

An Exploration of the Impact Technology has on Decision-Making in Small businesses

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I hereby declare that the Research Report submitted for the __Bachelor of Commerce Honours in Management__ degree to The Independent Institute of Education is my own work and has not previously been submitted to another University or Higher Education Institution for degree purposes.

Abstract:

The purpose of this research study was to explore how technology has impacted the decision making in small businesses. With the advancement of technology businesses are becoming more sensitive to the changes in decision making and the business world. Thus, this study wanted to look at how businesses are being affected by technology and is technology impacting the decision of these businesses. A variety of sources were explored to help understand how technology has changed the way business is being conducted. These sources help provide the researcher with a general understanding of the problem being explore. The researcher made use of interviews to further explore the topic, this aided the researcher in gaining the information needed to come up with a clear conclusion. The researcher found that technology has changed the way business is being conducted and technology is aiding small businesses in bridging the gap that exists between larger organisations. This research has contributed to helping small businesses understand the how technology can be used to enhance their business, this study allows for more research to be conducted on decision making and technology in businesses.

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Introduction:**Contextualisation:**

According to Buchanan (2006) the study of decision making has evolved since its first introduction into literature, and advances in technology that mimic cognitive processes has helped improve the way decisions are made. On the contrary, Taylor (2013) argues that with the advances in technology over the last decade, poor decisions can be made easier and bad decisions can have a major impact on an individual, because with emerging technologies like the internet, mobile phones and social media, a digital footprint is left behind and is difficult to erase. Thus, this research study is important because it aims to outline how decision making has changed due to the advancements in technologies. Supporting this Pirouz (2012) argues that “We have undoubtedly witnessed a fundamental shift in the way traditional businesses operate and engage with their customers over the last ten years. With the endless ways the internet and mobile technology can be used, this is outstripping structures of work that have prevailed for more than a century”. Therefore, this research study explored decision making in general, decision making in small businesses and how technology has impacted the small businesses decision making model.

Rationale:

This research study aimed at contributing to the existing body of knowledge that surrounds technology and the impact it has had on the business world. This research study was important because it provided an explanation on how small businesses make decisions, how decision making has changed due to advancements in technology and how small businesses integrate technology into their daily decision-making process. This research was worth conducting because with the advancements in technology small businesses are able to level the playing fields with larger organisations (Pirouz 2012). This research study was important because it aimed to provide businesses with an understanding of how technology has become an important aspect in decision making.

Research Aim:**Research Purpose Statement:**

The purpose for this research study was understand how technology has changed the working world, this research aimed at providing a clear understanding of the decision-making process in small business and how technology has impacted small businesses decision-making process. The researcher made use of interviews which assisted the researcher in gathering information on how technology has impacted the decision making in small businesses. Furthermore, this research was relevant because it provided the researcher with subjective knowledge on how small business owners experience technologies impact on their decision making.

Research Objectives:

To explore if technology has impacted the decision-making process in small businesses

To understand if technology is an important factor in the decision-making process

To explore if technology has changed the way business is conducted

Research Questions:

How has technology impacted the decision-making process in a small business?

Is technology an important factor in the decision-making process? And if so how?

How has technology changed the way business is conducted?

Literature Review:

Theoretical Foundation:

Decision making is a consistent part of every-day life and these decisions can have an impact on individuals or on a group of people, depending on the position of the decision maker (Polic:2009). Understanding how decisions are made is an important aspect of this research study as decision making processes can prevent individuals from making bad decisions and ultimately influence how business is done (Polic:2009). Thus, for the purpose of this research study the behavioural decision theory will be used to help contextualise and frame the literature.

As stated by Barron (1974) the behavioural decision theory is concerned with both aspects of normative decision theory and descriptive decision theory. A normative decision theory can be described as how decisions should be made, and a descriptive decision theory explains how decisions are actually made (Hansson:2005). Slovic, Fischhoff, and Lichtenstein (1977) concurs with Barron (1974) and Hansson (2005) by explaining that behaviour decision theory is interrelated, where normative theory is associated with proposing courses of action that adapt to the decision makers beliefs and values (Barron:1974), and descriptive theory is about describing these beliefs and values and how individuals incorporate them into their decision making (Slovic et al:1977).

As found by a research study conducted by Frankenberger and Albaum (1997) behavioural decision theory was introduced by Simon's (1959) notion of bounded rationality. This notion explored individuals limited cognitive resources for handling decisions. Lau and Levy (1998) concurs with Frankenberger and Albaum (1997) by stimulating that with the limitations of both the normative and descriptive decision theory, the behaviour decision theory came about. Lau and Levy (1998) further explain that individuals lack knowledge and computational skills that have required them to achieve a degree of rationality. Rather individuals develop cognitive shortcuts that have allowed them to make decisions that are reasonable. Thus, the behavioural decision theory helps address the issues by exploring how the decision maker incorporates their beliefs and values in their decisions (Lau & Levy:1998).

The Behavioural Decision Theory was relevant to the study being conducted because it looked at how individuals incorporate their beliefs and values in their day-to-day decision making, which helped the researcher understand how technology has impacted decision making in small businesses. Another reason that the behavioural decision theory was

relevant to this research topic is because the researcher could understand the importance of decision making in small businesses and how these small businesses make their day-to-day decisions.

Furthermore, when the researcher applied the behavioural decision theory to the research, the theory will help address how small businesses make decisions and the theory aided the researcher in understanding how these small businesses incorporate the values and beliefs in their decisions. Furthermore, this theory helped researchers gain an in-depth understanding of the importance of decision making and aspects that influence the decisions of individuals.

Review of Past Literature:

“The Business world has remained reasonably the same for centuries. The exponential rate at which technology is progressing and adapting is at such a speed that you find yourself swept away in a tidal wave of progress. Technology has literally changed every aspect of the way business is conducted and never before in history has the change occurred so fast” (Olson:2017). Technology has helped revolutionise the business world which means that small businesses are able to level the playing field with larger organisations (Pirouze, 2012). Thus, the purpose of this literature review is to provide the reader with the understanding of how technology has changed the way decisions are made in small businesses. This literature review will discuss several themes that will explore the research topic being conducted. The themes that will be discussed are first, decision-making and typical limitations that can be experienced when making decision, secondly the importance of decision making, thirdly decision making in small businesses, fourthly the impact of technology on decision making, and finally the impact of technology on small businesses.

Decision Making:

The behavioural decision-making theory helps enrich and improve the analysis of decision making (Hillman:2000). When looking at decision making there are various limitations that can impact the decision being made, Hillman (2000) addresses some issues that may impact the behavioural decision theory. The first limitation that Hillman (2000) discusses is that individuals are bounded by rationality, this is centred around individuals' limited use of information when making decisions, and that individuals do not have the capability to process all information and this influences the decisions they make. Another limitation that Hillman (2000) presents with the behavioural decision theory is framing, the way individuals describe and present their choices is regarded as framing. Hillman (2000) explains framing

by using an explain of when businesses offer “cash discount” in place of a “credit card surcharge”, therefore, this can affect how people evaluate and make their decisions.

Wilson (2009) concurs with Hillman (2000) by stipulating that in behaviour decision theory individuals use framing to manipulate the outcome of a decision, by manipulating the outcome of a decision, the decision being is made often imprecise which results in the decision maker underestimating the risks of the decision. Wilson (2009) argues that the confirmation bias is another limitation of the behavioural decision theory, the confirmation bias is when individuals deliberately look for information that will best suit their beliefs, this means that the decision-maker could possibly make the wrong decision based on what they believe will be best for them rather than following their decision-making process.

Akrani (2011) argues that there are several limitations to decision making, the first limitation discussed is that decision making can be time consuming, this is because decision making involves meetings and ensuring that the right action was chosen. Another limitation that Akrani (2011) explains is that individual decision making is often subjective because the decision being made can depend on the demographics of the decision maker. Limited analysis is another typical limitation in decision making because the decisions that are made are based on the data that is gathered by the decision maker, often the data could be incorrect, and the decision maker might not have much time to decide which means that it is a rushed decision (Akrani:2011).

Gavetti (2012) argues that behavioural decision making is centred around three main proportions: rationality, plasticity and shaping ability. Rationality is about the opportunities that need to be identified, once identified, possible solutions need to be evaluated. The issue with this is that decision-makers need to have distant foresight, and these individuals might lack imagination and are not able to make an informed decision on a possible solution that takes place in the future (Gavetti:2012). Plasticity as explained by Gavetti (2012) is a limitation where the decision maker does not act on the selected solutions and loses out on all possible opportunities that the solution might present. The last limitation that Gavetti (2012) discusses is the shaping ability, which means that the decision maker is unable to make the solution to a decision a reality, this reduces the chance of the decision maker making the right decision and can have a negative impact on other decisions.

The Importance of Decision Making:

As per Eisenfuhr (2011) as cited by Lunenburg (2010) decision making can be defined as “a process of making a choice from a number of alternatives to achieve a desired result”.

Franklin (2013) stipulates that the quality of a decision being made depends on the decision makers ability to conduct a rational analysis of the decision situation. Decisions made in business can directly affect the performance of the business and can impact how well the business meets their objectives (Franklin:2013). The author states that an essential skill for managers to have is decision-making, and understanding decision-making is necessary.

Lantham (2015) concurs with Franklin (2013) by explaining that decision making is important because it creates a culture of clarity. Lantham (2015) explains that decision making follows a four-step process, these steps are statement, objectives, alternatives and risks, following these steps means that you are able to make better decisions. Lantham (2015) explains that decision making can impact the way businesses use and allocate resources, without a decision maker resources could be incorrectly allocated. Decision making ensures that their contribution is more effective, including employees in the decision-making process gives them the sense of belonging and will help bring about better decisions being made (Lantham:2015).

Cronje, Ferreira and Antwerpen (2017) agrees with Franklin (2012) and Lantham (2015) by stipulating that businesses should become more aware of their decision making, this is because businesses' decisions can have an impact on the community around them, thus, small businesses have to make decision that will have a positive impact on their stakeholders and the environment they operate in. Cronje et al (2017) further explains that decision making may differ from one small business to another, and these decisions can also be influenced by the individual's views and beliefs, thus, small businesses have the opportunity to shape their own business with the decisions they make.

Decision Making in Small Businesses

According to Jocumsen (2002) defines a small business as “those which are of small size in the contexts of their particular industries and have significant independent and principle power of decision making residing in single individuals, with ownership usually but not necessarily residing in management”. Jocumsen (2002) explains that decisions in small businesses can be regarded as a series of “steps” or “phases”, and these steps can be conducted in different “ways” or “steps”. General steps that are included in the decision-making process are decision emergence, information gathering, selection of the decision

criteria, data collection and analysis, evaluation, decision selection and finally final comments of the decisions chosen. Jocumsen (2002) conducted in-depth interviews, the results of the interviews were that respondents expressed that there are many steps that go into the decision-making process and many of these steps evolve as the decision-making process goes on. Jocumsen (2002) concluded that small businesses have a less complex decision-making process than larger organisations. Jocumsen (2002) further explains that small businesses will benefit more from the decision-making process if information gathering and internal matters are understood.

Lunenburg (2011) concurs with Jocumsen (2002) by stipulating an informed decision can be made when there is more information available to the decision maker. Lunenburg (2011) explains that it is not only managers in a business that are part of the decision-making process but the employees as well. Building on the study conducted by Lunenburg (2011), Cronje, Ferreira and van Antwerpen (2017) stipulate that decisions in small business seek and evaluate alternatives before choosing the correct course of action. Cronje et al (2017) explain that small businesses' decision making is different to that of larger organisations, larger organisations have a more structured framework with a clear hierarchy in decision making, and these decisions will not have a personal influence. In small businesses, ownership generally resides in the same person, which leads to personal decisions being made on how to use company resources (Cronje et al:2017).

Cronje et al (2017) explains that decision makers in small businesses depend on their experience and knowledge on various social phenomena for their own judgement. Cronje et al (2017) further explains that decision makers are in the middle of where all business activities start and have an impact on the direction of the small business. Decisions made in small businesses require an emotional, perceptual and cognitive process which helps lead managers to their final decision. Drawing on the literature of decision making in small businesses, decisions made in a small business depends on the decision makers' social phenomena, and the steps in the decision-making process may evolve when there is more information at the decision makers disposal.

Impact of Technology on Decision Making

Professor of Educational Research and Statistics Carla J. Thompson (2012) conducted a research study where the purpose of the research study was to understand how technology can impact decision making in high schools. Thompson (2012) explains that the research study is aimed at understanding how effective the use of technology can be in classrooms and how it can improve decision making within. Thompson (2012) concluded that the use of

technology in the classroom displayed an improvement in the cognitive ability of learners, the study also concluded that the use of technology in classrooms provided learners with more information which helped them to make more informed decisions.

An article written by Linton (2017) explains that technology has provided decision makers with more information which helps them improve the quality and speed of the decision being made. The author further explains that technology has also help individuals to collaborate and make joint decisions. Linton (2017) discusses several aspects that technology has improved decision making. The first aspect that the author discussed is information, with organisations investing in a networked data management system, this enables the decision makers to have more information at their fingertips, which helps improve decision making. Linton (2017) uses an example of organisations linking a central database to a local retail outlet which enables the organisation to collect the latest data on sales and make decisions based on this information, this is the second aspect, which involves the collection of data. Another aspect where technology has improved decision making is in groups, this means that group members are able to access information on a project via a network, these groups can also use video conferencing to conduct meetings on the project they are collaborating on (Linton:2017).

Ramrathan and Sibanda (2017) concurs with Linton (2017) by stipulating that technology has aided businesses in making faster decisions and has made decision making more efficient because of the data that is available. Ramrathan and Sibanda (2017) explain that decision making is an analytical process, the advancement in technology has help unveil large amounts of information, and because individuals do not have the capacity to process all information and consider each possible alternative, technology with the endless processing power to analyse information is able to produce a result in a short amount of time. Ramrathan and Sibanda (2017) concluded that technology has become a central point in decision making, therefore organisations should not disregard technology in their decision making because large amounts of information can be accessed with a touch of a button when aligned with technology. The authors further explain that for technology to be effective in decision making, the strategies around the use of technology should be implemented from the top down.

Impact of Technology on Small Businesses

Technology: As per Mascus (2003) as cited by Wahab, Che Rose and Osman (2011) technology can be defined as “information necessary to achieve a certain outcome from a particular combination of selected inputs which include production processes, intra-firm,

organisational structures, management techniques, and means of finance, marketing methods or any of its combination”.

Ramey (2012) explains that technology has presented small businesses with endless opportunities by making the impossible possible. Ramey (2012) discusses several aspects of how technology has impacted small businesses, the first being that technology has impact businesses' *data system*, small businesses can now store all their data in an organised manner with the use of a computer. Small businesses can use *customised marketing* to meet the needs of their customers because they are able to track what customers are interested in (Ramey:2012). Small businesses can set up *electronic stores* without a physical infrastructure and at a relatively low cost as well, Ramey (2012) further explains that small businesses are able to save money because they do not need a technical person to design their online store because there is software that helps them set it up. Lastly, technology has also helped small businesses with *simplified communication*, businesses can contact suppliers and employees via email, businesses can also use social media to communicate with their customers (Ramey 2012).

Jones, Borgman and Ulusoy (2014) concurs with Ramey (2012) by explaining that business use social media and websites to reach a large part of their customer base. As per Bennett (2012) as cited by Jones et al (2014) 73 percent of small businesses were making use of social media, of these small business 81 percent said they were going to increase their usage of social media. Jones et al (2014) explains that it is important for businesses to use social media because 66 percent of people use social media to learn about products and services and customers trust other users more than commercial advertising. Jones et al (2014) further stipulates that the use of technology provides businesses with many benefits, thus, the use of social media and websites provide opportunities for new channels of distribution, communication and marketing. Furthermore, Jones et al (2014) concluded that technology can help small businesses create brand awareness, better relationships with customers, and can increase sales over time.

Olson (2017) explains that the exponential rate at which technology is developing is astonishing, and technology has changed the way businesses is being conducted. Olsen (2017) explains that if we had to go back five years to understand how much technology has changed we would see, first, social media would be struggling to participate in the promotion of consumer needs, second, mobile phones would be used casually rather than for work, and finally, the use of cloud-based solutions in small businesses would be non-existent. Building on what Ramey (2012) discussed, Olsen (2017) explains several ways in which

technology has changed the way business is done, the first being *mobile solutions*, business can be conducted from a remote location if your smart phone is loaded with the right software. Olsen (2017) discusses *cloud computing* as the second way that technology has change how business is done, this is because cloud computing allows the movement of some operations to third-party servers via the internet which allows for rapid expansion and mobility without the fear of lost data. Olsen (2017) does address one disadvantage of the use of technology and that is the *decrease in downtime*, this is because individuals have constant access to their emails and text message, which means that although an individual might be on “vacation”, inevitability that person will want to make sure the business is running smoothly while they are away.

Technology has had a positive impact on business, but there are some authors that have identified the drawbacks technology has placed on business. According to Hanly (2018) technology has presented the opportunity for businesses to conduct meetings without being physically present but the drawback of this is that there is no face-to-face interacting and meeting become less personal, thus technology has decreased the personal aspect of business relationships. Another issue that Hanly (2018) discusses is that technology can have an impact on employee morale, with organisations installing monitoring software, employees may feel like that they are not trusted.

Gartenstein (2018) concurs with Hanly (2018) by explaining that technology has make communication in the business impersonal and can create a false sense on knowledge. Gartenstein (2018) explains that technology can be costly, this is because technology needs to be upgraded and maintained, employees also need to be trained on how the information system in the organisation works, this means that technology can become costly for the business. Gartenstein (2018) stipulates that technology can also present many privacy issues, this is because with companies being able to effectively target advertise and promote, customers might see companies keeping their information a violation of their privacy.

In conclusion, technology has made an impact on decision making, technology has even made an impact on the way business is done which is evident throughout this literature review. This literature review has provided an in-depth understanding of the importance of decision making, how technology has impacted small businesses, and how technology has impacted decision making. The literature review further explains that technology has made an impact in business and in decision making, and if small business integrate technology correctly in their business, decisions will be able to be made faster because of the increase

in access to information, technology also helps small businesses to reach a larger customer market. Thus, this research study wants to further explore how small businesses use technology in their decision-making process.

Research Design and Methodology:

Research Design:

Research Paradigm:

A paradigm can be defined as a cluster of beliefs and describes what should be studied, how the research is conducted and how results are understood (du Plooy-Cilliers, Davis & Bezuidenhout 2016:19). The selected paradigm that will be discussed for the purpose of this research study is interpretivism. According to du Plooy-Cilliers et al (2016:27) interpretivism was developed to address the shortcomings and the limitations that positivism presented, especially in social sciences. Thus, the main idea is that people are different from objects, this is because people change over time and the environment they are in can influence them. Du Plooy-Cilliers et al (2016:34) further explain that the reason behind using an interpretivist study is to understand and describe meaningful social actions and experiences, therefore interpretivists aim to provide rich data.

Dean (2018) concurs with du Plooy-Cilliers et al (2016) by explaining that the interpretive turn was developed to humanise the research process, which was aided at centralising human meaning and knowledge claims. As per Yanow (2006) as cited by Dean (2018) interpretivism has its limitations, one of the issues researchers discuss is that, interpretivism may not always have a concrete hypothesis prior to field work, the size of the studies may be too small, and lastly, they explain that there is a lack of generalisability and objectivity. Dean (2018) explains that these issues are a matter of philosophical differences, and thus interpretivists have developed trustworthy research practices to address these various issues.

Building on the interpretive theory, Bevir and Rhodes (2002) explains that there are different types of interpretive theories. There is a shared view that human affairs cannot be understood properly unless there is a grasp on the relevant meanings. Thus, relevant meanings can be expressed as beliefs, intentions, reason, or a system of signs. Bevir and Rhodes (2002) further explains that interpretivism follows two premises, the first premise being that people act on their beliefs and their preferences. The second premise discussed by Bevir and Rhodes (2002) is that people's beliefs and preferences cannot be understood

according to objective facts but should rather be seen as being subjective and influenced by their social class, race, or institutional position.

Therefore, as debated by the past literature, an interpretivist approach is most appropriate for this research study because the aim of this research is to understand how technology has impacted small businesses decision-making. An interpretivist study is about understanding human experience and states that people are influenced by their environment (du-Plooy Cilliers, Davis & Bezuidenhout:2016), this research wants to provide rich data because it will be following a qualitative approach. An interpretivist approach will further help the research gain an in-depth understanding about the social phenomena that have impacted how small business owners make their decisions. This approach provided the researcher with an understanding of how small businesses experience day-to-day work and how these experiences have had an impact on their decisions.

Epistemological: this research study deems subjective knowledge important, therefore the aim was to explore how technology has impacted small businesses in-depth.

Ontological: this research views reality as a social construct and was determined by people's experience with one another.

Axiological: this research values the complex understanding of how small business perceive technology and the impact technology has made on their decision-making process.

Conceptual Approach and Design:

The nature of this research was qualitative. Qualitative research is about understanding and exploring human behaviour, their relations between actions and their themes in behaviour and a qualitative study is subjective and wants to interpret the social phenomena that impact individuals (du Plooy-Cilliers, Davis & Bezuidenhout 2016:15). DeFrance (2011) concurs with du Plooy-Cilliers, Davis & Bezuidenhout (2016) and states that qualitative research is about gaining an in depth understanding of human behaviour and can also be used to uncover trends in thoughts and dive deeper into problems.

The researcher selected the qualitative approach because the researcher did not want to predict, control, or generalise the outcomes of the research study (DeFranzo, 2011). Rather the researcher aimed to understand how technology has made an impact on small businesses decision-making and has ultimately explore whether small businesses integrate technology in their decision-making process. A qualitative research study also helped the researcher understand how individuals in small businesses interpret technology, in the

sense that, whether small businesses integrate technology into their businesses to help them be more competitive.

For the purpose of this research study the researcher established that deductive reasoning will best suit this study. Where inductive reasoning is aimed at using existing knowledge to predict outcomes of a study (Hayes, Heit & Swendsen, 2010). Deductive reasoning is aimed at exploring broad and general research topics which are applied to a more specific topic under observation (du-Plooy Cilliers, Davis & Bezuidenhout 2016). Deductive Reasoning helped the researcher build on the existing body of knowledge. Deductive theorising helped the researcher to explore the general impact of technology, which was then applied to a more specific topic consisting of small businesses decision making.

This research study was an exploratory study. Exploratory research is aimed at helping provide a greater understanding on a concept or research problem (Manerikar & Manerikar, 2014), du-Plooy Cilliers, Davis and Bezuidenhout (2016) further explain that in order to understand an unknown area of study exploratory research must be flexible. Exploratory research was suited for this research study because this research study was aimed at exploring how technology has made an impact on the decision-making in small business. Exploratory research was also best suited for this study because with the technology systems evolving this helps provide new areas of research.

The research study followed a case study approach, this was because the research wanted to provide a detailed description of a social phenomenon, a case study approach allowed the researcher to gain a deep understanding within a natural context (du-Plooy Cilliers, Davis & Bezuidenhout 2016:178). The researcher selected a case study approach because research approaches like ethnographic and participative are based on doing field research. The researcher aimed to understand the lived experiences of the participants, thus a case study approach helped the research achieve this.

A cross-sectional design was implemented during this research study, a cross sectional design is only implemented once, where participants answer a series of questions that the researchers has constructed (du-Plooy Cilliers, Davis & Bezuidenhout 2016). Therefore, a cross-sectional design helped the researcher create an overall picture of the impact technology has on small business, and this was achieved through the set of question that participants has to answer.

Methodology:**Population:**

Unit of Analysis: Individuals

Target Population: Individuals who own small businesses.

Accessible Population: Individuals who own small businesses in Durban.

Population Parameters:

- 1) Individuals who own small businesses
- 2) Individuals who live in the Durban area

Sampling:

Non-probability sampling was used to conduct the research for this topic, non-probability sampling was suited for this research study because the research study will be qualitative and probability sampling will not provide the researcher with the tools needed to conduct this study. Non-probability sampling was also suited for this research study because it was challenging for the researcher to gain access to the entire population of individuals who own small businesses (du Plooy-Cilliers, Davis & Bezuidenhout, 2016:137). Thus, with the strict population parameters the researcher was able to narrow down the population size to individuals who own small businesses in Durban.

The sampling method that was used during this research study was purposive sampling. Purposive sampling was used because the researcher has strict population parameters and did not want to include the entire population (du Plooy-Cilliers, Davis & Bezuidenhout, 2016:143), thus participants were selected according to the list of characterisers that was structured through the research questions.

For the purpose of this study a sample size of two (2) individuals were most appropriate because this helped ensure that the researcher gained an accurate reading of the data that was collected from the selected individuals. The aim was not to generalise the findings and the researcher wanted to gain rich data from the participants (du Plooy-Cilliers, Davis & Bezuidenhout, 2016:134).

Data Collection Method:

As stated by du Plooy-Cilliers, Davis and Bezuidenhout (2016:173) a qualitative collection method aims to gain an in-depth understanding of human experiences, this involves personal and subjective quirks that are associated with a certain phenomenon. Thus, qualitative research does not convert their observations into numerical data. Furthermore,

qualitative research is about understanding and exploring in-depth data that is collected by the research (du Plooy-Cilliers, Davis and Bezuidenhout 2016:174).

An interview can provide a researcher with a number of advantages, the first was that the researcher is able to have a face to face meeting the participant, this then allowed the researcher to gain as much information as possible which was another advantage to the research study. The third advantage is that an interview is less costly than other data collection methods, and the final advantage was that an interview is flexible, this allows the researcher to interview participants in their own time (Sisk, 2018). There are disadvantages to using an interview, Sisk (2018) identified that the inefficiency of the researcher can be a disadvantage because this could lead to misleading results. The second disadvantage that Sisk (2018) discusses is that the participant might have a lack of interest in some of the questions which could lead to inaccurate data.

The qualitative data collection method that was used for this research study was an interview, this was because the researcher aimed to gain an in-depth understanding of how small business make their decisions and how technology has impacted or changed the way they make decisions. A standardised interview allowed the researcher to ask the participants the same set of questions which means that the researcher was able to compare the notes from each participant in an organised manner (du Plooy-Cilliers, Davis & Bezuidenhout, 2016:173). Although there are disadvantages in using an interview, the researcher felt that an interview was best suited for their research study, the researcher thus took extra steps to make sure that they did not experience the disadvantages that were discussed. Thus, an interview helped the researcher gain an understanding of the views and opinions of each participant.

Data Collection Procedures and Materials Used:

The researcher used an interview to gain data from participants, the researcher met with each participant in a quiet environment, the researcher then introduced themselves and explained the aim of the study and what the research study is about. The researcher then asked the participants a set of questions, once the interview was completed the researcher thanked the participants for being a part of their research study. The researcher used their phone to record the interviews of the participants, the researcher then used a transcription programme that helped with transcribing the data from the interviews. The researcher used their laptop to transcribe the information and a set of headphones to listen to the audio recordings.

See Annexure for the interview schedule.

Data Analysis Method:

According to du Plooy-Cilliers, Davis and Bezuidenhout (2016:234) qualitative content analysis is used to explore and identify themes in a certain text. Thus, qualitative content analysis pays attention to each of these themes that demonstrate a meaning of the phenomena (du Plooy-Cilliers, Davis and Bezuidenhout 2016:234). Upon consideration the researcher decided to use thematic coding instead of line-by-line coding because thematic coding reduces the data by making use of themes, thus grouping the data together ((du Plooy-Cilliers, Davis and Bezuidenhout 2016:241).

A qualitative content analysis method was most appropriate for this research study because the researcher wanted to gain a deeper understanding on how the advancement in technology has impacted small businesses decision-making. Therefore, a content analysis was used because it helped the researcher identify themes that are related to small businesses and how technology has impacted their decision-making process (du Plooy-Cilliers, Davis & Bezuidenhout, 2016:234).

Thematic coding best suited this research study because it allowed the researcher to group the data collected according to themes, thus, making the data collection process simpler (du Plooy-Cilliers, Davis and Bezuidenhout 2016:240). Once the researcher had collected the data from participants, the researcher grouped the data according to themes that were identified during the data collection process, this ensured that the data was analysed according to the themes from the data.

Findings and Interpretation of Findings:

Decision Making:

Importance of Decision Making:

Franklin (2013) explains that the quality of a decision being made depends on the decision makers ability to conduct a rational analysis of the decision situation. Franklin (2013) further stipulates decisions that are made in business can directly affect the performance of the business and can impact how well the business meets their objectives.

When the researcher interview Ben, they explained that decision making is important, and interpreted the importance of decision making as follows:

Ben: It determines workload...without information you can't make informed decision...We need information to be able to make informed decision... It's very important to keep track of what's going on in insurance.

The above statement explains that decisions are made on the information that they have, the more information available the more informed the decision can be. Having a large amount of information can help Ben's business make the right decision, because the individual works in insurance, decisions become importance and thus links back to how much information they are able to obtain.

Lantham (2015) explains that decision making follows a four-step process, these steps are statement, objectives, alternatives and risks, following these steps means that you are able to make better decisions. The author explains that decision making can impact the way businesses use and allocate resources, without a decision maker resources could be incorrectly allocated.

Ben: System says one thing and your gut says something else, find out why it's different and uhm sometimes it's just better to go with your gut...Planning routes and meetings for our clients that is also an aspect...You see you can route it so that you stay one night over and see four-five clients instead of going four-five times"

Susan: Yeah, definitely, um, in the beginning you a bit desperate so any client goes but as you carry on and how you progress and how you developed...so, I need to think about what they are marketing, what's happening in house, um, what is their competitive advantage.

The statements provided by Ben and Susan display similarities with Lantham (2015) both individuals explain that there is planning when it comes to decision making, it can be seen

that the individuals use the four-step process that Lantham (2015) discusses. Ben explains when traveling they need to ensure they are able to serve four to five clients in a day that are in the same area, by doing this they reduce the risk of travel to the same place four or five times in a given period. Susan explains that she “needs to think about what they are marking”, this impacts the decisions being made and is important when working with her clients because she has to ensure the correct information is used, this helps her give her clients the best possible opportunity for a competitive advantage.

Susan: I wouldn't say it affects my decision making, obviously which platforms to use is a big decision...Let's say that you have Facebook and Instagram they don't exactly need twitter, there's not much happening in their company, they're not getting a new bed in every day...I also need to be careful which clients I choose and take on board with me...So, it's a lot of prep that goes behind the scenes and then obviously every month you focus on a different aspect and you have to keep up with the trends and remain relevant...I couldn't take on Aspen Holdings selling pharmaceuticals because there's too many legalities.

Cronje et al (2017) explains that decisions can impact stakeholders in a small business, thus small businesses need to be aware of the decision they make. The above statement corresponds with Cronje et al (2017). Susan explains that deciding on which social media platform to use for their client is important because it can impact how they market the product, deciding on the social media platform can also impact how many profiles are managed and which platforms are used to market the products. The decision making does not stop at which platform to use, Susan further explains that which client to use is also an important decision because there could be legality issues, and thus, there is a lot of preparation that goes into what to present clients.

Process:

Frankenberger and Albaum (1997) explain that behavioural decision theory was introduced by Simon's (1959) notion of bounded rationality. This notion explored individuals limited cognitive resources for handling decisions. The behavioural decision theory helps address the issues by exploring how the decision maker incorporates their beliefs and values in their decisions (Lau & Levy:1998). Therefore, individuals develop cognitive shortcuts that have allowed them to make decisions that are reasonable.

Ben: It's also in our industry specifically ethical behaviour is governed by a uhm a body...We tend to believe that you do the right thing and the right things will come right...It's governed and obviously I can't it's new ideas new concepts and I can't exactly, but I'd like to believe that our values and morals stand with what the industry's really governed and uhm we act right that way.

By examining the statement above it can be seen that Ben uses the behaviour decision making process because he believes their "values and morals stand with what the industries really governed", which corresponds with Frankenberger and Albaum (1997) and Lau and Levy (1998) who explained that behavioural decision-making addresses how individuals incorporate their beliefs and values in their decisions. Ben explains that with the industry they work in their behaviour is governed and thus they incorporate their beliefs and values into a "governed body" which ensures they make ethical decisions.

Although it can be seen that Ben uses the behavioural decision-making process, Susan can be seen following a different decision-making process.

Susan: For the beginning, the initial strategy and then like, every 2 month basically you can go recognise one and change it um...the descriptive...about how my values and beliefs kinda direct my decisions...because I'm a small business it's more about one on one with the client about being on the ball, being relevant, being available...that kind of, steers my decision making.

Hansson (2005) explains that a descriptive decision theory is how decisions are actually made. Slovic et al (1977) further stipulates that the descriptive theory is about describing these beliefs and values and how individuals incorporate them into their decision making. Thus, it can be seen that Susan uses a more descriptive approach to her decision making as compared to Ben. Susan feels that her beliefs and values have helped guide her decision making in her small business, and this is due to the interactions with the clients and ensuring that she is able to keep the client happy.

Use of Technology:

Competition:

Ramey (2012) explains that technology has presented small businesses with endless opportunities by making the impossible possible. Ramey (2012) discusses several aspects of how technology has impacted small businesses, the first being that technology has impact businesses' *data system*, small businesses can now store all their data in an organised manner with the use of a computer.

Ben: Our server which has a database of all the clients the information on it...Okay uhm the server gets backed up five days a week...On a different back up every day of the week and it gets a separate back-up once a month...it also has to be encrypted uhm because we hold all the banking details of every one of our clients...If you look at industry as a whole... it helps with your service, but it doesn't it doesn't give you better I don't know how to say not service, but it doesn't provide better cover...So, your service levels do improve because everything's happens quicker.

Ben explains that all their client's information is stored onto a serve and is then backed up, this is one way that small businesses are able to use technology, as Ramsey (2012) mentions this is the use of a *data system*. All client's personal information is store and then encrypted to ensure that none of the client's information can be stolen. Ben's business displays great use of a data system because he runs an insurance company, all the information is store and readily available for use. Ben further stipulate that because they are able to store more information, they are now able to serve more clients and at a quicker rate.

Small businesses can use *customised marketing* to meet the needs of their customers because they are able to track what customers are interested in (Ramey:2012). Ramey (2012) further explains that small businesses are able to save money because they do not need a technical person to design their online store because there is software that helps them set it up. As per Bennett (2012) as cited by Jones et al (2014) 73 percent of small businesses were making use of social media, of these small business 81 percent said they were going to increase their usage of social media.

Susan: I depend on technology and the more platforms that become available...The more platforms there are the more money I make because I have more to offer... Obviously Facebook, Instagram, Twitter, all the social media platforms for my clients and I use pages manager to manage my Facebook pages... Obviously my whole business is around technology.

Susan explains how her business is dependent on technology, she also explains that social media has helped developed her business because she able to offer her clients a variety of social media platforms. With this Susan is able to practice customised marketing because she is able to monitor what her client's customers want, she is then able to market to these customers using the relevant social media platforms. The above statements provided by Ben and Susan display how each business uses technology for their own advantage, both businesses rely on technology but use them in different ways.

Advantages of Technology:

An article written by Linton (2017) explains that technology has provided decision makers with more information which helps them improve the quality and speed of the decision being made. The author further explains that technology has also help individuals to collaborate and make joint decisions. Linton (2017) discusses several aspects that technology has improved decision making. The first aspect that the author discussed is information, with organisations investing in a networked data management system, this enables the decision makers to have more information at their fingertips, which helps improve decision making. The second aspect involves the collection of data, this helps businesses collect a large amount of data which can be used to make decisions on sales or what to market. Another aspect where technology has improved decision making is in groups, this means that group members are able to access information on a project via a network, these groups can also use video conferencing to conduct meetings on the project they are collaborating on (Linton:2017).

Ben: BI is very important everywhere...it's used in everything that we do: numbers, insurers uhm when an insurer starts giving you grief...without BI and we can say but why are your figures so skewed or yes you're on point uhm it's used everywhere...people can mislead you know so if someone's loud you know it tends to mislead you, but numbers don't lie... if the system says one thing and someone else is saying something else you go figure out why and uhm it's usually the person that's lying not the system...the systems keep track of it to the T... you can be held accountable for every action that you do.

The above statement displays how technology has helped Ben in his small business, Ben explains that without BI clients might take advantage of his insurance company because their figures might be skewed. This above statement corresponds with the article written by Linton (2017) which explained how technology has helped decision making in small businesses. The use of technology has helped Ben in keeping track of client's information and their insurance policies. Ben explains that individuals are willing to mislead you, but with the use of "the system" numbers do not lie, and individuals become accountable for all their actions.

Ramrathan and Sibanda (2017) stipulate that technology has aided businesses in making faster decisions and has made decision making more efficient because of the data that is available. Ramrathan and Sibanda (2017) explain that the advancement in technology has help unveil large amounts of information, and because individuals do not have the capacity

to process all information and consider each possible alternative, technology with the endless processing power to analyse information is able to produce a result in a short amount of time

Ben: So, your service levels do improve because everything's happens quicker...It gives you access uhm to be able to service I'd say at least 50 to 100 percent more clients per person...the system and the system just do everything one person that used to be able to service 100 people can now service three- four hundred people.

With the advancement in technology individuals are able to serve clients quicker and has also increase the number of clients that can be served. This is evident in the statement given by Ben, he explains that "service levels do improve because everything's happening quicker" this is reference to how technology has advanced the amount of information available to individuals, with the use of technology more clients can be served, this is evident by Ben stating that "one person that used to be able to service 100 people can now service three-four hundred people".

Jones et al (2014) by explaining that business use social media and websites to reach a large part of their customer base. Jones et al (2014) explains that it is important for businesses to use social media because 66 percent of people use social media to learn about products and services and customers trust other users more than commercial advertising. Jones et al (2014) concluded that technology can help small businesses create brand awareness, better relationships with customers, and can increase sales over time.

Susan: you google a lot with like setting up a pixel to your Facebook page, to link your Facebook to your website to get customers...Obviously google will help a lot and that's how technologies have also helped me develop my business...with the rate that technology is moving it needs to be and instant response... Facebook is very like, um, business orientated obviously because they have boosting of posts and, um, business profiles.

Susan explains how technology has been used to develop her business, with the use of social media, she is able to select a variety of social media platforms for clients, each platform can be used to market to customers. Susan's statement corresponds with Jones et al (2014) by agreeing that businesses use social media to target a large customer base. With the development of technology, small businesses are able to offer customers more services and products and this can lead these businesses to gain a better reputation with customers and clients.

Ben: There's the gap the it makes the gaps smaller because you get to I'd say you operate at the same efficient level... It helps bridges a certain portion of the gap.

Susan: Because we all on the equal playing field, so let's say my small client Funky Pants they can be on the same platform as Coca-Cola, so technology has kinda evened the playing field...well any social platform does even the playing field but it's what you do with it.

The above statements provided by Ben and Susan correspond with each other which explain that technology has help them bridge a gap, but it also comes down to how individuals use the technologies that are available. The gap being discusses can be referenced to Olson's (2017) article which stipulates that with the exponential rate at which technology is developing is astonishing, and technology has changed the way businesses is being conducted. The author further explains that the technology has help small businesses close a gap between larger organisations, meaning that they are able to compete with these larger organisations. The use of technology has helped Ben and Susan in creating their business, as they discussed technology can close a portion of the gap between larger organisations, but it does come down to how the technology is used that sets small businesses and large organisations apart.

Disadvantages of Technology:

Hanly (2018) explains that although technology has presented the opportunity for businesses to conduct meetings without being physically present but the drawback of this is that there is no face-to-face interacting and meeting become less personal, thus technology has decreased the personal aspect of business relationships

Ben: It does limit it because there's less human interaction...If we're down the longest we'll be down is I'd say six to eight hours...The systems in place they can help in building and breaking those relationships...The technology behind it doesn't help in servicing clients at all... It doesn't help build the relationship aspect.

Susan: I don't need to see them, because everything is corresponding through technologies, I don't know what their tones is, I don't know how they feel...So, I know it's easy enough to just pick up a phone and call them but what am I going to say, hello how are you, just checking up, everything's fine, so it is a bit like having anxiety, how they are perceiving you work and if they happy...I think it does, let's just say on WhatsApp you can put emoji's, but clients don't put emoji's too you.

The statement provide by Ben displays evidence of the limitations to technology which has been discussed by Hanly (2018). With the use of technology, the human interaction has been taken away, this is because the world has gone digital. Ben explains that in his business most of their work comes down to the relationships they have with their clients, with technology relationships cannot be built thus, reducing human interaction can ruin relationships with clients. Susan displays a similar view on technology creating a barrier between human interactions, she explains that because most of her work is done with the use of technology and how she communicates with her clients is with the use of technology, she does not know how her clients preserve her work, or how they feel. Susan states that because of this there is an increase in anxiety because you do not know what the clients think of your work.

Gartenstein (2018) explains that technology has make communication in the business impersonal and can create a false sense on knowledge. Gartenstein (2018) explains that technology can be costly, this is because technology needs to be upgraded and maintained, employees also need to be trained on how the information system in the organisation works, this means that technology can become costly for the business.

Susan: There is no 8 to 5 when you, work for yourself or when you work with technology, um, because it is so dynamic, and you have to keep on the ball and you

need to keep monitoring your social media pages...There is no such thing as a holiday... I went away for a week now, I tried to prepare as much as possible before in order to not do any work while I was away, but I still ended up doing work... I could work for hours and not even realise the time and because then I work from home...Clients don't understand when you're on holiday and they don't understand when its 10 o'clock at night and they send you something, why you not putting it on their page or why you not responding, so clients have become very demanding... it does get quite frustrating...It's a lot about insecurity because you don't know how they thinking... because everything is corresponding through technologies

Susan explains that when owning your own business, technology has made it that clients want more from you, and you do not have conventional working hours. With the advancement in technology Susan has to keep up to date with what is happening on her client's social media pages, if she does not then there is the potential to lose customers and she could fall behind with work. One disadvantage identified by Susan is that technology has prevented you from resting, as Susan explains "There is no such thing as a holiday... I went away for a week now, I tried to prepare as much as possible before in order to not do any work while I was away, but I still ended up doing work" this shows that with the advancements in technology is has reduced individuals "down time", meaning that individuals have less holidays.

Gartenstein (2018) stipulates that technology can also present many privacy issues, this is because with companies being able to effectively target advertise and promote, customers might see companies keeping their information a violation of their privacy.

Susan: You know you just save your password... they say you shouldn't do that now because that's also how they get your information, so it's become unsafe... because people's bank accounts get hacked and every because people save their passwords on their...I'm at risk if their profile gets hacked, so technology is not always friendly.

Gartenstein (2018) explains that technology can also present privacy issues, Susan has identified how her business can experience privacy issues. Susan explains that with the advancement in technology is has become easy for individuals to hack accounts, thus because she manages client's social media pages, she is at risk to have these accounts hacked, and this can cause clients to lose faith in her ability to manage these accounts.

Trustworthiness:

For this research to ensure that the evidence presented is trustworthy, there are several different criteria that the researcher acknowledged that aided the researcher in determining the trustworthiness of this research study. Trustworthiness can be referred to as the reliability and validity of the data presented in a qualitative study, thus it easier for the researcher to measure reliability and validity in a qualitative research study because the research is based on causal relationships (du Plooy-Cilliers, Davis and Bezuidenhout 2016:258). Trustworthiness is divided into four factors that the researcher had to consider, these factors are credibility, transferability, dependability, and confirmability (du Plooy-Cilliers, Davis and Bezuidenhout 2016:258).

Credibility: According to du Plooy-Cilliers, Davis and Bezuidenhout (2016:258) credibility refers how accurate the data is interpreted. There are several ways in which the researcher can increase credibility. Credibility can be increased by making used of triangulation, this is the process of using more than one research method, credibility can be increased when the researcher spends long periods of time with the participants, the last way credibility can be increased is ensuring that the findings are believable through the participants perspective (du Plooy-Cilliers, Davis and Bezuidenhout 2016:258).

To ensure the credibility of this research study, the researcher made use of triangulation, in doing this the researcher conducted an in-depth interview, this ensured that each participant contributes to the research study. By the researcher including each participant in the research study it allowed that each participant was included in the findings of this research study. Therefore, the participants had an influence on the credibility this research study.

Transferability: Transferability can be defined as the ability to apply the findings or results of a research study to similar situations that can provide the same results (du Plooy-Cilliers, Davis and Bezuidenhout 2016:258). This ensures that the findings allow for a certain degree of generalisation. Therefore, it can be stated that this allows for the results and analysis to be applied beyond a specific research study (du Plooy-Cilliers, Davis and Bezuidenhout 2016:259).

To apply transferability to the impact of technology on small business decision making a degree of generalisation has to take place. Therefore, having generalised the findings of this research study it can be stated that if this research is applied to a similar situation, the researcher would be able to obtain the same results.

Dependability: Dependability to the integration of the data collection method, data analysis and the integration of the theory that is generated from the data (du Plooy-Cilliers, Davis and Bezuidenhout, 2016:259).

The application of dependability would be surrounded by the overall coherence of this research study. The researcher incorporated a high level of integration between each phase in the data collection method and data analysis, this was then reinforced by ensuring that there is a clear integration and transition of the data collected from the research study.

Confirmability: As stated by du Plooy-Cilliers, Davis and Bezuidenhout (2016:259) confirmability has been defined as how well the data collected by the researcher supports the findings of the research. Confirmability also refers to how well the data flows in relation to the findings, this process requires the research to describe the research process fully in order for others to examine the research design.

The confirmability for this research study depended on how the information was collected and how it was interpreted by the researcher. Thus, the researcher applied the findings to the past literature to ensure that there was a clear link between that research topic and the research questions. To further ensure confirmability the researcher add a step by step process they took to ensure that the result obtain was valid and trustworthy.

The researcher considered the above mentioned factors for trustworthiness, to further ensure that the research obtain was trustworthy, the researcher met with each participant in a quite environment. The researcher met with each participant individually to discuss the set questions created by the researcher, the researcher had asked participants to sign consent forms for both the participation in the research study and for the researcher to record the interviews. The researcher ensured not to ask leading questions, the researcher and participants were not interrupted during the interview.

Conclusion:

The following three questions needed to be answered throughout this research study,

How has technology impacted the decision-making process in a small business?

Is technology an important factor in the decision-making process? And if so how?

How has technology changed the way business is conducted?

The goal of this research study was to understand how technology has impacted decision-making in small businesses. To do this, the researcher interviewed two participants, this provided the researcher with a large amount of data. The main findings of this research study were firstly, that technology has improved decision making in small businesses. Secondly, small businesses look at what technology to use in their business, meaning that technology has become an important factor in their decision making process. Thirdly, with the use of technology, decision making in small businesses has become quicker because businesses are able to analyse a large amount of information in a short period of time. Finally, technology has helped small businesses bridge the gap between themselves and larger organisations.

The research study builds a platform for future research in this field, this research combines two concepts that have not yet been studied in-depth: technology and decision making. Although there is research done on the impact technology has on small businesses and how decision making has changed in small business, there is little research done on how technology has impacted decision making in small businesses. It can be concluded from the findings that technology has an impact on decision making in a business, this can be achieved through maximising the efficiency of decisions with the use of technology. Technology has helped business process large amounts of information to ensure that an informed decision can be made.

The findings of this research study can help individuals explore a more in-depth approach to decision making in a business. The research study has explored various themes and each theme can be applied or explored more in-depth, to add to and create a new body of knowledge that can enable businesses to achieve a coherent flow of decision making. Furthermore, the findings of this study can help businesses incorporate more technology into their businesses, this can ensure that more effective and efficient decisions are being made in the business.

The success of this research study is determined by how well the questions have been answered and whether all questions have been answered. For this study the researcher was able to gain information that covered all three research questions. The goal of the study was achieved, thus creating a research study that can be further explored. With the world of technology constantly changing, it opens up endless possibilities for future research. One of these possibilities is Artificial Intelligence (AI) and how it can improve decision making. Although not directly stated by the participants, the researcher found the following two statements that could lead to future studies been conducted on AI and decision making.

Ben: "when someone wants something done, you get it done that day, usually within an hour"

Susan: "If your strategy is big, you have a lot of content and videos"

AI can be used to improve both the decisions needed to be made in the above statements. AI can be used to create the perfect strategy for a business that will enable them to make an informed decision on what someone is looking for. Although AI is not a new concept, Bordonaro (2018) stipulates that AI can be used in conjunction with Business Intelligence (BI), by doing this AI allows BI to tell you what questions to ask instead of answering the questions that were asked. AI allows users to augment their workflows, this means that workflows are created around answers rather than questions.

The world of technology is changing, businesses may find themselves falling behind if they do not use technology. Technology can help businesses in many different ways, one important way is in decision making, and with the rise of AI, decisions can become faster and more effective. There is a large amount of information that can be used to further explore decision making and how incorporating technology can benefit an organisation and even a small business.

Ethical Considerations:

According to du Plooy-Cilliers, Davis and Bezuidenhout (2016:263) ethics is an individual's moral or professional code of conduct that sets the standard for the behaviour and attitude of an individual. Ethics forms an important part of research, this is because that ethics can affect all of the stakeholders in a research study. Therefore, there are certain aspects the researcher needs to consider and look at when it comes to ethics. The researcher needed

to consider ethical issues that affect not only themselves by the participants that are included in the research study.

Ethical issues that affect participants:

There are several ethical issues that can affect participants when a researcher conducts their research study. For the purpose of this research study some of the ethical issues that the researcher had to consider were, informal consent, collecting data from participants, dealing with sensitive information and confidentiality versus anonymity.

As stated by du Plooy-Cilliers, Davis and Bezuidenhout (2016:264) informal consent is when participants are unaware of when they are participating in a research study. Thus, it was imperative that the researcher provided each participant with a consent form indicating that each participant was willing to contribute to the research study. This research study used purposive sampling therefore the researcher had selected the participants and then approached the participants and provided them with the consent form which stipulated the nature of the research study and the purpose of the research study and it provided the participants with what is expected of them, this ensured that participants were aware of what was expected of them.

When it comes to the collection of data from the participants du Plooy-Cilliers, Davis and Bezuidenhout (2016:264) explains that the researcher must ensure the physical and psychological comfort of the participants, this can be done through ensuring that the researcher does not waste the time of participants through poor organisation, avoid having participants answer embarrassing questions, and informing the participants how their sensitive information will be protected (du Plooy-Cilliers, Davis and Bezuidenhout 2016:264). When collecting data during the research study the researcher will ensure that each participant was comfortable before the researcher conducted the interview, the researcher refrained from asking embarrassing questions during the interview and will ensure that the questions asked are related to the research study. The researcher also met with the participants in an environment that they selected and at a time that best suited them.

Another ethical issue that the researcher had to consider when conducting the research study was dealing with sensitive information provided by the participants. Some research studies may reveal sensitive information about the participants, thus an ethical researcher will ensure the protection of participants sensitive information (du Plooy-Cilliers, Davis and Bezuidenhout 2016:265). When conducting this research study, the researcher ensured the participants that any sensitive information revealed during the interview phase of the

research study was between them and the researcher. The information was not revealed to any outside parties other than the researchers supervisor, thus all information was known between the researcher, the participants and the researchers supervisor.

The last ethical issue that pertains to this research study was confidentiality versus anonymity. When conducting a research study, participants are concerned with the protection of their identities and their personal information (du Plooy-Cilliers, Davis and Bezuidenhout 2016:267). Thus, for this research study the researcher assured confidentiality of participants. According to du Plooy-Cilliers, Davis and Bezuidenhout (2016:267) confidentiality is undertaken when participants identities are known but their sensitive information is only known to the researcher. Therefore, the researcher ensured that participants sensitive information was only be known to them and the researcher's supervisor, and the participants were able to choose their own aliases during the research study.

Ethical issues that affect the researcher:

When considering ethical issues that affect the researcher there are several ways in which the researcher has to approach the data analysis and data collection to ensure there is no unethical behaviour. The ethical issues that could have affected this research study was falsifying information, allowing bias to influence the interpretation of results and misusing information (du Plooy-Cilliers, Davis and Bezuidenhout 2016:269).

Falsifying information was considered to be unethical because this could be a deliberate action of the researcher to fabricate or change the data. There are several reasons why a researcher would fabricate the data. These reasons include gaining status, to keep their funding, to keep employees happy, to avoid a boring data collection or analysis process (du Plooy-Cilliers, Davis and Bezuidenhout 2016: 269). When collecting and analysing the data for this research study the researcher ensured that all data was accurate and there was no deviation from the findings. The researcher ensured that they stuck to their ethical code of conduct and ensured that they had included all information that was collected during the research study.

The second ethical issue that the researcher had to consider during their research study was being bias. Bias has been defined as the desire of the researcher to achieve a particular result. In many cases researchers are unaware of being bias and thus, can affect their

results collected from the research study (du Plooy-Cilliers, Davis, Bezuidenhout 2016:271). During this research study the researcher avoided being biased by ensuring that the data collected from participants was exactly how the participants had stated their views on the topic. Therefore, the researcher also avoided bias to ensure that their credibility was not impaired.

Another ethical issue that the research had to consider was misusing the information obtained during the research study. Therefore, du Plooy-Cilliers, Davis and Bezuidenhout (2016:271) explain that information obtained during a research study may be used for other purposes, thus, it is unethical for a researcher to sell or present the information to third parties. To ensure that the researcher did not misuse the information of participants, the researcher adhered to an ethical code of conduct and stated to the participants that any information obtained during the research study will only be used in this study unless the participants have given permission to use the information for another purpose.

Lastly, to avoid any ethical issues during the research study, the researcher applied for ethical clearance to ensure they are able to conduct their research study. This research study made use of in-depth interviews, this means that the researcher applied for audio clearance in order for the researcher to record the interviews that are conducted. Applying for ethical clearance and audio clearance ensured that the research has been conducted in an ethical manner. To further ensure ethics throughout this study, the researcher gave each participant a consent form in which they gave the researcher permission to use them to conduct the research study.

Limitations:

When conducting a research study, a researcher may be faced with limitations or constraints, therefore for a researcher to correctly identify their limitations it can help guide them in the reporting of their findings. Du Plooy-Cilliers, Davis and Bezuidenhout (2016:275) explain that limitations are constraints that surface in a research study and are out of the control of the researcher. There are several constraints that a researcher may face, the following limitations were identified when conducting this research study.

The first limitation that the researcher faced was time, the researcher did not have enough time to conduct an in-depth study, therefore the researcher had to ensure they got enough information from the participants that are involved in the research study. The researcher only had nine months to conduct their research study, thus this created a time constraint for

this research study, meaning that the research could not conduct an in-depth exploration of the study.

The second limitation that the researcher faced was access to information. With there being a time limitation, the researcher was not be able to access all the information needed for their study, thus this means that the researcher had a limitation on the amount of information that they could collect when conducting their research study. The researcher also found that there was little information on their research topic, thus the researcher had to separate their study into two parts and then combine the information to create a holistic understanding of the topic.

The third limitation that this research study was faced with was that because the researcher did not have access to the entire population and had a time limit on the research study, only two (2) participants were interviewed for this research study, this meant that the researcher was not able to get a broader view on the research topic and had a limit amount of information that can be gathered from the participants. Both participants provided a large amount of information bud the researcher was not able to interview any other participants to have a deeper understanding of the research topic.

Word Count: 12517

References

- Akrani, G. 2011. Limitations of Decision Making in Management: Shortcomings. <http://kalyan-city.blogspot.co.za/2011/06/limitations-of-decision-making-in.html> >Last Accessed 11/04/18.
- Barron, F.H. 1974. Behavioural Decision Theory: A Topical Bibliography For Management Scientists. *The Institute of Management Sciences*. 5(1), pp. 50-62.
- Bevir, M., Rhodes, R. 2002. Interpretive Theory. <https://cloudfront.escholarship.org/dist/prd/content/qt0bk3k2nq/qt0bk3k2nq.pdf> >Last Accessed 03/04/18.
- Bordonaro, D. 2018. How is Artificial Intelligence Changing the Business Landscape? <https://www.forbes.com/sites/quora/2018/07/31/how-is-artificial-intelligence-changing-the-business-landscape/#4b92a5ff75f4> >Last Accessed 05/10/18.
- Buchanan, L. 2006. A brief History of Decision Making. <https://hbr.org/2006/01/a-brief-history-of-decision-making> >Last Accessed 11/05/18.
- Cronje, L., Ferreira, E.J. and van Antwerpen, S., 2017. Responsible business practices: Aspects influencing decision-making in small, medium, and micro-sized enterprises. *African Journal of Business Ethics*, 11(1).
- Dean, B.A., 2018. The Interpretivist and The Learner. *International Journal of Doctoral Studies*, 13, pp.001-008.
- DeFranzo, S. 2011. What's the Difference Between Qualitative and Quantitative Research?. <https://www.snapsurveys.com/blog/qualitative-vs-quantitative-research> >Last Accessed 20/05/18.
- du Plooy-Cilliers, F., Davis, C., Bezuidenhout, RM. 2016. *Research Matters*. 3rd Edition. Cape Town: Juta and Company LTD.
- Frankenberger, K., Albaum, G. 1997. Using Behavioural Decision Theory to Assess Advertisement Recognition Tasks by Level of Difficulty. *Psychology and Marketing*. 14(2), pp. 145-162.
- Franklin II, C.L., 2013. Developing expertise in management decision-making. *Academy of Strategic Management Journal*, 12(1), p.21.

Frick, W. 2018. 3 Ways to Improve your Decision Making. <https://hbr.org/2018/01/3-ways-to-improve-your-decision-making> >Last Accessed 10/04/18.

Gartenstein, D. 2018. The Positive and Negative Effects of Technology in Business. <https://bizfluent.com/list-6943594-positive-negative-effects-technology-business.html> >Last Accessed 02/06/18.

Gavetti, G., 2012. PERSPECTIVE—Toward a behavioural theory of strategy. *Organization Science*, 23(1), pp.267-285.

Hanly, S. 2018. Technology's Negative Impact on Business. <http://smallbusiness.chron.com/technologys-negative-impact-business-19118.html>> Last Accessed 01/06/18.

Hansson, S.O. 2005. Decision Theory: A Brief Introduction. file:///C:/Users/CarlJones/OneDrive/Honours/Research%20Honours%20Readings/Hansson_05.pdf >Last Accessed 04/04/18.

Hayes, B.K., Heit, E. and Swendsen, H., 2010. Inductive reasoning. *Wiley interdisciplinary reviews: Cognitive science*, 1(2), pp.278-292.

Hillman, R.A. 2000. Limits of behavioural decision theory in legal analysis: The case of liquidated damages. *Cornell L. Rev.*, 85, p.717.

Jocumsen, G., 2004. How do small business managers make strategic marketing decisions? A model of process. *European journal of marketing*, 38(5/6), pp.659-674.

Jones, N., Borgman, R. and Ulusoy, E., 2014. Impact of social media on small businesses. *Journal of Small Business and Enterprise Development*, 22(4), pp.611-632.

Lantham, A. 2017. 12 Reasons Why How You Make Decisions is More Important Than What You Decide. <https://www.forbes.com/sites/annlatham/2015/11/15/12-reasons-why-how-you-make-decisions-is-more-important-than-what-you-decide/2/#76bdc96140d9> >Last Accessed 06/04/18.

Lau, R.R., and Levy, J.S., 1998. Contributions of behavioural decision theory to research in political science. *Applied Psychology*, 47(1), pp.29-44.

Linton, I. 2017. How does Technology Affect Business Decisions? <https://bizfluent.com/info-8586491-technology-affect-business-decisions.html> >Last Accessed 05/04/18.

Lunenburg, F.C., 2010. The Decision-Making Process. In *National Forum of Educational Administration & Supervision Journal* (Vol. 27, No. 4).

Lunenburg, F.C., 2011. Decision making in organizations. *International journal of management, business, and administration*, 15(1), pp.1-9.

Manerikar, V. and Manerikar, S., 2014. A note on exploratory research. *Prin. LN Welingkar Institute of Management Development & Research*, p.95.

Olson, S. 2017. Eight Ways Technology is Changing Business. <https://appdataroom.com/eight-ways-technology-changing-business> >Last Accessed 04/04/18.

Pirouz, A. 2012. The Impact of Technology in Business. <http://anz.businesschief.com/technology/1115/The-Impact-of-Technology-in-Business> >Last Accessed 30/03/18.

Polič, M., 2009. Decision making: Between rationality and reality. *Interdisciplinary Description of Complex Systems: INDECS*, 7(2), pp.78-89.

Ramey, K. 2012. The Impact of Information Technology on Small Businesses. <https://www.useoftechnology.com/impact-information-technology-small-business/> >Last Accessed 06/04/16.

Ramrathan, D. and Sibanda, M., 2017. The Impact of Information Technology Advancement on Intuition in Organisations: A Phenomenological Approach. *The Journal of Developing Areas*, 51(1), pp.207-221.

Sisk, A. 2018. What are the Advantages and Disadvantages of Interviews?. [Online] <https://bizfluent.com/about-7536454-advantages-disadvantages-interviews.html> Last [Accessed 26/09/2018].

Slovic, P., Fischhoff, B. and Lichtenstein, S., 1977. Behavioral decision theory. *Annual review of psychology*, 28(1), pp.1-39.

Taylor, J. 2013. Is Technology Creating a Generation of Bad Decision Makers?. https://www.huffingtonpost.com/dr-jim-taylor/kids-and-technology_b_2422535.html > Last Accessed 11/05/18.

Thompson, C.J., 2012. Improving instructional decision-making by observing technology integration in the classroom: A case study. *Journal of Technology Integration in The Classroom*, 4(1), pp.5-13.

Vitez, O. 2018. The Impact of Technological Change on Business Activity.
<http://smallbusiness.chron.com/impact-technological-change-business-activity-2191.html>
>Last Accessed 02/04/18.

Wahab, S.A., Rose, R.C. and Osman, S.I.W., 2012. Defining the concepts of technology and technology transfer: A literature analysis. *International business research*, 5(1), p.61.

Wilson, M.J.W., 2009. Behavioral Decision Theory and Implications for the Supreme Court's Campaign Finance Jurisprudence. *Cardozo L. Rev.*, 31, p.679.

Annexure A: Consent From For Participants**Consent form for participants:**

I, _____, agree to participate in the research conducted by Carl Evan Jones about how technology has impacted the decision-making in small businesses.

This research has been explained to me and I understand what participation in this research will involve. I understand that:

1. I agree to be interviewed for this research
2. My confidentiality will be ensured. My name and personal details will be kept private.
3. My participation in this research is voluntary and I have the right to withdraw from the research at any time. There will be no repercussions should I choose to withdraw from the research.
4. I may choose not to answer any of the questions that are asked during research interviews.
5. I may be quoted directly when the research is published, but my identity will be protected.

Signature

Date

Annexure B: Consent From For Audio-Recording**Consent form for audio-recording:**

I, _____, agree to allow Carl Evan Jones to audio record my interviews as part of her research about how technology has impacted the decision-making in small businesses.

.

This research has been explained to me and I understand what participation in this research will involve. I understand that:

1. My confidentiality will be ensured. My name and personal details will be kept private.
2. The recordings will be stored in a password protected file on the researcher's computer.
3. Only the researcher and a transcriber (who will sign a confidentiality agreement) will have access to these recordings.

Signature

Date

Annexure C: Interview Questions

What does your business do?

How long have you been running your business for?

Is Decision making an important part of your Business?

Yes – how is decision making important

No – Why isn't decision making important

What decision making process do you use?

How do you use this process?

How do you use technology in your business for decision making?

How do you use technology for decision making?

How has technology changed the way you make decision?

Has it decision making become more effective?

Do you feel technology has changed the advancement of you company in any way?

Explain the limitations or the enhancements you experienced

Do you have a backup plan when technology fails?

Has it become a challenge to turn away from technology?

Have you gained a competitive advantage with the use of technology?

Annexure D: Ethics Clearance Letter

Annexure E: Originality Report

Annexure F: Final Research Report Summary Document Table

The Impact Technology Has on Decision-Making in Small Businesses

Research Purpose/ Objective	Primary Research Question	Research Rationale	Seminal Authors/ Sources	Literature Review – Conceptual Framework	Paradigm	Approach	Data Collection Method(s)	Ethics	Findings	References
This research wanted to understand how technology has impacted the decision-making process in small businesses.	How has technology impacted the decision-making process in a small business?	This research was important because it helped provide an understanding of how technology has advanced and how it impacts decision-making. This research was worth conducting because it provided answers to how technology has changed a business's decision-making process.	Alex Pirouz Karehka Ramey Robert Hillman Gaurav Akrani	Theme 1: The decision-making Theme 2: The importance of decision making Theme 3: Decision making process in small businesses Theme 4: Impact of technology on decision making Theme 5: Impact of technology on small businesses	Interpretivist approach Epistemology: This research wanted to contribute to the existing body of knowledge. Ontology: Reality was regarded as a social construct. Axiology: This research valued the complex understanding of reality.	Qualitative approach	A qualitative interview was used for this research study.	Bias, miss using information and using inappropriate research method, applying for ethical clearance and audio clearance	Technology has changed the way business is done Technology has changed the decision-making process in businesses	Article on: Decision-making Technology Journals: Impact of technology on businesses Newspaper articles Research conducted on decision making
						Population				
						Small business, Individuals who own small business				
Research Problem	Secondary Questions/ Hypotheses/ Objectives	Key Concepts	Key Theories			Sampling	Data Analysis Method(s)	Limitations	Contributions	
How technology has aided small businesses in levelling the playing field with larger organisations	Is technology an important factor in the decision-making process? How has technology changed the way business is conducted?	There were three Key Concepts for this research study: Small Businesses Technology Decision Making	The theory that helped make sense of this research study was the behaviour decision theory			Non-probability sampling Purposive sampling 2 individuals	Individuals Qualitative content analysis	The population size was too small. There were time constraints to this research study	This research was able to contribute to how decision-making has changed due to the advancements in technology. This research was also able to contribute to small businesses	Research conducted on small businesses Research conducted on the limitations of decision making