated were of white ethnic affiliation. 64 individuals of the 100 investigated made up the ethnic affiliation of *white*. No respondents were of Indian or Asian ethnic affiliation. The majority of respondents that were interviewed

stated that they speak English as their home language, regardless of their ethnic affiliation.

In the next chapter, chapter five, the researcher will discuss the research objectives again to indicate whether or not they were all achieved and will mention the research design. The researcher will then discuss the main findings from the literature review as well as the main findings from the empirical investigation. After this has been mentioned, the researcher will highlight the main conclusions to the research questions, practical and realistic recommendations, and the various shortcomings of the research. The researcher will identify any possible future research that could be taken for future possible studies similar to this one. Lastly the researcher will provide various sentences linked to self-reflection that was gained throughout this research study.

## **CHAPTER 5**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

In this chapter, chapter five, the researcher will refer to the research objectives that were highlighted in chapter one. These research objectives consist of the primary study objective, the secondary study objectives and the methodological objectives. There were five secondary study objectives identified as well as five methodological study objectives identified. After mentioning the research objectives, the researcher will highlight the research design which was mentioned in chapter one as well as chapter three.

With this being said, the researcher will then state the main findings from the literature review as well as the main findings from the empirical investigation. The researcher will also make conclusions from this research study and mention whether they provide answers to the research questions that were mentioned in chapter one.

In this chapter, the researcher will also be mentioning some practical and realistic recommendations and highlighting the various shortcomings of this research as it unfolded.

The last part of this chapter will state what future research can be possible from what the researcher identified from this research study and lastly the researcher will highlight a self-reflection, in which the researcher will mention a few sentences on what the researcher learnt and gained from this study.

#### **5.2 RESEARCH OBJECTIVES**

The research objectives are divided into three objectives namely: Primary objective; Secondary objectives and Methodological objectives.

##### **5.2.1 PRIMARY STUDY OBJECTIVE**

The primary objective of this study is to investigate the consumers usage of search engines and social media when searching for Bitcoin, using the Technology Acceptance Model.

### **5.2.2 SECONDARY STUDY OBJECTIVES**

SO1 To investigate the perceived ease of use associated with the use of search engines and social media.

SO2 To investigate the perceived usefulness associated with the use of search engines and social media.

SO3 To investigate whether search engines are preferred over social media when searching for bitcoin.

SO4 To investigate whether search engines and social media has improved the awareness of bitcoin.

SO5 To investigate when most of the search for bitcoin is happening online.

### **5.2.3 METHODOLOGICAL OBJECTIVES**

To achieve the above: primary and secondary objectives the following Methodological objectives have been identified:

MO1 To determine and design a suitable questionnaire for the research topic that will be used in order to gather data.

MO2 To administer the questionnaires to respondents from the sample.

MO3 To ensure that the data collected from respondents is valid, trustworthy and credible for this research study.

MO4 To carefully contemplate any potential ethical considerations, including that of confidentiality and risk to respondents.

MO5 To analyse the data collected from the respondents using an excel spreadsheet and split the data into sections that can be quantified in order to create ranking tables that represent the data.

The above mentioned 5 methodological objectives were used in the process of formulating the questionnaire to do the investigation within the Port Elizabeth area on the consumers usage of search engines and social media when searching for Bitcoin, using the Technology Acceptance model. These methodological objectives were

helpful in forming the basis for the design, sampling, instrument design, data collection and lastly data analysis.

Based on these research objectives, it is evident that the research study does accept the primary objective, the secondary objectives and the methodological objectives.

### **5.3 RESEARCH DESIGN**

The research was conducted using a quantitative research method due to the analysis of numbers involved in the research. The chosen method did enable the researcher to find out if the consumers in the Port Elizabeth area are aware of search engine optimisation, together with the benefits and costs associated with the usage of search engines and social media. The questionnaires were completed by the general consumers and were analysed to ascertain if the consumers are using the search engines properly and whether the consumers are aware of the associated fears when using search engines and social media, especially when searching for a cryptocurrency, like bitcoin.

There are several studies conducted on the topic of search engines and social media when searching for Bitcoin, using the Technology Acceptance Model of which their literature was consulted together with analysed data from the collected questionnaires.

Investigating the consumers' usage of search engines and social media when searching for Bitcoin, using the Technology Acceptance Model was carried in depth in both a literature review and an analysis from the data collected.

A sample size of one hundred individuals was purposely selected for the researcher to gather and collect valuable research data. This data was helpful to the researcher to make assumptions and to help provide future research studies with valuable information. Data was collected from the one hundred respondents using a well-structured questionnaire (see Appendix A). There is a wide range of questions within the questionnaire that helped draw conclusions based on the consumers' perceived usefulness of search engines and social media, the consumers' perceived ease of use of search engines and social media as well as the amount of time individuals spent searching for bitcoin online.

When the respondents were completing the respected questionnaires, sufficient time was given to prevent any pressurised or rushed answers. It is vitally important to note that the questionnaire itself did not bring any harm or risk to the potential participant and did meet all the ethical considerations that come with a questionnaire. The questionnaire began with an introductory paragraph stipulating and detailing the main purpose of this research study and highlighted the main concepts of confidentiality and consent.

#### **5.4 MAIN FINDINGS FROM THE LITERATURE REVIEW**

Throughout this research study, there were several theories and research studies discussed and highlighted. The main findings from the literature review included the following; the main advantage of using online marketing for an individual or business is that it eliminates all potential geographic barriers from the practice of either buying or selling, making it easily accessible. The use of internet or online marketing as a tool for potential customers has made the reach of targeted customers more effective and much more efficient (Yurovskiy, 2015: 1-7).

It must be highlighted that internet marketing is not only highly targeted, but it also offers potential consumers personalisation to match consumers unique set of means as well as other consumers behaviours that they display (Yurovskiy, 2015: 1-7).

The usefulness of search engine optimisation and social media has been clearly evident throughout the world of business today. Upon looking at internet marketing, engagement and commitment has become the key and being able to not only intermingle with the preferred targeted audience but also to relate to one another in a way that enhances relationships with loyal consumers and build key ones with new potential consumers.

Yurovskiy (2015) shows one that when relationships are built upon the use of online and internet marketing, higher levels of trust are also built, which ultimately generates greater customer loyalty.

It was also found that communication between that of businesses and its consumers have been enhanced over recent years. This is partly because the internet can now provide consumers with a wide range of different information due to its availability 24 hours a day, 7 days a week (Lane, 1996: 22-25).

Another important finding is that the internet has helped many different marketers gather information pertaining to different consumers. With the help of gathered data and information of customers' preferences, websites can be customised according to the various target groups, which brings about a cumulative interaction and builds up a sense of intimacy between that of the marketer and the respective customer (Bhui & Ibrahim, 2013: 223).

Personalisation and customisation is considered a major advantage and an opportunity of online marketing when using search engines for search engine optimization as well as social media marketing (Bhui & Ibrahim, 2013: 223).

A major finding of search engine optimisation is that Search engine optimisation is aimed at users who are actively searching for products and services from various businesses. The traffic resulting from search engine optimisation is much more practised than many other alternative marketing strategies like cold-calling, resulting in cost-savings for companies (Machin, 2017:1).

When looking at traditional mass media marketing and making reference to internet marketing, internet marketing has been much more cost effective, in the sense that internet marketing does not require ludicrously large amounts of investment as what businesses have done in earlier stages with mass media marketing. Internet marketing channels are much cheaper and efficient when compared to traditional media channels and in many if not all cases, websites can generate traffic even for free (Yurovskiy, 2015: 1-7).

A major problem that was found with marketing campaigns was that they employ a range of offline and online promotion channels such as the internet, email and TV. Each item is used in isolation and lacks a marketing framework. A website will never be visited if there are no specific links to it. Viral marketing does not only require email but also social media websites to convey and communicate the message and search engines are impractical without specific websites to link to it. Within any marketing strategy, all components must dovetail together (Charlesworth, 2009: 341).

Another problem that was found was that of consumers having a lack of face to face contact with businesses. This places a challenge on search engine optimisation as well as social media platforms, such as Facebook. A lack of personal contact is a

deficiency of online marketing between businesses and consumers (Goldsmith & Goldsmith, 2002).

A major finding of the Technology Acceptance Model, was that TAM has not only been used to analyse technology acceptance in a variety of mediums including industry specific analysis, like healthcare but has also been successfully applied to explain differences in respect to gender perception and social usage of technology (Folkinshteyn & Lennon, 2017:1). This is extremely useful for businesses to make use of on a daily basis.

## **5.5 MAIN FINDINGS FROM THE EMPIRICAL INVESTIGATION**

According to the researchers main findings of the empirical investigation, it must be said that this research study consisted of 100 respondents. Firstly, the questionnaire was characterised by the demographics of the respondents in section A of the questionnaire and section B consisted of the respondents perceived ease of use, perceived usefulness and the respondents search online of bitcoin. The demographics were characterised into four main sections, namely; gender, age, home language spoken and their ethnic affiliation.

When referring to the sample description of the respondents, it was clearly evident that 54 of the 100 respondents were male and 46 were female. With this being said, it can be seen that the distribution between male and female is almost the same. When looking at the age of the 100 respondents, 55 participants fell within the age category of (18 to 25), 21 participants fell within the age category of (26 to 35), 6 participants fell within the age category of (36 to 45), 11 participants fell within the age category of (46 to 55), 5 participants fell within the age category of (56 to 65) and lastly only 2 respondents fell within the age category of (over 65). From this it must be said that the majority of the respondents that were investigated for this research study were young adults between the ages of 18 to 35 and only 24 participants were over the age of 36.

Upon looking at the 100 respondents ethnic affiliation, it was found that no participants were Asian nor Indian. Only 9 of the 100 respondents investigated were of coloured ethnic affiliation. 23 participants constituted towards black ethnic affiliation and a whopping 68 individuals made up the ethnic affiliation of white. It was also evident that

more than half of the respondents investigated spoke English as their home language, regardless of their ethnic affiliation.

It was found that after analysing the findings for the respondents' perceived ease of use factor (PEU) that on average, most respondents preferred using search engines instead of social media when they wanted to search for not only bitcoin advice but also information regarding bitcoin itself as well as bitcoin investment processes.

Furthermore, based on the data from table 4.4, the average number of respondents for PEU1 to PEU12 showed a total mean score of 3.47, which clearly indicates that as a whole the respondents felt neutral when it came to responding to the various questions based on perceived ease of use in the questionnaire. It was also found that there was a total of 11 outliers for the factors PEU1 to PEU12. These results serve as different results to other results from the respondents. The reason why these were outliers, was due to the fact that they answered that they either strongly disagreed or disagreed in terms of questions relating to perceived ease of use. This was typically depicted by a score of either 1 for strongly disagree or 2 for disagree.

It was also found that after analysing the findings for the respondents' perceived usefulness factor (PU) in table 4.5 that amongst the data gathered from the respondents, on average, the results showed the researcher that the respondents were fairly balanced among their usage of search engines and social media. The 100 respondents, on average used both social media as well as search engines to help them in their aid, when they wanted to accomplish tasks, make bitcoin purchases and obtain information pertaining to bitcoin. In terms of social media and search engines, the respondents did not use one more than the other, they were both optimized equally when it came to the respondents wanting improved quality or greater control over bitcoin investment processes.

Furthermore, based on the data from table 4.5, the average number of respondents for PU1 to PU18 showed a total mean score of 3.54, which clearly indicates that as a whole the respondents agreed in terms of them responding to the various questions based on perceived usefulness in the questionnaire. It was also found that there was a total of 10 outliers for the factors PU1 to PU18. These results serve as different results to other results from the respondents. The reason why these were outliers, was

due to the fact that they answered that they either strongly disagreed or disagreed in terms of questions relating to perceived usefulness. This was typically depicted by a score of either 1 for strongly disagree or 2 for disagree.

It was also found that after analysing the findings for the respondents' bitcoin search online factor (BSO) in table 4.6, it is evidential amongst the data gathered from the respondents that on average, the respondents felt more neutral towards the various statements pertaining to bitcoin search online than agreeing towards them. It can also be said that on average, the respondents agreed that they were staying up late at night to search for bitcoin information per week. This shows that the majority of bitcoin search online happened during the night than the day. It can also be said that, on average, when respondents were online, the majority of the time that they spent online was partly because they were searching for bitcoin information.

Furthermore, based on the data from table 4.6, the average number of respondents for BSO1 to BSO7 showed a total mean score of 3.37, which clearly indicates that as a whole the respondents felt neutral when it came to them responding to the various questions based on bitcoin search online in the questionnaire. It was also found that there were a total of 15 outliers for the factors BSO1 to BSO7. These results serve as different results to other results from the respondents. The reason why these were outliers, was due to the fact that they answered that they either strongly disagreed or disagreed in terms of questions relating to bitcoin search online. This was typically depicted by a score of either 1 for strongly disagree or 2 for disagree.

As a whole, out of the 100 respondents investigated for this research study, 36 of them were regarded as outliers, making up a whole 36 percent of this research study.

## **5.6 CONCLUSIONS**

Before conducting research for this research study, the researcher made five very distinctive hypotheses, namely;

### **Hypothesis 1:**

The ease of use will increase search results for bitcoin information.

### **Hypothesis 2:**

The usefulness of search engines and social media will increase the usage of both search engines and social media.

### **Hypothesis 3:**

The usage of search engines will be most preferred over social media when searching for bitcoin.

### **Hypothesis 4:**

The usage of search engines and social media has improved the awareness of bitcoin.

### **Hypothesis 5:**

Most of the search online for bitcoin by consumers will happen late at night.

From these hypotheses, the researcher gathered information from the 100 respondents investigated. After analysing the data gathered from the respondents, there is evidence to support all five of the research hypotheses.

The data gathered did support hypothesis 1, which stipulates that the ease of use will increase search results for bitcoin information. More respondents agreed than disagreed when it came to the various statements asked in terms of the perceived ease of use factor (PEU).

After analysing the data gathered from the respondents, it can also be said that hypothesis 2 can also be supported. The data gathered did support hypothesis 2, which stipulates that the usefulness of search engines and social media will increase search results. This was evidential in the data gathered from the respondents as more respondents agreed than disagreed in terms of them using search engines and social

media in conjunction when searching online. Most respondents however favoured the use of search engines than social media when searching online.

The data gathered from the respondents was fairly neutral towards search engines being used more frequently than social media. Furthermore hypothesis 3, which stipulates that the usage of search engines would be most preferred over social media when searching for bitcoin. From the data gathered, hypothesis 3 can be supported.

The data gathered did support hypothesis 4, as the respondents mostly agreed to the fact that both search engines and social media have improved the awareness of bitcoin. Hypothesis 4 stipulated that the usage of search engines and social media have improved the awareness of bitcoin.

The data gathered did support hypothesis 5, as the respondents mostly agreed that most of their searching online, was happening during the night. Hypothesis 5 stipulated that most of the search online for bitcoin by consumers would happen late at night.

The researcher came up with specific research questions before conducting any research on the topic. These research questions comprised of the following:

- Do individuals prefer using social media instead or search engines when searching online?
- Is the usage of search engines and social media increasing?
- Is the usage of search engines and social media improving brand awareness?
- Are search engines being optimised fully?
- Is social media being optimised fully?

After analysing the data that was gathered from the respondents investigated, it can be said that this research study did answer all five of the research questions.

Firstly, the respondents investigated agreed that both social media and search engines were used in acquiring information pertaining to bitcoin. However, the use of search engines was favoured in conducting online search over social media. Social media was however found to be more appealing than search engines due to its increased effectiveness when making bitcoin purchases.

Secondly, the data captured from the respondents do suggest that the demand for bitcoin is growing and that the awareness of bitcoin is being enhanced by the usage of both search engines and social media. This is backed up by the average mean scores from the respondents based on the (BSO) factor, which refers to bitcoin search online. The respondents investigated on average favoured the fact that they search for bitcoin at least once a week and spend majority of their time online searching for bitcoin information per week. This shows one that the demand for bitcoin is growing as people are becoming more aware of bitcoin and spending more time of their week searching online for bitcoin.

Lastly, the use of social media and search engines by the respondents investigated do show one that they are being optimised to their fullest potential. This is backed up by the fact that on average, the respondents agreed that using social media as well as search engines have enabled them to have more accurate information on bitcoin investment processes. It is also backed up that the respondents, on average, agreed that social media and search engines have not only improved the quality of bitcoin awareness but have also increased the interest of consumers when searching for bitcoin.

## **5.7 RECOMMENDATIONS**

To get more accurate results on the consumers usage of search engines and social media when searching for bitcoin, using the Technology Acceptance Model, the following recommendations should be considered in depth:

- The safety and trustworthiness of the internet needs to be guaranteed to the prospective consumer for the utilisation of social media and search engines to be more optimised.
- With the forever changing environment of the internet, there are always gateways for potential hackers. Therefore, a strong emphasis on the algorithms of various websites needs to be updated on a regular basis to prevent such an event from happening to potential consumers.
- There is a need for face-to-face communication, especially when searching online. This will enhance the trust between businesses and potential consumers as well as build a more loyal relationship between the two.

- Having advertisements showing what bitcoin is all about will increase the use of social media and search engines, especially in terms of bitcoin search online.
- With bitcoin being in such a volatile environment, a study guide should be considered in order to assist individuals in the proper usage of search engines and social media, when searching for bitcoin online. This will help with the effectiveness of social media and search engines.

## **5.8 SHORTCOMINGS OF THE RESEARCH**

This research study only comprised of individuals within Port Elizabeth, Easter Cape, South Africa. The study only consisted of 100 participants, whereby they had to be above the age of eighteen.

The sample description favoured individuals that were either white or black, while only a minority comprised of individuals that were of coloured ethnic affiliation. The characterisation of the sample was tremendously skewed in favour of young students between the ages of 18 to 25.

A non-random convenience sampling technique was used in conducting the research for this study. This sampling technique narrowed down the sample population to best suit the researcher.

This research study only looked at overall mean scores and outliers from 100 respondents based on their perceived ease of use, perceived usefulness and bitcoin search online of search engines and social media. This research study also looked at the respondents' descriptive statistics, which was only characterised by their gender, age, ethnic affiliation and home language spoken.

Considering all the above-mentioned limitations, there is room for further enhancement in respect to the research approach used, the sample size and the sampling technique used.

## **5.9 FUTURE RESEARCH**

- In terms of this academic field and respect to potential future research, it would be most advisable to conduct a similar research study with a sample size of more than 100 participants.
- Different item statements and methodological approaches could be made use of to enhance the reliability as well as the validity of the research instrument.
- A possible check box could be implemented within the desired questionnaire to highlight whether the participant understood and read all the questions that were stipulated within the questionnaire. This would also enhance the results for statistical purposes.
- A similar research study could be conducted on the Technology Acceptance Model, whereby other researchers could make use of additional factors and not just perceived ease of use and perceived usefulness.
- Further research could incorporate the fluctuations in the graphs of bitcoins price together with the usage of search engines and social media to help get a better understanding of whether search engines and social media do in fact cause the price of bitcoin to fluctuate over time.

## **5.10 SELF REFLECTION**

During the course of this research study, I as a young adult and a student at the Nelson Mandela University gained several different skills. However, in some circumstances, it was difficult to find the necessary motivation and time to do the work.

I really enjoyed conducting research on such a unique and enjoyable topic. I found that the work itself was much more manageable and compatible than I initially thought. Initially I had no idea what search engine optimisation was all about, nor did I know anything about the Technology Acceptance Model. Upon conducting the necessary research, I became more and more aware of how big search engines are in the real world. I certainly know that I will take this knowledge that I have gained from researching on this topic and apply it to the real world one day.

Throughout this research study, I gained a variety of different skills. These skills included confidence, as I had to approach complete strangers when handing out the

respective questionnaires. I learnt how to communicate in a much more formal manner, especially when interacting with my supervisor, Dr Nelmapius.

I can firmly say that time management was of vital importance to me throughout the research process, as if it was not for this skill learnt and gained, I would never have finished this research study on time. I had to put aside many hours to conduct research on this topic and I can firmly say that it was definitely worth every minute, as I have learnt so much throughout the time frame.

I had to learn how to use a statistical program, known as Statistica, whereby I had to look at mean scores, outliers, descriptive statistics, Cronbach's Alpha and Exploratory Factor Analysis. This was a major skill learnt as it was not easy at all. This program helped set the platform for me to analyse and interpret my data that I collected from respondents. I learnt a new way of interpreting data, by having a look at descriptive statistics of 100 participants, which has been the biggest sample size I have ever investigated.

I confidently feel that this research study has been valuable as well as enjoyable. I certainly have gained a wide variety of different skills and have a different perspective in the way that I perceive search engines and social media in today's society. The Technology Acceptance Model has been useful to me throughout this research study and has changed some of the perceptions about technology itself and the way people perceive the internet itself to be.

## REFERENCES

- Bart, Y., Shankar, V., Sultan, F & Urban, G. (2005) Are the drivers and role of online trust the same for all websites and consumers?+[Accessed 16 May 2018], p.1-21.
- Bertram, D. (2008). Likert Scales: Are the Meaning of Life. [Accessed 16 September 2018].
- Bhui, K. & Ibrahim, Y. (2013) Marketing the radical: Symbolic communication and persuasive technologies in jihadist websites, *Transcultural Psychiatry*, vol.50(2) 216-234 [Accessed 19 May 2018]
- Bostanshirin, S., 2014. Online marketing: challenges and opportunities. [Accessed 16 March 2018], p.1-10.
- Buckley J.W., Buckley, M.H. and Chiang, H. (1976) *Research Methodology and Business Decisions*. New York: National Associations of Accountants.
- BusinessDictionary.com. (n.d). What is Sampling Frame? Definition and meaning. [online] Available at: <http://www.businessdictionary.com/definition/sampling-frame.html> [Accessed 16 September 2018].
- Cargan, L. (2007). *Doing social research*. 1<sup>st</sup> ed. Lanham: Rowman & Littlefield Publishers, p.236.
- Charlesworth, A. (2009) *Internet Marketing: a practical approach*. 1<sup>st</sup> ed. London : Routledge. [Accessed 12 May 2018], p.777-780.
- Clow, K. E. & Baack, D. E. (2013) *Integrated advertising, promotion and marketing communications*. Prentice Hall. [Accessed 5 May 2018]
- Coinmarketcap. (2015). Crypto-currency market capitalizations. Retrieved from <http://www.coinmarketcap.com>
- Collis, J & Hussey, R. 2014. *Business research*. A practical guide for undergraduate and postgraduate students. 4<sup>th</sup> ed. United Kingdom: Palgrave McMillan.
- Cooper, D. & Schindler, P. (2014) *Business research methods*. 12<sup>th</sup> ed. New York: McGraw-Hill, pp.1-10.

Davis, H. (2006). *Search engine optimization*. 1st ed. [Calif.]: O'Reilly, pp.1-40.

Davis, F. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982-1003.

Dholakia, R. R. & Kshetri, N. (2004) Factors impacting the adoption of the internet among SMEs Small business economics, volume 23(4): 311-322 [Accessed 18 May 2018].

Drozdenko, G., & Drake, P. D. (2002) *Optimal database marketing: strategy, development, and data mining*, Sage Publications, pp.1-5.

Folkinshteyn, D. and Lennon, M. (2017). [online] Available at: [https://www.researchgate.net/publication/313248218\\_Braving\\_Bitcoin\\_A\\_technology\\_acceptance\\_model\\_TAM\\_analysis](https://www.researchgate.net/publication/313248218_Braving_Bitcoin_A_technology_acceptance_model_TAM_analysis) [Accessed 6 Sep. 2018].

Forbes, S. (2015). How bitcoin will end world poverty. Retrieved from <http://www.forbes.com/sites/steveforbes/2015/04/02/how-bitcoin-will-end-world-poverty/>

Geier, B. (2015). Overstock.com offers its staff the option of being paid in bitcoin. Available from <http://fortune.com/overstock-com-offers-its-staff-the-option-of-being-paid-in-bitcoin/>

Gupta, S., Miglani, S. and Sundriyal, V., 2013. Search Engine Optimization Techniques. *International Journal of Engineering*, 2(9).

Jansen, J and Molina, R. 2006. The effectiveness of Web search engines for retrieving relevant ecommerce links. [Online] Available from <http://www.researchgate.net>. (Accessed 21 April 2018)

Jobber, D. (2004) *Principles and Practise of marketing*, England, McGraw-Hill. 4<sup>th</sup> ed, pp.1-14.

Khan, (2017). Beginners guide to Search engine optimization. [online] Available at: <http://www.digitaltarannum.com> [Accessed 17 May 2018].

Kiang, M. Y. & Chi, R. T. (2001) A framework for analysing the potential benefits of internet marketing, vol.2 (4): 157-162.

Killoran, B. 2013. How to Use Search Engine Optimization Techniques to increase Website Visibility. [Online] Available from <http://www.ieeexplore.iee.org>. [Accessed 24 April 2018]

Lane, A. (1996) Success in sight or site? Australian Accountant, vol.66 (10): 22-25.

Lantos, G.P. (2011) Consumer behaviour in action: Real life applications for marketing managers, New York, M.E. Sharpe. [Accessed 19 May 2018].

Leedy, P.D. & Ormrod, J.E. (2005) Practical Research Planning and Design. Prentice Hall, Upper Saddle River, NJ.

Lombaard, C., van der Merwe, L., Kele, T. & Mouton, S. 2012. Elementary Statistics for Business and Economics. Pearson Education: Cape Town.

Luther, W. (2015). *Bitcoin and the future of digital payments*. pp.397-402.

Ly, M. KM. (2014) *Coining Bitcoins: legal-bits*: Examining the regulatory framework for Bitcoin and virtual currenciesq Harvard Journal of Law and Technology, 27(2): pp. 587-608.

Lyngbo, T. (2012) How much does search engine cost? [online] Available at: <http://www.searchengineland.com> [Accessed 12 May 2018]

Machin, E. (2017) Top 5 benefits of SEO [online] Available at: <http://www.titangrowth.com> [Accessed 14 May 2018]

Moreno, L. & Martinez, P., 2013. Overlapping factors in search engine optimization and web accessibility. Online Information Review, 37(4), pp.564-580.

Nakamoto, S. (2008). Bitcoin: A peer-to-peer electronic cash system, pp28.

Pavlou, P.A. (2003). Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model. *International Journal of Electronic Commerce*, vol.7(3) pp. 69-94.

Peterson, B. (2013). Red Flags and black markets: Trends in financial crime and the global banking response. *Journal of Strategic Security*, 6(5), 298-308.

Petrik, (2018). How I uncovered criminal activity during an SEO audit. [online] Available at: <http://www.searchenginepeople.com> [Accessed 18 May 2018].

Pronto marketing. (2018). SEO and your digital marketing strategy. [online] Available at: <http://www.prontomarketing.com> [Accessed 20 May 2018].

Raisinghani, M.S., 2005. Future trends in search engines. *Journal of Electronic Commerce in Organizations*, 3(3), pp.1-5.

Raymaekers, W. (2015). Cryptocurrency bitcoin: Disruption, challenges and opportunities. *Journal of Payments Strategy & Systems*, 9(1), 30-40.

Roos, C. (2015). [online] Repository.up.ac.za. Available at: [https://repository.up.ac.za/bitstream/handle/2263/52305/Roos\\_Motivation\\_2016.pdf?sequence=1](https://repository.up.ac.za/bitstream/handle/2263/52305/Roos_Motivation_2016.pdf?sequence=1) [Accessed 6 Sep. 2018].

Saunders, M., Lewis, P. and Thornhill, A. (2009) *Research Methods for Business students*. 5<sup>th</sup> ed. Harlow: Pearson

Statrek.com. (2015). Sample Planning Wizard. [online] Available at: <http://Statrek.com/sample-planning-wizard/wizard.aspx> [Accessed 17 September 2018]

Struwig, F. and Stead, G. (2013). *Research*. 2nd ed. Cape Town: Pearson, pp.80-135.

Van Hout, M.C., & Bingham, T. (2013). Silk roadq the virtual drug marketplace: A single case study of user experiences. *International Journal of Drug Policy*, 24(5), 385-391.

Warren, P., Davies, J. and Brown, D. (2008). *ICT Futures*. New York, NY: John Wiley & Sons, pp.3-233.

Yakimn, N. and Kose, U., 2010. What is search engine optimization: SEO?. *Procedia-Social and Behavioural Sciences*, 9, pp.487-493.

Yin, R.K. (2014) *Case Study Research: design and methods*. 5<sup>th</sup> ed. London: Sage.

Yurovskiy, V. (2015). *Pros and cons of internet marketing*. [online] Turiba.lv. Available at: [http://www.turiba.lv/f/StudzinaKonf\\_Yurovskiy.pdf](http://www.turiba.lv/f/StudzinaKonf_Yurovskiy.pdf), pp.1-7. [Accessed 7 March 2018].

## APPENDIX A: COVER LETTER AND QUESTIONNAIRE



### **TREATISE: The consumers' usage of search engines and social media when searching for Bitcoin, using the Technology Acceptance Model**

Dear Respondent

My name is Travis Benn and I am an Honours student in Business Management at the Nelson Mandela University. Your support and assistance will be much appreciated. I need you to complete a quick questionnaire to help me determine consumers usage of search engines and social media when searching for Bitcoin.

The purpose of this study is to analyse the use of search engines and social media when searching for Bitcoin, using the Technology Acceptance Model (TAM). The TAM Model analyses the perceived ease of use and the perceived usefulness of consumers when searching for online information.

Please note that the information provided will be treated as strictly confidential and will be used for research purposes only. There is no compensation for responding and no risk. All questionnaires are anonymously and voluntarily completed. No individual results will be published and no e-mail addresses will be collected or published.

Thank you for taking the time to help me, the respective data collected will provide useful information for my research study.

Thank you in advance,

Travis Benn

Researcher

0720897203 / s215019156@mandela.ac.za

## Section A: Demographic Information

Please indicate your responses with an "X".

### 1. Gender?

<b>Male</b>	1	<b>Female</b>	2
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### 2. Age?

<b>18-25 years</b>	1	<b>26-35 years</b>	2	<b>36-45 years</b>	3
<b>46-55 years</b>	4	<b>56-65 years</b>	5	<b>Over 65 years</b>	6

### 3. Home language spoken?

<b>Afrikaans</b>	1	<b>English</b>	2
<b>Xhosa</b>	3	<b>Zulu</b>	4

### 4. Ethnic affiliation?

<b>Asian</b>	1	<b>Black</b>	2
<b>Coloured</b>	3	<b>Indian</b>	4
<b>White</b>	5		

**Section B:**

Please place an “X” in the appropriate box to indicate your level of agreement or disagreement with the following statements, using a scale of 1-5:

Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I am willing to spend a fair bit of my time searching for bitcoin per week	1	2	3	4	5
Search engines have improved the quality of Bitcoin awareness in general.	1	2	3	4	5
Search engines are easier to navigate when searching for Bitcoin advice.	1	2	3	4	5
I search for bitcoin at least once a week	1	2	3	4	5
Using search engines enables me to have more accurate information on Bitcoin investment processes.	1	2	3	4	5
I check the value of bitcoin online every week	1	2	3	4	5
Overall, social media is easy to use when searching for Bitcoin information.	1	2	3	4	5
I stay up late at night searching for bitcoin information per week	1	2	3	4	5
Social media gives me greater control over Bitcoin investment processes.	1	2	3	4	5
Using social media enables me to have accurate information on Bitcoin investment processes.	1	2	3	4	5
Social media has increased the interest of consumers when searching for Bitcoin.	1	2	3	4	5
Social media is easy to navigate when searching for Bitcoin advice.	1	2	3	4	5
The use of search engines for Bitcoin investment processes does not confuse me.	1	2	3	4	5

I search for bitcoin every time when searching online per week	1	2	3	4	5
I search for bitcoin information more than once a week	1	2	3	4	5
My interaction with search engines has been clear and understandable when searching for Bitcoin information.	1	2	3	4	5
I spend majority of my time online searching for bitcoin information per week	1	2	3	4	5
Search engines enable me to accomplish tasks more quickly than social media when searching for Bitcoin information.	1	2	3	4	5
Using social media to search for information on Bitcoin is far better than using search engines.	1	2	3	4	5
Using search engines to search Bitcoin gives me access to a lot of information.	1	2	3	4	5
Using social media to search Bitcoin gives me access to a lot of information.	1	2	3	4	5
Search engines provide thorough information on Bitcoins value price.	1	2	3	4	5
Social media provides thorough information on Bitcoins value price.	1	2	3	4	5
Using search engines to search for information on Bitcoin is far better than using social media.	1	2	3	4	5
Social media makes it easier to obtain Bitcoin information.	1	2	3	4	5
The use of search engines increase the effectiveness of performing bitcoin purchases.	1	2	3	4	5
Search engines make it easier to attain Bitcoin information faster.	1	2	3	4	5

Overall, search engines is easier to use specifically when searching for Bitcoin information.	1	2	3	4	5
The use of social media for Bitcoin investment processes does not confuse me.	1	2	3	4	5
Search engines have increased consumers interest when searching for bitcoin.	1	2	3	4	5
My interaction with social media has been clear and understandable when searching for Bitcoin information.	1	2	3	4	5
The use of social media increases the effectiveness of performing Bitcoin purchases.	1	2	3	4	5
Social media enables me to accomplish tasks more quickly than search engines when searching for Bitcoin information.	1	2	3	4	5
Learning to navigate social media to access Bitcoin information is easier for me.	1	2	3	4	5
Search engines give me greater control over Bitcoin purchases.	1	2	3	4	5
Learning to operate with search engines to access Bitcoin information is easier for me.	1	2	3	4	5
Social media has improved the quality of Bitcoin awareness in general.	1	2	3	4	5