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**A RESEARCH PROPOSAL BY: Ryan Pillay.**

**Full names : RYAN KEEGAN PILLAY**

**Student no. : 17599071**

**Title of the study being conducted.**

The perceived impact of technological advancement on a telecommunications company's competitive advantage in Johannesburg, South Africa.

**Date of submission : 30 October 2020.**

**SUPERVISOR: Aarifah.**

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## **Abstract**

In recent years technology has been the focal point of everything, technology is an integrated part of everyone's lives as majority of the world's population uses technology in their daily lives. It is something that has drastically made living easier, made various things more accessible and has all in all helped the way the world has transcended and evolved. This study looked at how the technological landscape has shaped the way businesses operate and more importantly it aimed at finding the link between technological advancement and competitive advantage in a technologically intensive company. In-dept interviews were conducted between 10 participants who worked for technologically intensive firms, the aim of these interviews were to evaluate how each person perceived technological advancement and competitive advantage as well as it helped in gaining an inside look as to how the firms who these individuals worked for used technology to gain a competitive advantage. A thematic analysis study was used to evaluate each response and it was found that technological advancement has quite a significant impact on a firms competitive advantage and by using technological advancement greatly helped the companies be more effective and efficient in their competitive advantage achievement.

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## **1. Introduction**

In the following research study the researcher aimed to unpack the entirety of exactly what impact technological advancement had on a company's competitive advantage, more importantly in a telecommunications company. The reason this research was conducted was due to the fact that one of the biggest problems companies face in today's world, especially in the business world is competing effectively and achieving a competitive advantage which leads to gaining an upper hand on your competitors (Pietrewicz. 2019).

Organizations have always looked at ways to outwit their competitors and gain an advantage, however this has not always been easy as it is a tasking job to attempt to implement a differentiation strategy, however in recent times, through the use of technology, companies are better able to adapt their processes and differentiate themselves from their competitors (Nibletto. 2020). With the world becoming more technologically inclined more businesses have implemented technology as a way to be more effective and efficient and this is where the problem arose due to competition amplifying as people were better able to adapt to trends and keep up with consumer needs (Nibletto. 2020). This was especially prevalent in In the telecommunications industry due to the fact that in a telecommunications industry technology is their primary source and this is where the problem comes in due to the fact that if a competitor gets an upper hand through the use of technology then it will be very hard for a firm to compete effectively, therefore firms need to always be aware and try use technology to their advantage in order to outwit competition. (Nibletto. 2020).

Therefore, technology has become a major role player in organizations with both positive and negative influences, this is why businesses has to always be in control of technology and always look at ways of adapting and gaining a unique advantage (Nibletto. 2020). The researcher looked into how, through the use of technological advancement, a company may gain a competitive advantage and compete effectively and this was conducted through an investigation into the different ways organizations used technology as well as how, by implementing technological systems a sustainable competitive advantage was achieved. The researcher aimed to unpack this information by evaluating different segments that all added to making a difference in an organization.

The following essay started with a brief background of the topic at hand, as this I set the tone of the research and entailed exactly what the research was being conducted for, by adding a background the researcher was able to essentially add a backbone for the research. The essay then looked at the rationale and relevance of the topic as this answered the question of why the research was being conducted as well as evaluated the importance of the topic, it then flowed into evaluating the various aspects such as the various paradigms that was used

in order to gain a better understanding of the topic as well as the research went into exploring the goals of the study being conducted and what the hopes and outcomes of the research was expected to be, it then flowed into unpacking the various theoretical frameworks that was used to further the researchers understanding of the topic at hand and understand what other research says about the topic as this will validate any evidence found about the topic. Lastly the essay then reviewed, compared and linked various literature reviews to the topic as by conducting this research, it also looked into the data collection and data analyses methods the researcher aimed to use in order to collect and extract data and by performing all of these processes the researcher was able to effectively derive a final decision with regards to whether in fact technological advancement does have an impact on a company's competitive advantage.

## **1.2. Contextualization.**

Technology has always played a big role in businesses; this is largely due to the fact that technology has many functions in a business (Blamor. 2020). Different businesses use technology in different ways, from a marketing point of view technology gives you the option to communicate with your target market without actually having physical contact with them, this makes marketing more effective and efficient (Blamor. 2020). Another use of technology is the management of systems and people, technology enables businesses to keep track of the performance of their employees and systems within the company as this will help them track how productive and efficient everything is running in the organization, by doing this they will be in a better position to identify weak areas in the business and rectify these problem areas (Blamor. 2020). One of the biggest uses of technology within a business is to gain a competitive advantage, technology helps a business tremendously in terms of gaining a competitive advantage, this is due to the fact that, through the use of technology a company gains information on their target market and this helps identify exactly what their needs and preferences are and by doing this the business is put in a better position to meet these needs (Saunders, M. 2019). Technology also helps the company identify weak areas within the business and it will help the business implement changes in order to be more effective, by using technology a firm may implement new processes and systems that will help them become more effective and efficient and thus results in less wastage of time and resources and allocates more time for productivity which helps the business maintain a sustained competitive advantage (Saunders. 2019).

## **1.2 Rationale**

The topic at hand of how businesses use technological advancement to gain a competitive advantage is very important and worth looking into due to the fact that in today's world businesses are constantly improving their services and products to suit client needs as well as businesses are constantly implementing new technological advancements within their production line in order to improve their productivity, products and services (Kokemuller. 2019). In today's world all businesses need use technology in order to stay relevant, it also helps them to keep up with competitors as well technology enables the firm to compete effectively (Kokemuller. 2019). Technological advancement helps a business in a number of ways such as it improves communication between the external and internal environment in the business, it facilitates the firms inventory management and improves their production line, making it more effective and efficient (Kokemuller. 2019). Therefore, looking into the effect technological advancement and the ways in which business use technological advancement to gain a competitive advantage was a vital aspect, especially in a telecommunications company as this is their main business aspect and this is what they have built their business on due to the fact that a telecommunications company mainly uses technology. Therefore, the topic of technological advancement in a business landscape was of relevance and was something that everyone needed to be aware off as it shaped the world around businesses in telecommunications.

## **1.3. Research Problem statement.**

The biggest problem companies face in today's world, especially in the business world is competing effectively and achieving a competitive advantage which leads to gaining an upper hand on your competitors (Pietrewicz. 2019). With the world becoming more technologically inclined, more businesses have implemented technology as a way to be more effective and efficient and this is where the problem comes in as competition amplifies as people are better able to adapt to trends and keep up with consumer needs (Nibletto. 2020).

In today's world technology is the driving force of everything, everyone uses technology as it is part of everyone's daily lives, more especially in a telecommunications company as technology is the platform in which the business is built on and this is where the problem comes in due to the fact that if the company does not keep up with technological changes and trends then their competition will take advantage of technology and gain a competitive over the firm and when this happens it is often difficult for the firm to compete effectively with their competition (Nibletto. 2020). Therefore, technology has become a major role player in organizations with both positive and negative influences, therefore businesses must always be in control of technology and always look at ways of adapting and gaining a unique

advantage as not keeping up with technological advancements within a company becomes one of their biggest problems that leads to lack of competitive edge (Nibletto. 2020).

#### **1.4. Purpose Statement.**

The purpose of this study was to obtain information from companies working within the technological landscape on how they used technology to gain a competitive advantage. By doing this the researcher aimed to identify if whether technology did in fact play a significant role in the organization and if technology did in fact help the organization gain a competitive advantage. Therefore, the main purpose of this study was to analyse technology, competitive advantage and business practices as one whole unit working together and find the relation between all three variables.

#### **1.5 Research Question.**

How did technological advancement impact on a company's competitive advancement?

#### **1.6 Research objectives.**

- 1) To examine the concepts of technological advancement and competitive advantage in a telecommunications company.
- 2) To examine the impact technological advancement has on the company's competitive advantage.

#### **Sub Questions**

- 1) What is technological advancement?
- 2) What are the businesses understanding of technological advancement?
- 3) What is the business's global competitive market and how technological advancement might help the business?

## **2.Literature review of Previous Research.**

### **2.1 Theoretical framework.**

The theoretical framework the researcher has chosen in this specific study included Porters five forces model. The model encapsulated five main forces that is used to assists a business in understanding their competitors and their business environment (Martin, M. 2019). The model evaluates whether a business has the ability to compete effectively in the business market and it helps businesses evaluate if they can make reasonable profit margins in comparison to their competitors (Martin. 2019).

Porters model consists of five forces which include, Competitive rivalry, which can be described as the number and amount of influence your competitors have over your business. If the market in which the firm operates in has an abundance of competitors who have a big influence on their business it will be a much harder task to gain a competitive advantage, this is why a business should always survey their market to identify their competitors and the amount of influence each competitor has (Porter. 1985). With regards to a telecommunications company, their competitive rivalry had quite a large impact on the organization an example of this force was another telecommunications company, that operated within the same industry and appealed to the same market, in order for the firm to beat their competitors, the company needed to outwit and differentiate their competitors through differentiated product offerings and services as well as better pricing strategies that competitors would struggle to compete with (Porter. 1985).

The next force was the Bargaining power of suppliers, this entailed how much power the firms suppliers had over business, if a supplier knows that the resources you use in your company are scarce as well as the switching costs of changing to a new supplier is high then they automatically gain higher power as your business is dependent on them and when they know that they usually increase prices as they know the business will continue to buy from them due to the dependence the business has on that particular supplier. (Porter. 1985). In terms of a telecommunications company the bargaining power of suppliers would affect the company moderately, this is due to the fact that the company's suppliers will affect the companies pricing strategies, effectiveness, efficiency and supply chain, this is due to the reliance the company has on their suppliers (Porter.1985).This is why businesses should always be on the lookout for suppliers in order to get the most trustworthy and affordable suppliers (Porter. 1985).

The bargaining power of buyers/customers was the next force and what this dealt with was how easily it was for customers to substitute your company for another and change to your competitors, this force also dealt with how much power the firms customers had in bringing the prices down through bargaining (Porter.1985). Customers have quite a big influence on a

telecommunications company, this is due to the fact that the company relies on these customers in order to make sales which inevitably results in making a profit which keeps the business running. It is known that businesses depend on customers, however they should always make a profit. This is why they need to give customers the best services possible as well as selling them products at the best prices possible while at the same time ensuring they make a profit as this is what will keep the business surviving for longer (Porter. 1985).

New entrants into the market was the next force that was identified by porters forcers, what this entailed was evaluating every new comer into the market, the more people that came into the market resulted in higher competition which made it harder for a business to compete effectively (Porter. 1985). In a telecommunications company the threat of new entrants has a moderate impact on the company, this was due to the fact that new entrants in the market were still trying to establish themselves and this is where businesses took advantage due to the fact that they were able to adjust their pricing strategies to discourage new entrants into the market, if the businesses adjusted their prices drastically where it made it hard for the new entrants to compete effectively, it will drive the new entrants away. Established businesses can do this due to the fact that they have been in the market for a while and they are aware of how the market reacts. The new entrants do not have a lot of room to play with in regards to their pricing strategy as they are attempting to establish themselves in an already fierce market (Porter. 1985).

The last force is threat of substitute products and services and what this force entails is how easily is it to substitute your companies services and products, In a telecommunications company if your products and services are easily substituted then the company will have a tough time competing as the product offering will become obsolete as customers will not want products that are old, consumers are always looking for products that are new and diverse and this is why businesses need to look at differentiating their products as this will make it hard to copy and substitute products, by doing this you will ensure the longevity of the business and its products and services (Porter. 1985). By critically evaluating these five forces, it will in turn help a business evaluate their direct and indirect competitors, as well as evaluate the power the customers and suppliers have over the company and by knowing this the business will be able to adapt to any changes that may occur as well as they will be more knowledgeable on how they can effectively achieve a competitive advantage (Porter. 1985). By combining the information gathered from the five forces and using technological advancement, gaining a unique competitive advantage will be easier to achieve due to the fact that the company understands their market better (Porter. 1985).

## **Review of previous literature and themes.**

### **2.2 Examining the concepts of technological advancements and competitive advantage in a telecommunications company.**

The business landscape has drastically changed in the recent years, the way business is conducted, products are manufactured, and services rendered have all changed in a major way. These changes have all risen due to the introduction of the technological landscape (Martin. 2018). In today's times every single person uses technology, this is due to how simple technology has made life, from finding information, solving problems or just merely socializing, technology has always been the root key helper (Martin. 2018). In the world in which people live in today, technology is the key driver, people always want what's new and interesting, and this is exactly what technology is, it is something that is different and interesting and people use technology for many different things and for many reasons (Martin. 2018).

In a business setting technology is something that is of great importance to a company, this is due to the fact that technology makes processes easier and timelier which improves the effectiveness and efficiency of a company (Hyde. 2016). In recent years, many companies have adopted technology and integrated it in the daily running of their business, this is due to the fact that technology helps companies with various aspects around the business, some of the ways in which technology helps businesses is the fact that technology makes the identification and solution of business problems easier, it facilitates advanced learning within the business, it facilitates timely and direct communication with clients and it lessens production time (Hyde. 2016). Doing this will enable the company to deal with higher demand rates and will position the company in a place where every client's needs are met fully as well as it will give the company a competitive advantage over their competitors due to the company becoming more effective in their processes (Hyde. 2016).

Technology, specifically in a telecommunications company is of very high importance due to the fact that technology determines the survival of the company (Hyde. 2016). However, the biggest challenge faced by businesses is having an equal balance between technological advancement and full customer satisfaction (Chugg. 2018).

Customer satisfaction is one of the main focuses of every business, this is due to the fact that, usually a dissatisfied customer is a customer that will not be returning to the store, therefore business should always make sure that their customers are satisfied with the product and service offering of the company (Copley. 2017). Therefore, a business needs to continuously be aware of technological advancements as it has a significant impact on the business, its efficiency and effectiveness as well as its competitive advantage (Copley. 2017).

## 2.2 Examining the impact technological advancement has on a company's competitive advantage.

Technological advancement can be described as the process of implementing new systems and processes within the organization in order to become more efficient and effective (Porter. 1985). Organizations use technology for many purposes, one of the biggest purpose's businesses use technology is to improve their effectiveness and efficiency (Saunders. 2019). Technology helps to improve an organizations effectiveness and efficiency in that, technology speeds up production due to the fact that systems are able to do the exact same work as humans however, systems are able to do it faster and don't need to take breaks, therefore there is a continuous flow of production and services. Another factor on how technological advancements help a company is due to the fact that there are fewer and minimal mistakes being made, once a system is programmed it will run according to that program, therefore by implementing technology the business will have less failures and problem areas, another advantage of technology is that it can detect problem areas quickly and correct these areas which adds to the business being more efficient and effective (Saunders. 2019).

One of the biggest benefits of implementing technology in your company is the fact that a business can successfully achieve a competitive advantage through the use of technology (Saunders, M. 2019). Technology can help a company achieve a competitive advantage as, if technology is used successfully in a business and if it is used to its full potential then technology can give the company value rich information of the market in which it operates as well as it may identify what customers are looking for and how to meet these needs (Saunders. 2019). By obtaining this information a business will be in a better position to manipulate their market and extract information of the consumers in the market, this will help the business to alter their products in order to make it more appealing to consumers Another benefit of technology within a business is that it allows for easier and more timely communication with your customers, marketing and dealing with client complaint becomes easier and issues can get resolved faster (Saunders. 2019).

However, with all these advantages come disadvantages, the biggest disadvantage of technological advancement is that it is a very expensive process to embark on (Thibodeaux. 2019) When a company initially transitions to a more technologically advancement process within the organization, it becomes a very expensive task due to all the systems and processes that needs to be updated and installed, another disadvantage is that it takes a while for people to get used to the systems and within an organization time wasted results in money wasted due to production levels dropping however, once everyone is familiar with the new systems

and process then the company starts performing more effectively and efficiently and this makes a huge difference in the overall costs of the company (Thibodeaux. 2019).

A company should however always have a balance between customer satisfaction and technological advancement, due to the fact that if a company focuses too much on technological advancement their customer satisfaction levels may drop and vice versa where if they focus too much on customer satisfaction then the technological advancement within the company will drop which in turn will drop the efficiency and effectiveness of the company (Chugg. 2018). By constantly keeping up with technological advancement, the company is essentially performing better and will be in a better position to meet customer needs and obtain higher customer satisfaction levels (Pietrewicz. 2019).

### **2.3 Conceptualization.**

In the following section the aim was to clarify a few words/sayings in order for the reader to gain a better understanding on the research paper. By clarifying certain words and bringing meaning to them

enables the reader to understand the matter at hand and understand why the research was conducted.

Technological advancement- This refers to developing a change in the way products and services are developed and offered. Technological advantage refers to adapting new ways of doing business in order to be more effective and use the company's resources more efficiently. Technological advancement entails adapting to new technology and implementing new ways of production and service offering in order to out compete competition and be more effective as a whole (Enduro. 2014).

Job security- Job security refers to maintaining and achieving permanent status in a company, by doing this you are securing your job in a company and this job is not likely to be taken away from you unless a breach of contract occurs (Vietez. 2001).

Competitive advantage- A competitive advantage refers to a getting a more favourable position over your competitors in the market. Competitive advantage entails doing something different in order to gain an upper hand over your competitors in order to beat your competitors and gain more customers (Aregbeshola. 2017).

Telecommunications- A telecommunications company can be described as a company that provides voice, video and data transmission services (Lazar, I. 2019). A telecommunications company's primary goal and objective deals with the effective transfer of information over an electronic data base that covers large distances. Through the use of satellites, fiber optics,

internet and many more data transmitting services the effective transfer of data is made possible (Lazar. 2019).

### **3. Research methodology.**

#### **Research design.**

##### **3.1. Research Paradigm.**

There are many research paradigms a researcher may choose to follow when conducting their research. The three main paradigms of which the researcher bases their research on comprises of positivism, interpretivism and pragmatism.

Positivism can be defined as an evidence-based reality whereby all findings can be mathematically interpreted. With a positivism approach it is believed by many researchers that science is the only way to understand the truth and unpack reality fully. Positivism believes that information is only trustworthy if the information is factual and is gained through observation (Panhwar,2017). Although this type of paradigm is may help a researcher tremendously in validating a particular issue or statement, this paradigm serves very little use to the topic at hand and this due to the fact that, although the researcher aims to find the topic between both variables the researchers main aim is to understand the variables at an in depth level as this is what will help the researcher in making an informed decision on whether technological advancement does in fact have an effect on competitive advantage. Positivism may also take the form of an ontological view, due to the fact that the research being done with a positivism approach believes that the world is an external source and that there is a singular objective to reality that addresses many research phenomenon or research situations regardless of the researchers belief (Edirisingha. 2012).

Interpretivism is research that aims to find an in depth understanding of the topic at hand, interpretivism looks at the individuals understanding and it usually follows a qualitative study as by conducting a qualitative study the aim is to get a better understanding of the topic at hand and interpret the findings from each individuals perspectives (Rehman. 2016). This type of paradigm serves of very high importance to the researcher due to the fact that it helps the researcher gain an in depth understanding of the topic at hand. By gaining an in depth understanding of the research, the researcher will be able to make an informed decision, based on the knowledge obtained whether technological advancement does in fact have a relationship to competitive advantage. Interpretivism relates to a epistemological paradigm point of view, this is because epistemology is interested in the specific, contextualised environments that uses the social science to prove or disprove a particular object or phenomenon (Brown. 2017).

Pragmatism research philosophy is in essence a mixed method in research or mixed paradigms. Pragmatism is a philosophy that is problem-focused, therefore pragmatism combines mixed research methods in order to derive at the best possible answer/solution. Most pragmatic researchers will use a mixture of qualitative and quantitative research methods in order to get the best possible solution. In essence pragmatic research is research that follows a mixture of research methods in order to find the best possible solution (Saeed. 2020).

Based on the research question, as well as the fact that the study is following a qualitative research design an interpretivist approach will be followed. The reason for this choice is due to the fact that with an interpretivism approach the researcher will take a deeper look at technological advancement and its impact on businesses in order to gain an understanding of the topic at hand, this will serve as great value as the researcher will be more informed on the topic and making recommendations on how businesses should use technology (Rehman. 2016).

### 3.2. Research strategy.

In the following research study, the researcher aimed at following a qualitative research design method. The reason the researcher chose to follow a qualitative approach is due to the fact that the research aimed to find an in depth understanding of the topic at hand (Crossman. 2020). By following a qualitative research method, the researcher was able to find value rich information from the data gathered, in a qualitative research design the data gathered is usually value dense and contains important information on the topic at hand that the researcher is able to decompose and gather important information from (Crossman. 2020). The main focus of this Qualitative research study was to find an understanding. With this qualitative study the researcher aimed to find a deeper understanding of the study at hand. This design was also chosen as it helped the researcher understand people's beliefs, attitudes and experiences (Pathak. 2013).

There were many benefits of using a qualitative study such as it helped create a very in-depth understanding of the study at hand as well as it created an understanding of how people behaved, perceived different things, their attitudes on different topics and how they made sense of the world around them and by doing this, it helped in ensuring the researchers understanding of the topic at hand, another benefit of qualitative research is that it showed the researcher how social structure and social order influenced peoples social behaviour (Crossman. 2020). Therefore, by conducting a qualitative research design, the researcher was able to get a better look into the world around technological advancement and competitive advantage and doing this gave the researcher rich information on the topic and this is what

eternally influenced the decision of the researcher of whether in fact technological advancement does have an impact on competitive advantage.

The study helped the researcher by looking into inductive reasoning, inductive reasoning can be explained simply as reasoning adapted from specific statements/observations and generalizing these statements to a more generalized topic (Bradford. 2017). The reason the researcher chose to follow inductive reasoning is due to the fact that the researcher was aiming to identify a pattern/relationship between both variables, in the case of this specific study the researcher was aiming to find the relationship/relatedness between technological advancement and competitive advantage (Bradford. 2017).

This specific research study will also take the form of a cross-sectional approach, a cross-sectional approach can be described as a way to evaluate the data gathered. Basically, a cross-sectional approach looks at data from a particular point in time (Cherry. 2019). The researcher has chosen to follow a cross-sectional approach due to the fact that this approach goes hand in hand with social studies research and it is used as a descriptive research method which goes hand in hand with the topic of this research study (Cherry. 2019). This type of research method is also more timely and cost effective as it is done over a short period of time, usually over one day, and it requires the researcher to only gather data from each respondent once and not over a long period of time, this makes this approach more cost effective and timely for the researcher.

### **3. Research Plan.**

#### **3.3.1 Population.**

The population can be described as the broad group of entities and individuals with whom the researcher aims to collect information from (David. 2020). In this particular study the population included individuals working within a business who used technology to gain a competitive advantage in South Africa.

#### **3.3.2 Unit of analysis.**

The unit of analysis can be described as the entity or individual or object that is being measured, observed, analysed and studied (Trochim. 2020). Therefore, in this specific study, the unit of analysis included people who were working within a firm that used technology to gain a competitive advantage, as this is the type of people who the researcher was able to extract quality rich information from in terms of how the business used technology to their advantage and the companies knowledge of technological advancement as this helped further the researchers understanding of the topic in order for the researcher to make an informed decision of the topic at hand.

### 3.3.3 Target population and Accessible population.

The target population refers to any individual or firm that falls within the population parameters of the study being conducted (Plooy-Cillers. 2014). Therefore, for this specific study the target population included an individual who has been working for a firm that operated within South Africa and who used technology to gain a competitive advantage.

### 3.3.3 Accessible population

The accessible population refers to the part of the targeted population that can actually be reached (Plooy-Cillers.2014) Therefore, the accessible population of this study included people who were firstly available to do an interview on as well as people who worked for firm operating in Johannesburg, that used technology to gain a competitive advantage.

### 3.3.4 Population Parameters

The population parameters can be described as the size, nature and characteristics of the population at large (Plooy-Cillers.2014). The population parameters of this study therefore included between 4 employees who worked for the same firm that has been using technology to gain a competitive advantage in Johannesburg, South Africa.

### 3.4 Sampling.

According to Plooy-Cillers (2014) sampling can be defined as a process whereby the researcher selects a subset of the population that can be considered as a representation of the population. The main reason for using sampling in a research study arises due to the fact that in most cases the accessible population of the study includes too many elements and becomes too broad and this becomes hard for the researcher to analyse. By having such a broad spectrum, collecting data will become too expensive and take too much of time to conduct, therefore a researcher uses sampling to narrow down the study and by doing this the researcher is able to collect valuable information in a timely and affordable manner (Plooy-Cillers. 2014).

### 3.4.1 Non-probability Sampling

The type of sampling method the researcher has chosen to conduct the following study was non-probability sampling, this is due to the fact that members of the community are not chosen at random, rather the respondents for this study is chosen according to certain characteristics one of the biggest ones being that they need to be working for a firm that uses technology extensively to gain a competitive advantage (Plooy-Cillers . 2014). The reason non-probability

sampling was applicable to this researcher study was because it would have been a very tasking and timing task to interview everyone from the population at large, by using non-probability sampling, the researcher was able to identify a specific company in which the researcher aimed to collect information from. The use of non-probability sampling helped the researcher identify specific individuals from the population, although not everyone in the population had an equal chance of being selected, people that met the criteria ( working for the same firm that used technology for a competitive advantage) had an equal chance of being selected as they met the criteria of where they worked and the fact that they used technology.

The researcher chose to use convenience sampling in this research study due to the fact that this type of sampling method was the most convenient for the researcher as It also aided the researcher in finding respondents much more easier as everyone stood an equal chance of being chosen given that they worked for the same company. By following this type of sampling method gave the researcher much more time to conduct the interviews and analysis of this section as respondents were very accessible through the use of this sampling method (Plooy-Cilliers. 2014). The researcher was able to conduct a one on one interview over a social media platform, being skype, where respondents were asked a number of questions (9) and responses were recorded in order for the researcher to access them later on to gather information and analyse everything collected. The reason the researcher chose to conduct the interview over skype was due to the fact that at the time, the country was experiencing an pandemic being Covid 19 therefore face to face interaction was not possible, therefore what was safest for the researcher and the respondent was to conduct the interview over a social media platform.

The researcher disregarded any other target population that did not meet this criterion as obtaining information from them would of been out of scope of the research and the information obtained from these people would of been regarded as obsolete and valueless. The researcher obtained this information by asking the managers of specific firms if they were available and were willing to take part in a one on one interview as well as we will take advantage of using focus groups in order to obtain value rich information (Plooy-Cilliers. 2014). The sample size consisted of 4 individuals who worked for the same firm which used technology to gain a competitive advantage (Plooy-Cilliers. 2014).

### **3.5 Data Collection method.**

The data collection method used in this research study consisted of a one on one interview. This data collection method was conducted through a semi-structured interview, which entailed that although there was a type of process to follow in terms of what questions was asked and in what sequence, the researcher chose a semi structured interview to allow for the

interview to be open ended and accommodate for a discussion and elaboration process to take place (Adams.2015). By keeping the interview semi structured the researcher was able to get all of their questions answered as well as find valuable information from the elaboration process that the semi structured interview allowed for.

### 3.5.2 Application of data collection

The way in which the researcher went about conducting the interview was through a one on one collaborative session online, due to the recent pandemic that has happened being Covid 19, social distancing had to be practiced in order for each individuals safety therefore it was not be possible to conduct the interview in person, the alternative method the researcher chose was to conduct the interview over a social media platform such as Skype and Gmail video call and some respondents opted to just have a normal phone call (Adams.2015). Before the respondents could partake in the interview, each respondent had to fill out a consent form in which the researcher ensured each respondents identity was kept safe and would not be published anywhere else, the respondents were then assured that only their responses will be recorded and be used for information as this was what the researcher needed for their study.

The respondents then agreed to the interview and the interview dates where then determined based on the availability of each respondent. Once a date was identified and confirmed the interview process started where each respondent was individually interviewed. Upon conducting the interview the respondents were asked various questions relating to the topic at hand which was technological advancement and how this aspect of business affected competitive advantage this was one of the various questions that were asked in the interview.

There were many other questions that were asked in the interview that related to the topic at hand and each question was structured in a way to get the most out of the respondents and in a way that helped the researcher gain the different perspectives of each respondent as this is what has helped the researcher gain the most knowledge and information from the data. Whilst each respondent answered the questions the researcher made notes and recorded the answers in order to go back after the interview and analyse the findings to make sense of it.

As far as the time consideration as to how long each interview took was dependent on the respondents however the average time each interview took was 15 minutes as the researcher did not want to take up too much of time of the respondents. By using these collection methods, the researcher was able to effectively gain the information they were looking for, they were also able to gain insight on what the respondents felt about technological advancement within the company and through this the researcher was able to make an informed decision whether or not technological advancement was good for the company and actually contributed to achieving a competitive advantage.

### **3.6 Data Analysis method.**

The data analysis method used in this research study was Thematic research and this was due to the fact that by using a thematic analysis method the researcher was able to identify links and relationships between each of the interview data collected.

The way the researcher aims to conduct the thematic research is by following six steps, which include firstly familiarizing yourself with the data, which includes going through all the data and making sense of the data, identifying things the researcher does not understand and broadening the knowledge of the researcher. Secondly the researcher will assign codes to each of the data collected and numbering the data in order of the most value rich and information rich data, by doing this the researcher will be able to analyse the data that has the most information and most useable information first and then build on this by using the other data collected.

Thirdly, the researcher will aim to find links between all the data collected, the aim here is to find a relationship between each of the data collected in order to make an informed decision on the topic at hand. The fourth step is to review the themes, once all the data has been analysed and a link has been found the researcher needs to review the themes of the research and analyse what the research data says about the research topic, by doing this the researcher will be able to make a more informed decision and answer towards their research question. The fifth step is to refine and name the themes of the research done, as to what the researcher has gathered from the data and what the researcher has identified from the themes in terms of finding a link between the research. The last step is to produce the final report whereby the research concludes if there is in fact a link between the variables or if there is no correlation as well as the final report will help tie the entire research together (Mortensen. 2020).

#### **3.6.2 Application of data analysis**

Below is an example of a section from the data analysis used by the researcher for Question 1.

#### **Question one: Do you think technological advancement is vital when a firm is trying to achieve a competitive advantage?**

R1: Personally I feel that technology plays a huge role in businesses and is a vital aspect to consider in all aspects of a business, when a business is aiming to achieve a competitive advantage, they should always look at technology as it is a very useful tool that may aid in information gathering and this is what will make getting a competitive advantage much easier.

R2: Of course! The world in which we live in relies primarily on technology and this is due to the fact that **technology makes information obtainable and readily accessible.** In a business's point of view I feel like technology is not the only thing that helps a business achieve a competitive advantage however it is something that plays a vital role and in today's day and age everyone should make use of technological advancement as the world is changing and businesses need to adapt to these changes.

R3: Yes, Technology enables people to keep up with current trends as well as it helps people gather **knowledge and information.** when people are more knowledgeable, they are more productive as they are more equipped with **knowledge of their jobs.** Therefore, I feel that technology is **one of the most important aspects a firm needs to consider when they are aiming to achieve a competitive advantage.**

R4: Indeed! In order to be innovative and productive a firm needs to implement technology in the daily running's of the business, when a firm implements technology, **the skills, knowledge and expertise of the business grows** and when this happens people are in better positions to do their jobs and **this is what makes the attainment of a competitive advantage that much easier for businesses.**

**Table 2: This is an example of how the researcher tabulated and coded all of the information gathered**

| Various themes and codes                                                                                                                                                                                                                                                                                       | Code |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| <b>Knowledge and skills expertise.</b><br>* I feel that technology plays a huge role in businesses.<br>* It helps people gather knowledge and information.<br>* When a firm implements technology, the skills, knowledge, and expertise of the business grows.<br>*Equipped with more knowledge of their jobs. | 01   |
| <b>The attainment of competitive advantage.</b><br>* One of the most important aspects a firm needs to consider when they are aiming to achieve a competitive advantage.                                                                                                                                       | 02   |

|                                                                                                                                                                                                                              |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| <ul style="list-style-type: none"> <li>* This is what makes the attainment of a competitive advantage that much easier for businesses.</li> <li>* make getting a competitive advantage much easier.</li> </ul>               |    |
| <b>Information gathering.</b> <ul style="list-style-type: none"> <li>* it is a very useful tool that may aid in information gathering.</li> <li>* Technology makes information obtainable and readily accessible.</li> </ul> | 03 |
|                                                                                                                                                                                                                              |    |
|                                                                                                                                                                                                                              |    |

**Table 3: Below is an interpretation and correlation of the themes and codes to numbers.**

| Participant            | Number    |
|------------------------|-----------|
| Participant 1          | 01,02, 03 |
| Participant 2          | 03        |
| Participant 3          | 01, 02    |
| Participant 4          | 01, 02    |
| Most common responses  | 01, 03    |
| Least common responses | 02        |

The table above has helped the researcher in linking patterns in the data collected. The researcher used the table and identified that 80% of the respondents were for technological advancement within a company however the 20% stated that although they agreed that technology is vital for gaining a competitive advantage, they did feel that it was not the only aspect and businesses should focus on multiple aspects when they are aiming to gain a sustained competitive advantage. The researcher identified that people were very technologically dependent as the respondents felt that technology was a easier way to gather information and this, according to majority of the respondents was the biggest role player in achieving a competitive advantage.

#### **4. Presentation of Findings and Interpretation of findings as they relate to the literature.**

In the following section the research findings will be studied, and a link will try to be correlated between the findings and responses. All these findings derive from the semi structured interviews that were conduct on various respondents. This following section also reverts back to the previous literature and theoretical foundation that was conducted by the researcher as this will help the researcher derive at a final decision as to whether there is a link between the variables or not.

##### **Question one: How long have you worked for your current place of employment?**

60% of the respondents stated that they have been working for their current place of employment for more than 6 years. Respondent A stated: 'I have been working for my current place of employment for 7 years and it has been my first job out of college.' The other 40% of the respondents stated that they did not work for the company for more than 6 years however they were very well accustomed to the business and were quite happy in the company.

Therefore, as can be seen from the responses, it can be deduced that majority of the people that works for the firm have been in the company for 6 or more years, they stated that they were happy and well accustomed to the processes and technology within the firm. The minority stated that they did not work for longer than 6 years however they were well accustomed to the technologies within the company. The reason this question was asked was due to the fact that the researcher wanted to get an in-dept view of how long each respondent was working for their current place of employment. As Hamel (2008) describes, there are many benefits of working for a company for a number of years one of the biggest benefits is that the employees know the full intricacies of the company and knows a lot of information on the company (Hamel. 2018).

##### **Question two: What is your understanding of technological advancement?**

100% of the respondents knew to some extent what technological advancement was. Due to them being in a technological environment most of them knew the basis of technological advancement. One of the respondent's responses was "To me technological advancement would be the world around IT, an integration of more advanced technological systems and processes that help the company be more effective and efficient in the short and long term".

From the responses gathered it could be deduced that everyone within the company had a relatively good understanding of what technological advancement is. As can be seen from one of the responses above, their definition of technological advancement had a similar link to what Pathan (2018) defined technological advancement. Whereby to Pathan technology is something that everyone needs to adapt to whether it be businesses or the general public, not

only does it make things easier but it also reduces waste and time which is highly beneficial especially in a business setting (Pathan. 2018).

**Question three: What would you say the perceived benefits of using technology in a company is?**

80% of the respondents had nothing but good to say about technological advancement. The respondents all were in favour of technological advancement within a business as they felt that it was a great helping tool. One of the responses from a respondent was “ I feel that technological advancement is highly beneficial in a company as it reduces wastage and time taken to produce a certain product or service as well as it makes processes within the business more efficient and this in is what leads to a more effective working unit in a company”. The other 20% did not feel that technology is a primary benefit bearing tool in a business and they stated that there were other tools that reaped way more benefits for the business than technological advancement brought. One of the respondents stated that “ I feel that technological advancement does have its benefits however it does take away from the development and acquisition of labour skills, therefore people become too accustomed to using technology rather than their own expertise and this is why I don't fully favour technological advancement in a business’.

From the responses gathered above it could be deduced that majority of the respondents saw the perceived benefits of technology within the company as they stated that they saw technology as a helping tool in the company. However, the minority stated that although they did see how technology could help in a business, they felt that there were other more beneficial tools that could aid the company more than technology.

**Question four: Would you say technology is needed in all businesses or just needed in technology intensive business's?**

100% of the respondents agreed with the statement of whether technology is needed in a business. One of the responses were “I personally think technology is one of the most vital keys to the success of a business. The technological landscape has immensely grown and changed the way people think and operate and this is why business have to incorporate technology into their business practices as it is a huge helping tool as well as it aids in keeping up with trends and the way the world is developing.”

As can be seen from the responses above, it can be deduced that everyone within the company stated that all businesses need technology. A respondent stated that they felt that technology is vital for the success of a firm and all businesses should incorporate it in their

business. As can be seen technology within a business is seen in a very good light and is seen as something that is definitely needed.

**Question five: What is your perception of a competitive advantage?**

100% of the respondents knew to some extent what competitive advantage is, due to the respondents working in the business environment for a few years everyone had a brief understanding of what the concept meant. 2 of the respondents shared very similar opinions on the topic of competitive advantage which was that it is the way a firm achieves a competitive edge over their competitors and this competitive edge is achieved through differentiation and diversity. The respondents also stated that achieving a competitive advantage is a very tasking job, however it is vital if a firm wants to be successful in a competitive market.

After evaluating the responses, it can be deduced that all of the respondents knew what a competitive advantage was as well as they knew to some extent the importance of it. There were some definitions of competitive advantage that linked to Jurevicius (2013) which was stated as, a competitive advantage is a term used when a business has a significant lead, upper hand over their competitors and is something that helps the business tremendously in staying in control of the market (Jurevicius. 2013).

**Question six: Do you think a competitive advantage is vital for a firm's success or do you think that a firm may operate successfully without achieving a competitive advantage?**

80% of the respondents said that a firm must attempt to achieve a competitive advantage as it shapes the way business is conducted and it motivates the business to be better. However, the remaining 20% of the respondents stated that at times firms focus too much on achieving a competitive advantage therefore the respondents stated that although a competitive advantage is one of a key aspects a business should eventually attempt to achieve the respondent felt that it is not vital and firms should just aim to compete effectively and efficiently.

It can be deduced from the responses above that majority of the employees of the firm felt that achieving a competitive advantage is vital to the success of a firm as it can be seen as a helping tool. However, the minority felt that although achieving a competitive advantage is something to work towards, it isn't vital and firms can operate without it.

**Question seven: Do you think technological advancement is vital when a firm is trying to achieve a competitive advantage?**

100% of the participants stated that technology plays a huge part in achieving a competitive advantage as it aids in the achievement of a competitive advantage as technology reduces human error leaving more room to focus on achieving a sustain competitive advantage.

It can be deduced from the responses above that everyone within the firm felt that technology is vital and a key tool to have when a firm is aiming to achieve a competitive advantage. The respondents felt that it helps the firm tremendously and is something that needs to be incorporated when a firm aims to achieve a competitive advantage. The respondent's perceptions went hand in hand with Saunders (2019) definition of the importance of technological advancement on competitive advantage. Saunders stated that technology is one of the biggest aids when a company is aiming to achieve a competitive advantage and this due to the many benefits that come with the implementation of technology. Technology not only simplifies processes and aids in quicker lead times but also it helps differentiate a company and thus helps the company find a niche that could help them achieve their competitive advantage (Saunders. 2019).

**Question eight: How much, if you could give a brief estimate, does your company use technology as a whole and how much of the firm's achievement of a competitive edge has attributed to technology implementation?**

100% of the respondents stated that their company was very technologically intensive, and that technology has played quite a significant role in the company's competitive advantage achievement. Respondent C stated, 'My company is quite a technologically intensive company and if I could give a brief estimate, I would say that around 75% of the company is run through technological systems.'

Based on the responses gathered from this question it can be deduced that most companies rely on technology in a significant way. Businesses have evolved and changed the way they do things, due to the fact that technology has made business practices that much easier, more and more businesses are implementing technology within the business as it is a very useful helping tool.

**Question nine: With the implementation of technology in a company, it is known to be quite an expensive endeavour to constantly keep up with trends and new technology,**

**would you say it is worth the time and finances to constantly be upgrading the firms technology or do you believe that a firm should stick to the traditional ways of doing business?**

90% of the respondents agreed that it is a worth the time and finances to keep up with technology as in the long run technology is highly beneficial to a company and how it operates. However, the remaining 10% of the respondents said that they feel that a company doesn't constantly need to keep upgraded their technological systems as it becomes too expensive.

As can be seen, majority of the respondents stated that implementing technology within a company is worth the time and finances as it is a big helping tool and has many benefits that are worth the time and money. However, the minority said it becomes too expensive and is not worth all the time and finances, but rather a business should have a trustworthy system that will serve the company for many years. As Hopwood (2019) stated, there are many advantages of having technological systems within a company however, firms need to implement the best and most effective systems in their business as these systems will not need to be continuously upgraded. It is better to spend a lot of money initially and get a trust worthy system that will last long as this will be cost beneficial in the long run and upgrades wont be needed yearly which saves the business money (Hopwood. 2019). Therefore Hopwood's, definition goes hand in hand with the minority as both individuals have similar perceptions on the topic at hand.

**Question ten: In today's world, technology is leading all industries, do you personally prefer the technological landscape, or do you prefer the traditional ways of doing things before technology took over?**

100% of the participants collectively agreed that they all prefer the technological landscape as the participants all stated that the technological landscape made things easier and made processes faster. Respondent C's answer to this question was "I personally prefer technology as it makes life easier, I feel as I am more productive and I can control how I conduct my work as well as there is less room for human error."

As can be seen from the responses above, all of the employees prefer the technological landscape as it made processes easier and made working more effective and efficient. Their preference and stated perceptions went hand in hand with Saunders definition of the perceived benefits of the technological landscape which was, Technology is one of the most effective tools a company may incorporate within a business and this is due to all of the benefits that come with the implementation of this tool within the business (Saunders. 2019). There are

many benefits such as cost saving, higher productivity and quicker goal attainment which is highly beneficial for a company that is aiming to be more efficient and effectively in the workplace (Saunders. 2019).

### **Discussion of the findings as they relate to the research objectives.**

#### **Findings as they relate to Research objective one.**

The first research objective was to examine the concepts of technological advancement and competitive advantage in a company. The following questions were asked in order to address this objective:

Research Question 2: What is your understanding of technological advancement?

From the responses gathered it could be deduced that everyone within the company had a relatively good understanding of what technological advancement was and were well acquainted with the concept of technological advancement.

Research Question 4: What are your perceived benefits of technological advancement within a company?

From the responses gathered it could be deduced that majority of the respondents saw the perceived benefits of technology within the company as they stated that they saw technology as a helping tool in the company. However, the minority stated that although they did see how technology could help in a business, they felt that there were other more beneficial tools that could aid the company more than technology.

Research Question 5: What is your understanding of competitive advantage?

After evaluating the responses, it can be deduced that all of the respondents knew what a competitive advantage was as well as they knew to some extent the importance of it. This helped the researcher gain valuable information as everyone knew what the topic of discussion was.

Research Question 6: Do you think a competitive advantage is vital for a firm's success or do you think that a firm may operate successfully without achieving a competitive advantage?

It can be deduced from the responses that majority of the employees of the firm felt that achieving a competitive advantage is vital to the success of a firm as it can be seen as a helping tool. However, the minority felt that although achieving a competitive advantage is something to work towards, it isn't vital, and firms can operate without it.

From the findings gathered above, it is clearly seen that majority of the respondents had an understanding of the concepts of technological advancement and competitive advantage as

well as majority of the respondents saw the importance of both of these concepts on a firm's success and survival. Majority of the respondents stated that these two concepts were very important tools to have in a business and tremendously helps the firm in terms of their competitive advantage, effectiveness, and efficiency as a whole.

### **Research Objective 2.**

The second objective that the researcher chose to follow in this research study was to examine the impact technological advancement has on the company's competitive advantage. The following question was used to address this objective.

Question 7: Do you think technological advancement is vital when a firm is trying to achieve a competitive advantage?

It can be deduced from the responses gathered, 100% of the respondents felt that technology is vital and a key tool to have when a firm is aiming to achieve a competitive advantage. The respondents felt that it helps the firm tremendously and is something that needs to be incorporated when a firm aims to achieve a competitive advantage.

As can be seen from the research conducted above, technological advancement has quite a significant impact on a firm's competitive advantage and this is due to all the benefits that are associated with technological advancement. Introducing technology within a company is highly beneficial as it reduces waste in the company due to the decrease of errors, it improves productivity and lead time as well as it aids the business in operating in a more effectively and efficiently (Saunders 2019).

### **Recommendations.**

It is strongly recommended that businesses make use of technological advancement within the business as well as using this concept to achieve a competitive advantage as both of these variables work hand in hand with each other. Based on the responses and the previous literature that was conducted, a few recommendations can be made for businesses looking to make a difference within the company.

- As can be seen, equipping a firm with technology has huge benefits such as cost saving, improved efficiency and effectiveness of the firm as well as technology has a huge effect on achieving a competitive advantage.
- Achieving a competitive advantage is something all businesses should work towards as it is something that helps a business tremendously in competing and operating effectively. A competitive advantage not only helps the firm stay in control of the

market, but it also relieves a bit of stress as the firm is in a more comfortable position within the market.

## **5 Validity, reliability and or trustworthiness**

Validity can be defined as the accuracy of the method of measurement and how well and accurate information gathered from this method is presented. Therefore, one can describe validity as the accuracy and factual information that a method produces (Middleton. 2019). In a research study it is of very high importance to have high validity, this is due to the fact that the researcher needs to ensure they are providing factual valid data, if the data is not factual and unreliable then the study is not worth conducting and no one will trust the study as it is invalid. Therefore, all researchers need to ensure that their sources are trustworthy and that their data is factual in order for the study to be trusted and valuable (Middleton. 2019).

A researchers validity, relevance and literature need to all work hand in hand in order to produce a high validity research paper, the evidence of the data collected needs to be trustworthy and factual as this is what will add to having a valid research paper. In order to validate this research paper the researcher has chosen credible sources to extract information from as well as the researcher will conduct a one on one interview with different individuals who work within the telecommunications industry, by doing this the researcher will ensure that credible information is gathered and that information is always compared against a valid source such as other research studies that have similarities to the topic that is being conducted in this research study.

## **6 Conclusion.**

In conclusion the researcher was able to deduce from the information gathered that technology is a vital part of all businesses, the world is constantly changing and evolving and this is why businesses should take advantage of the digital age and make full use of technology as not only is it a benefit for the company but also it significantly helps businesses achieve a competitive advantage and this is how firms can ensure the longevity of their businesses in the long run. Therefore, the researcher strongly recommends businesses implements a technological system within the business as it is highly beneficial and could help the business tremendously in the long run.

### **6.2. Anticipated contribution.**

The anticipated contribution of this study is to further the understanding for business around the world of technological advancement and how it affects a business's competitive advantage. The study was done in order to aid businesses in becoming more technologically

aware and more technologically sophisticated, the aim of this study is to educate businesses, especially telecommunication firms how through the use of technology they can become more competitive and compete effectively as well as how through the use of technology a firm may become more effective and efficient in their businesses practises. By conducting this study the researcher took a businesses competitive advantage into consideration, achieving a competitive advantage and the world around technological advancement with regards to competitive advantage has always been in the back of the researcher mind while conducting the study. The researcher aims to contribute to making a business more effective and efficient as through the use of technology this is possible due to the fact that technology is a world full of information and change and this tool can be used to differentiate a business from their competitors and this is how firms may reach a competitive advantage. Therefore, the main contribution the researcher aims to achieve is to inform and aid businesses in using technology to their advantage as well as gaining, through the use of technology, an upper hand over your competitors.

#### **6.4 Ethical Considerations and limitations.**

Ethics in terms of research refers to how a person conducts themselves and how they go about conducting their research. It also refers to their morals and principles as well as what a person sees as right (Du toit. 2012). By following the following criteria, it will ensure that the researcher conducts their research ethically and morally, and it will guide the researcher but using ethical codes of conduct. The following criteria are as follows:

- 1) The first set of criteria dictates that the researcher will not force any individual to participate in their research study unwillingly. This states that if a participant does not want to partake in any activity of the research study then the researcher should not force the individual but rather go and find another individual that wishes to participate in the activities of the researcher (Du toit. 2012).
- 2) The second criteria entail that the researcher should have an unbiased research study. This stipulates that the researcher should not influence the choice/decision of the participant by influencing a choice of answer by sharing your opinion on the topic before the participant can answer the questionnaire or participate in the research activity. The researcher should remain unbiased by letting the participant make their own decisions and answer the questionnaire how they feel fit (Du toit. 2012).
- 3) The third criteria entails creating an environment that is comfortable and stress free. The research should create an environment that is safe and one where

the participants feel comfortable, if they fail to do this the participants will feel uncomfortable and not want to partake in the research study/activities (Du toit. 2012).

- 4) The fourth criteria includes being transparent and asking for permission. The researcher should get full consent from the participant to use the information gathered from the participant. The researcher also has the responsibility to tell the participant how and where the information will be used as well as for what purpose the information is being obtained (Du toit. 2012).
- 5) The fifth criteria includes making the participants anonymous if they do not wish to be mentioned. The research may not stipulate the identity of the participant if they do not want their identity stipulated, in such cases the researcher will have to put the participant's identity as anonymous (Du toit. 2012).
- 6) The sixth criteria stipulates that no harm or threat will be encounter by the participant in order to get their participation. Participants should be free and do as they please (Du toit. 2012).
- 7) The seventh criteria entails that all participants will be communicated to effectively and timely. The researcher should communicate to all of the participants what is happening, why it is happening and for what purpose. Everyone should know what is going on in order to participate in the research effectively (Du toit. 2012).
- 8) The eighth point entails that the researcher should not misuse the information obtained for something else. The researcher should stay true to their course and conduct and use the information as initially stated by the researcher (Du toit. 2012).
- 9) The ninth criteria include the researcher giving each of their participants their own privacy when needed. To ensure this happens the researcher as well as the participant will sign a disclaimer which entails that full privacy will be given as well as the misuse of the information will not be done (Du toit. 2012).
- 10)The tenth and last criteria includes the researcher not giving their own answers which will make the data biased and untrue (Du toit. 2012).

The Limitations of this study included time restrictions, often the people who the researcher wants to interview has a specific time frame in which they are available to be interviewed, therefore the interview needs to be time orientated and time specific, another limitation is finances, the researcher needs to take traveling costs, now due to Covid-19 these costs might not occur, if no physical contact is made

then other costs such as data and network costs needs to be accounted for due to conducting the interview over a social media platform.

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## **Annexures A-D**

### **ANNEXURE A: EXPLANATORY INFORMATION SHEET AND CONSENT FORM FOR PARTICIPANTS**

To whom it may concern,

My name is Ryan Pillay, and I am a student at Varsity College Sandton. I am currently conducting research under the supervision of Aarifah Razak about the impact technological advancement has on a company's competitive advantage. I hope that this research will enhance our understanding of how businesses can use technology to their advantage as well as the significant impact technology has on everyone's lives in today's day and age.

I would like to invite you to participate in my study. In order to explain to you what your participation in my study will involve, I have formulated questions that I will try to fully answer so that you can make an informed decision about whether or not to participate. If you have any additional questions that you feel are not addressed or explained in this information sheet, please do not hesitate to ask me for more information. Once you have read and understood all the information contained in this sheet and are willing to participate, please complete and sign the consent form below.

#### **What will I be doing if I participate in your study?**

I would like to invite you to participate in this research because it can really help the researcher with data collection which may further the understanding of the researcher and this will eventually help the research derive a conclusion if whether firms do actually need technology or whether it is just a misconception. If you decide to participate in this research, I would like to set up a short one on one interview whereby I will ask the participant various questions on the topic at hand, I will then collect all the responses and evaluate each and every one of them in order to make a final decision.

You can decide whether or not to participate in this research. If you decide to participate, you can choose to withdraw at any time or to decide not to answer particular interview questions.

### **Are there any risks/ or discomforts involved in participating in this study?**

Whether or not you decide to participate in this research, there will be no negative impact on you. There are no direct risks or benefits to you if you participate in this study. You might, however, indirectly find that it is helpful to talk about you're the impact technological advancement has on a company's competitive advantage. If you find at any stage that you are not comfortable with the line of questioning, you may withdraw or refrain from participating.

### **Do I have to participate in the study?**

- Your inclusion in this study is completely voluntary.
- If you do not wish to participate in this study, you have every right not to do so;
- Even if you agree to participate in this study, you may withdraw at any time without having to provide an explanation for your decision.

### **Will my identity be protected?**

I promise to protect your identity. I will not use your name in any research summaries to come out of this research and I will also make sure that any other details are disguised so that nobody will be able to identify you. I would like to ask your permission to record the interviews, but only my supervisor, I and possibly a professional transcriber (who will sign a confidentiality agreement) will have access to these recordings. Nobody else, including anybody at Varsity college Sandton, will have access to your interview information. I would like to use quotes when I discuss the findings of the research but I will not use any recognisable information in these quotes that can be linked to you.

### **What will happen to the information that participants provide?**

Once I have finished all interviews, I will write summaries to be included in my research report, which is a requirement to complete my Honours in strategic management degree. You may ask me to send you a summary of the research if you are interested in the final outcome of the study.

### What happens if I have more questions about the study?

Please feel free to contact me or my supervisor should you have any questions or concerns about this research, or if there is anything you need to know before you decide whether or not to participate.

You should not agree to participate unless you are completely comfortable with the procedures followed.

My contact details are as follows:

Ryan Pillay

The contact details of my supervisor are as follows:

Aarifah Razak.

## Consent form for participants

I, \_\_\_\_\_, agree to participate in the research conducted by Ryan Pillay about the impact technological advancement has on a company's competitive advantage.

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 the research interview.
5. I may be quoted directly when the research is published, but my identity will be protected.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## **Annexure B**

### **Questions to ask in interview.**

- 1) How long have you worked for your current place of employment?  
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- 2) What is your understanding of technological advancement?  
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.....
- 3) What would you say the perceived benefits of using technology in a company is?  
.....  
.....  
.....
- 4) Would you say technology is needed in all businesses or just technology intensive business's?  
.....  
.....  
.....
- 5) What is your perception of a competitive advantage?  
.....  
.....  
.....
- 6) Do you think a competitive advantage is vital for a firm's success or do you think that a firm may operate successfully without achieving a competitive advantage?  
.....  
.....  
.....
- 7) Do you think technological advancement is vital when a firm is trying to achieve a competitive advantage?  
.....  
.....  
.....
- 8) How much, if you could give a brief estimate, does your company use technology as a whole and also how much of the firm's achievement of a competitive edge has attributed to technology implementation?  
.....  
.....  
.....

- 9) With the implementation of technology in a company, it is known to be quite an expensive endeavour to constantly keep up with trends and new technology, would you say it is worth the time and finances to constantly be upgrading the firms technology or do you believe that a firm should stick to the traditional ways of doing business?

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- 10) In today's world, technology is leading all industries, do you personally prefer the technological landscape, or do you prefer the traditional ways of doing things before technology took over?

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## **Annexure C**



**24 JULY 2020**

**Student name:** Ryan Pillay  
**Student number:** 17599071  
**Campus:** IIE's Varsity College

**Re: Approval of Bachelor of Commerce Proposal and Ethics Clearance**

### **HONOURS ETHICAL CLEARANCE LETTER**

Your research proposal and the ethical implications of your proposed research topic were reviewed by your supervisor and the campus research panel, a subcommittee of The Independent Institute of Education's Research and Postgraduate Studies Committee.

There are some aspects that you still need to address in your proposal. You will need to address these aspects in consultation with your supervisor before you may proceed (see below):

**Please discuss with your supervisor/navigator/lecturer how you will address these issues listed below:**

Please note: **Your fieldwork may only proceed once you address the following issues:**

- Please make all the changes suggested/recommended by your supervisor.
- Title suggestion – *The perceived impact of technological advancement on a telecommunications company's competitive advantage in Johannesburg, South Africa.*
- Paradigm – you acknowledge all three but your focus should be on your selected paradigm.

In the event of you deciding to change your research methodology in any way, kindly consult your supervisor to ensure all ethical considerations are adhered to and pose no risk to any participant or party involved. A revised ethical clearance letter will be issued.

We wish you all the best with your research!

#### GENERAL CONDITIONS TO BE FULFILLED IN RELATION TO RESEARCH

*Permission is granted to proceed with the above study subject to the conditions listed below being met and may be withdrawn should any of these conditions be flouted.*

**Please note:** The panel has not considered the merits, accuracy or ethical soundness of the research. The only merits examined are the use of The IIE as a sample.

Permission is granted subject to the following conditions:

1. The researcher(s) will need to obtain informed consent in writing from all of the participants in his/ her sample if the study is not anonymous.
2. The researcher(s) may only use the data collected for research purposes and in no other way.
3. Photographs of human subjects may only be taken if relevant to the research, informed consent was obtained, and even with informed consent, the photographs may not be published on any online platforms.
4. The researcher is responsible for supplying and utilising his/her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institutions and/or the offices visited for supplying such resources.
5. No names or identifying information of participants may be used within the research and the research must be voluntary.
6. Please make it clear that the information will not be used punitively in any way and participants may in no way be counselled/advised based on this.

Supervisor:



AARIFAH RAZAK

Campus Postgraduate Coordinator (CPC):



JENNA-LEE RAMNARAIN

## Annexure D

PROVISIONAL TITLE: The perceived impact of technological advancement on a telecommunications company's competitive advantage in Johannesburg, South Africa.

| Research Purpose/<br>Objective                                                                                                             | Primary Research Question                                                       | Research Rationale                                                                                                                                                                                               | Seminal Authors / Sources | Literature Review – Conceptual Framework                                                                                                          | Paradigm                                                                                                                                                                                                                                                                      | Approach    | Data Collection Method(s)                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------|
| In the following research study, we wish to evaluate the effect technological advancement has on a company's global competitive advantage. | How does technological advancement impact on a company's competitive advantage? | It gives the company a true indication of how, by using technology a competitive Advantage can be obtained. By making use of Porters 5 forces we will be able to derive a justified answer to the topic at hand. |                           | Theme 1:<br>A broad overview of technological advancement and competitive advantage.                                                              | Paradigm<br>Interpretivism<br>Will be used as we are attempting to interpret the effect technology has over a company. In this research study we will determine if the variables under study are dependent on each other or if they are independent and have no relationship. | Qualitative | We will use surveys, questionnaires and interviews to obtain the information we need to make an informative decision. |
|                                                                                                                                            |                                                                                 |                                                                                                                                                                                                                  |                           | Population                                                                                                                                        |                                                                                                                                                                                                                                                                               |             |                                                                                                                       |
|                                                                                                                                            |                                                                                 |                                                                                                                                                                                                                  |                           | Population Parameters<br>The population characteristics are businesses that use technology in their operations and daily running of the business. |                                                                                                                                                                                                                                                                               |             |                                                                                                                       |

| Research Problem                                                                                                                                                                                      | Secondary Questions/<br>Hypotheses/<br>Objectives                                                                                                                                                                                  | Key Concepts                                                                                                                                                                                                                                                                                                                                                                       | Key Theories |  |  | Sampling                                                                                                                                                                                                                                                                                                                | Data Analysis Method(s)                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Companies struggling to compete with technological advancement due to underlying factors such as lack of skills, low funds and not being able to keep up with competitor's technological advancement. | Gaining an understanding of what technological advancement is?<br>Identifying what the business understands about technological advancement?<br>Identifying what the businesses global competitive market is and how technological | <i>Technological advancement-developing a change in the way products and services are offered and delivered by using technology intensive strategies.</i><br><br><i>Job security-maintaining and achieving permanent status within a company.</i><br><br><i>Competitive advantage-this refers to getting a more favourable position over your competitors in the market place.</i> |              |  |  | non-probability sampling will be used as the samples are not chosen at random rather they are carefully selected, in this case a Telkom manager.<br><br><b>Sampling method</b><br>The chosen sampling method for this research document was non-probability sampling, which will take the form of purposive sampling as | <b>Unit of Analysis</b><br><i>Managers and people who are in senior seats of a firm that uses technology to gain a competitive advantage.</i><br><br><b>Data Analysis Method(s)</b><br><i>The chosen data analysis method chosen is thematic research as this will help the researcher effectively gather information from their respondents.</i> |

| Media                                  | Links                                                                                                                                                       | Comments                                                                                                                                                                  | Header & Footer | Text                                                                                                                                                                                                                                                                                                                                                                         | Symbols                                                        |
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| competitors technological advancement. | about technological advancement?<br>Identifying what the businesses global competitive market is and how technological advancement might help the business? | and winning permanent status within a company.<br><br>Competitive advantage- this refers to getting a more favourable position over your competitors in the market place. |                 |                                                                                                                                                                                                                                                                                                                                                                              | manager. especially gather information from their respondents. |
|                                        |                                                                                                                                                             |                                                                                                                                                                           |                 | <p><b>Sampling method</b><br/>The chosen sampling method for this research document was non-probability sampling, which will take the form of purposive sampling as we are looking for specific characteristics and we are looking at a niche in the population.</p> <p><b>Size:</b> 4 employees who work for firms that use technology to gain a competitive advantage.</p> |                                                                |