COMPETITIVE PRIORITIES AND GROWTH OF TECH STARTUPS IN NAIROBI, KENYA

DONATTAH AKINYI AJUANG'

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A RESEARCH PROJECT REPORT IS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT OF THE DEGREE OF MASTER OF SCIENCE IN OPERATIONS AND TECHNOLOGY MANAGEMENT AT THE UNIVERSITY OF NAIROBI.

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DECLARATION

This research is my original work and has not been presented for the award of any degree in any other university.

Signature  **Date** 15/9/2022

Donattah Akinyi Ajuang'

D68/19877/2019

This research has been submitted for examination with my approval as University Supervisor

Signature X N Iraki **Date** 15/9/2022

Prof. X.N. Iraki

Faculty of Business and Management Sciences

University of Nairobi

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ABSTRACT

This research focused on competitive priorities adopted by tech startups in Nairobi, Kenya, and how the competitive priorities adopted impacted the growth of tech startups. The research questions were: What is the competitive priorities adopted by tech startups in Nairobi, Kenya? What are the growth determinants of tech startups in Nairobi, Kenya? What is the effect of competitive priorities on the tech startup growth in Nairobi Kenya? Are the competitive priorities of tech startups in Nairobi similar to Silicon-valley startups? To achieve these objectives the study used a descriptive research design. Data were collected from 50 tech startups in Nairobi Kenya using questionnaires with the respondents mainly the founders, co-founders, owners, and software engineers. The results of the study indicated, that among the four main competitive priorities, quality was the most adopted followed by cost then flexibility, and lastly delivery speed. The results of the study also showed that the growth rate of tech startups in Nairobi is 22.7% as of 2020. The growth metrics were the number of employees, User Engagement, Customer Retention, and Number of downloads, Installations, or signups. The study concludes that Cost, delivery speed and flexibility competitive priorities influence the growth of tech startups in Nairobi. Silicon Valley startups, on the other hand, prioritize innovativeness and are quick to adapt to innovations and technology thus resulting in disruption and competitiveness globally. The study suggested that further research is necessary on the adoption of other competitive priorities such as innovation, customer retention, sustainability, customer service, and their influence on the growth of tech startups in Nairobi, Kenya.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Nairobi, the capital of Kenya has been dubbed "the Silicon Savannah" because of the growth in tech startups (Krobath & Stoisser, 2018). In 2016 alone, according to the World Bank, there were 173 new startups and approximately 90 million US dollars were invested (Krobath & Stoisser, 2018). A lot of multinational tech organizations have set up their regional headquarters in Nairobi Kenya including Microsoft, Uber, Oracle, and IBM.

Figure 1 - Oracle Kenya

Figure 2: IBM Kenya

Figure 3: Microsoft Kenya (ADC)

There are very many other tech communities in Nairobi that entail technology experts as well as beginners. These communities offer support in terms of a professional network, mentorship, expertise in various technologies as well as creating a partnership in various business ventures.

Based on the membership numbers of tech groups in Nairobi on meetup.com as of August 2020, Google Developers Group has approximately 8100 members, the AI community has approximately 4100 members, Nairobi Women in Machine Learning has approximately 3000 members, Python Nairobi has approximately 2100 members, Nairobi Javascript community has approximately 1500 members (meetup.com, 2020).

In addition, there are various incubation centers in Nairobi to support tech entrepreneurs. C4DLAB and FabLab at the University of Nairobi, iBizAfrica which has partnered with iLabAfrica, ihub, mLab East Africa, and Nailab are just a few. In 2007, Facebook Inc and Alphabet Inc.'s Google established a strategic alliance with ihub to access app developers and train them to tap the local talent for their coding skills and product development. They also offered machine learning, cloud, and artificial intelligence that boosted the region's role as Africa's center for technology (Stevis, 2017).

Various learning accelerators are nurturing and equipping new developers in the growing tech space. They include Moringa school which offers tech-based learning to equip its learning with industry-specific skills (Moringa). Lux Tech Academy offers free online training Boot Camps of coding classes and crushes courses (Lux Tech Academy).

The tech startups are attracted by a highly developed digital infrastructure. Mobile technologies, especially smartphones, tablets, and laptop ownership are high in addition to internet connectivity. This resulted in the growth of consumer markets for technology not just in Kenya alone, but in the larger East Africa Region. In addition to this, the number of local and

international seed funds, and angel and impact investors have flooded Nairobi with huge hopes and expectations to spot and sponsor the next big tech startup in Nairobi (de la Chaux, Okune, 2017). New technology startups are being created annually due to the growing trend toward innovative ideas (Hormiga et al., 2010). The openness of the Kenyan economy has led to a boom in innovative ideas pioneered by mpesa.

It is still very difficult to create and grow tech startups in Nairobi (Quartz 2014; Malupi 2013). This has not deterred entrepreneurs from flocking to Nairobi. In addition, there are enough problems to solve and make money if the startup succeeds. Nairobi has no unicorn startups while India's technology-based startups have 24 active unicorns - startups' value exceeding USD 1 billion (NASCCOM, 2019).

1.2 Tech Startups in Nairobi

Technology startup companies commonly known as tech startups are defined in various ways. It entails understanding technology and creating services as well as products (Candi& Saemundsson, 2011). They develop or own the technology and use it in value creation. They are categorized by the intensity of R&D and the mass of intangible assets which are mainly technical (Kim et. al, 2015).

Nairobi houses more than 200 startups. These tech startups are working towards solving problems that are facing the country such as finding a parking spot, helping farmers achieve maximum yield as well as getting access to customers and investors such as M-farm and Twiga

food. Finding apartments or land to buy or rent. A good example is buyrent Kenya (Malonnee, 2018).

Wefarm is a free farmer-to-farmer digital Network that has approximately 1 billion farmers and thus boasts of being the world's largest farmers' network. It helps farmers solve problems, and share ideas and innovations. Looking at four successful startups below indicates the potential of Nairobi tech startups.

Pesapal which is one of the most successful Kenyan Tech startups was founded in 2009. It provides a secure way to make and accept payments in Africa to both individuals and businesses. It works via the internet and directly through the phone. It has partnered with banks, credit card partners, and network operators to provide payment options to its customers. They process approximately 150,000 transactions per day. It has more than 22,000 registered merchants who can receive payments from their clients (VC4A, 2018).

Africa's Talking is another successful startup based in Nairobi, Kenya. It was founded in 2010 by Eston Kimani and Samuel Gikandi. It provides mobile solutions by integrating a reliable two-way SMS, voice, and USSD across various mobile providers in Africa. They have over 20,000 developers registered on their platform. They are helping software developers by making it simple to access local infrastructure and making it open to them (VC4A, 2018).

Twiga food was started in 2014 by Peter Njonjo and Grant Brooke. It offers a business-to-business marketplace that sources quality fresh and processed foods from farmers and manufacturers and delivered them to vendors at friendly prices. It has bridged the gap in food and market security as it has enhanced efficiency, transparency, and fairness in the market from retail

outlets, kiosks, and market stalls. Twiga uses a mobile-based, business-to-business supply platform for Africa's retail outlets, kiosks, and market stalls thus enhancing access and distribution to millions of vendors in African markets that largely comprises small and medium-sized vendors. They use technology to offer convenience to urban retailers by saving them a trip to the market. It has linked 9000+ farmers with 5000+ vendors. It has a team of over 400 professionals. Twiga originated from Nairobi Garage and after 176 pitch competitions, they managed to obtain Venture Capitalist traction in 2015 (VC4A, 2018).

Kenya has the most expatriate as co-founders of tech startups compared to Nigeria and Ghana (McCormick M., 2019). In terms of funds raised by the tech startups. Expat founders tend to get the lion's share while the local founders only obtain a paltry of the total (Njoki & Gugu,2020). This is reflected also in America as more than half of its startup companies which are valued at $1 billion or more are owned by immigrants (Anderson, 2018).

1.3 Competitive Priorities

Competitive priorities are quality, delivery speed, cost, and flexibility characteristics (Rosenzweig & Easton, 2010). They are determined by the customers (Garo Junio & Guimarães, 2018). Competitive priorities are the key dimensions that must be addressed by a firm's production system to support the market's demands which it wishes to compete with (Krajewski & Ritzman,1993).

Skinner (1992) refers to competitive priorities as the dimension of competition, organizational priorities, order winners, and qualifiers. Competitive priorities are the key action points that are

adopted by a firm to compete in its environment. (Hayes and Wheelwright, 1984) Companies compete mainly through quality, lead time, cost, and flexibility (Wheelwright, 1978; Hayes & Wheelwright, 1984). Competitive priorities vary according to various authors. Innovation and dependability are other competitive priorities (Foo and Friedman, 1992). When an organization focuses on one competitive priority, it limits its ability to focus on another priority (Rizvi & Saiyed, 2015). There are many variables in an organization's growth and development thus they require intensive research and exploration to find the best means of attaining one of the competitive priorities that will give them a competitive advantage (Robaaiy, 2020).

1.4 Growth Metrics for Tech Startups

Growth is the change in size within a defined time (Dobbs & Hamilton, 2007). Growth is a process as it is obtained from various factors and certain activities (Davidsson et.al, 2010). The probability of a small business closing is reduced by growth (Rauch & Rijskik, 2013). Growth metrics can be revenue, active users or the average customer spend (Stettler, 2018).

Various metrics can be used to track a start-up's growth. They include software engineering metrics that involve developing the software further such as load speed. Business and financial metrics are related to the current and future revenue focus such as customer retention costs. The other is user and customer metrics that focus on tracking user behavior (Kemell et al., 2020). Daily active users which is the count of unique customers in a given day or weekly active users which is a count of unique customers for the last 7 days, today included. UE (User engagement) is determined by dividing the DAC (Daily Active Users) over WAU (Weekly Active Users). Thus, UE = DAU/WA This is one of the metrics and it has been popularized by Facebook.

Customer retention rate is obtained by getting the active users at the end of the week minus the active users at the start of the week then dividing the number of active users (New, existing, dormant, reactivated) in a given week (WCR = E-N/S). The other important factor to measure is the customer acquisition cost which is obtained by computing the total expenses in a given period, let's say the last 7 days, divided by the number of active users in a given week (CAC = EN/N) (Sharma, 2019).

1.5 Statement of the Problem

The opportunity for growth of tech entrepreneurs in Nairobi is huge. But it is difficult for tech entrepreneurs to create a sustainable business in Nairobi (Quartz 2014; Mulupi 2013). Data illustrates this difficulty. John Kieti, who runs MLab stated that, out of fifty Tech Startups that go through MLAB, only five to ten survive past one year (Contributor, Bizna Kenya 2017) which is around a 10% - 20% growth rate. The case is different in Silicon Valley. According to Levitt (2018), the founder of WebAppoint which was acquired by Microsoft indicated that only 50% fail.

There are many reasons for tech start-up failures, poor team formation is one of them. Tech founders often have no team personnel with marketing, sales, partnership, and distribution skills. They find it difficult to hire the right people who have the right skill set (GSMA, 2014). The huge disconnect between the emerging tech developers and the research community, starting to develop a new app before grasping the problem, and having no confidence in ourselves resulted in the surrender of the new business idea to a foreign venture capitalist (Ndemo, 2014).

Although all these studies indicate why tech startups fail in Kenya and elsewhere, they fail to point out how they can enhance their growth and balance their competitive priorities. This study aims to answer the questions: What are the competitive priorities adopted by tech startups in Nairobi Kenya? Is there a relationship between the competitive priorities adopted and the growth of tech startups in Nairobi Kenya? Do the Competitive priorities adopted by tech startups meet the global standards (Silicon Valley)?

1.6 Objectives of the study

1.5.1. General Objectives

The primary objective of this research is to analyze key competitive priorities and the growth of Tech Startups in Nairobi.

1.5.2. Specific Objectives

1. To determine the competitive priorities adopted by tech startups in Nairobi, Kenya.
2. To determine the growth of tech startups in Nairobi, Kenya.
3. To determine the effect of competitive priorities on tech startup growth in Nairobi, Kenya.
4. To benchmark the competitive priorities of Kenyan tech startups with Silicon Valley priorities.

1.7 Value of the study

The study will be useful to founders of tech startups in Nairobi so that they can not only concentrate on the idea and the bigger picture but the day-to-day operations of the company to

ensure its growth and success. Thus, resulting in customer satisfaction and competitive advantage.

The study will have academic importance as it will contribute to the less available knowledge in Operations Strategy in startups. It can act as a source of Literature for academics in the field of Operations Management.

The study will be an important tool for the government and other policymakers in making decisions and regulations that will impact tech startups in the country. It will guide investors in making funding decisions for tech startups in Nairobi.

CHAPTER TWO: LITERATURE REVIEW

2.0. Introduction

This chapter contains subtopics on key theories, competitive priorities, and tech startup growth. A review of Nairobi Tech Startups and ecosystems, a global view of tech startups, and a conceptual framework conclude the chapter.

2.1. Key theories

Various theories have been used to explain the rationale of competitive priorities. This study was rooted in the tradeoff theory, Industrial/Organizational Theory, and Competence-based theory.

2.1.1. Trade-off Theory

The model or theory was founded based on specialization. (Skinner, 1969) The five major performance objectives of operations strategy as mentioned earlier are delivery speed, quality, cost, and flexibility. It may be difficult for organizations and companies to excel in all four competitive priorities.

Operations strategy requires an organization to make trade-offs thus the need to set priorities. A firm has to have set priorities which will determine how the business will fare as compared to its

competitors (New, 1992). Tech start-ups may not find it easy to set their priorities; they lack experience.

2.1.2. Industrial/Organizational Theory (I/O)

I/O theory is a competitive strategy framework that defines how market structure influences firm performance (Porter, 1980). I/O theory indicates the market structure as being the key strategy that results in adjusting operating operations strategy to improve the performance of the firm (Ward and Duray, 2000).

Identifying the existing market need and then implementing an operations strategy that will adjust the operations resource is a perspective of I/O external orientation in operations strategy (Swamidass, 1989). This will help tech startups in Nairobi Kenya to move away from seasonal value propositions and avoid flooding the market with applications that only solve one market need (Marex, 2016). They need to build solutions that meet the various existing market need and be market-led and adjust to evolving market requirements.

2.1.3. Competence-based Theory

This is a theory of competitive advantage that is linked to new product development activities. Its main objective is to show the method by which a firm can build a competitive advantage via R&D and innovative activities.

A firm can only be competitive if it has a proven ability in market processes with customers and suppliers. Its competitiveness is dependent on its ability to withstand the competitive forces of its rivals in the market (Schneider, 1997). Tech startups in Nairobi need to innovate in their products

and services and do a lot of R&D to be able to grow and compete in the Kenyan and also global tech industry

2.2. Competitive Priorities.

This study focused on the four main dimensions of competitive priorities which are cost, quality, delivery speed, and flexibility (Rosenzweig & Easton, 2010). Other studies suggest additional priorities that include After Sales Service (Frohlich & Dixon, 2001), customer service (Russell & Millar, 2014, Sustainability (Johansson & Winroth, 2010), and Innovation (Peng et. Al, 2011). Huge literature exists to theoretically classify competitive priorities into the four main competitive priorities despite the semantic differences that exist among them (Hayes & Wheelwright, 1984, Ward, Duray, Leong, & Sum, 1995).

2.2.1. Cost

This entails selling a product at a low price as compared to competing products. A high-profit margin can be achieved using this low-cost strategy. Operations managers in these companies base their decision-making on cost reduction hence enhancing productivity (Barnes et al. (2003). It is important to keep note that low cost does not mean low quality. An operations manager is expected to study every aspect of costs in labor, material, overhead, and process and procedure (Slack, 1994).

Companies that compete in terms of cost carefully examine their operations systems and get rid of all waste. Lean services are utilized, thus incorporating the lean manufacturing idea into service operations (Hanna & Julia, 2007). They give customers a narrow range of products thus

fewer customizations are needed on the products. For example, Apple uses a high pricing strategy to emphasize the perception of added value, therefore, maintaining portability. They also set the bar for their competitors who must provide the same features to match the perceived value for Apple products without losing money (Linton, 2018).

Tracey, Vonderembse, & Lim (1999) and Safizadeh, Ritzman, Sharma, & Wood, (1996), Ward & Duray (2000), and Ward et al., (1996) have shown the robust affirmative association between cost and price. Competitive advantage by lowering the cost is obtained through automation (Porter and Millar, 1985). Tech start-ups can reduce their costs by using IT in design and layout thus increasing their ability to coordinate their activities, therefore lowering the firm's production cost (Sarkar, 2012). This study will investigate if this is a key priority for startups.

2.2.2. Quality

Quality is considered the main priority in terms of obtaining a competitive advantage (Flynn, Sakakibara, & Schroeder, 1995; Garvin, 1988). Meeting or surpassing customer needs in service is quality (Grönroos, 1983). To achieve quality as a competitive priority, organizations focus on the measure or determinant of quality that their customer views as important.
Customer's acceptance or disapproval of the quality of a product or service given is largely dependent on whether their expectations have been met or exceeded (Fitzsimmons & Fitzsimmons, 1994).

These companies need to evaluate their customers' expectations before developing new services and then track and get feedback from customers after introduction (Zeithaml et al., 2009). The

strong relationship between quality and firm performance conforms to the TQM concept and prior empirical studies (Flynn et al., 1995; Williams et al., 1995).

Customers must participate during the production of the service and value creation as it is done in most service delivery systems (Zeithaml et al., 2009). For a tech start-up to gain a competitive advantage with quality, they have to ensure the processes output the product as exactly as it is designed and the designed product to meet its customer's needs (Gordon, 2003).

2.2.3. Delivery speed

Availability, speed, reliability, and convenience define delivery (Ward et al. (1998). To compete based on this strategy, these companies have many general-purpose tools that can be used to do various processes and produce various products. The employees have more skills and thus can execute various activities to satisfy the customer (Rondeau et al., 2000).

The three elements of delivery according to Wacker are speed, reliable delivery, and new product delivery (Walker1996). Delivery is a time issue, that is, the speed at which the products/services are improved, the time taken to deliver a product /service to a client, and how reliable the delivery is (Li, 2000). Speed and reliable deliveries are the two items of delivery (Wacker, 1996). The degree of importance put on increasing delivery reliability or delivery speed highly affects delivery performance (Ward & Duray, 2000).

Technology is highly used to speed up the processes, unnecessary steps are removed from the process and the employees are flexible to meet the demand during the peak period (Rondeau et al., 2000). Today time is the most competitive advantage. For a tech startup to achieve this,

things have to be done faster in response to the demand of the customer by giving short lead times between customer requests and when the service is given to the customer (Johnson et al., 2005).

2.2.4. Flexibility

The company environment is changing rapidly so customers ' expectations and needs change too thus making flexibility a competitive priority for companies to manage their operations (Harvey et 13 al, 1997). Flexibility is the ability of a firm to either exceed or meet a customer's expectations by managing its resources as well as its uncertainty (Zhang, Vonderembse, & Lim, 2003). To compete based on flexibility, a firm needs to be able to manage environmental uncertainty (Swamidass & Newell, 1987).

A company's flexibility is determined by its ability to simultaneously switch between products and parts (Hall, 1983). Flexibility is also viewed as a firm's ability to either rapidly increase or decrease the number of products produced to be able to meet the ever-changing market demand. It is also defined as volume flexibility (Vokurka and O'Leary-Kelly, 2000).

Improving the distribution of resources and the proper allocation of available resources to perform a given activity is the core of flexibility. It ensures resources are adopted at the ideal time when they are needed (Duclos et al., 1995)

Flexibility is a useful tool that tech start-ups in Nairobi can adopt to improve their competitive position. It is important to consider the kind of technology to adopt and implement (Fitzsimmons et al., 2006).

2.3. Competitive priorities adopted by various industries.

Bouranta and Psomas's study verifies that whether an industry is manufacturing or service, the same competitive priorities- quality, delivery speed, the cost is- applied. The only difference is the emphasis they give selected competitive priorities (Bouranta, N. & Psomas, E., 2017).

The distinctive competitive priority in the service industry; are cost, flexibility, quality, and delivery speed. Hotel and auto-repair focus on cost. Banks and private institutions focus on quality and delivery. High-performing firms focus on cost as the main priority followed by quality, delivery speed then flexibility while low-performing firms' quality and delivery are the top priorities followed by cost and flexibility (Idris & Naqshbandi, 2019).

2.4. Tech startup growth.

Tech startups use various metrics to measure their growth. They can utilize the standard business metrics or specific business metrics for startups and also tech-related metrics that are software related such as website metrics at their various life cycle stages (Wang et al., 2016). The growth metrics are divided into various categories business metrics, user and customer metrics, and software engineering metrics (Kemell et al., 2020).

The business and financial metrics are related to cost and revenues. They indicate growth regarding various monetary indicators. These growth metrics interest investors who want to see if they can make profits. An example is the Customer Retention Cost which involves the average amount spent on customer retention (Lovelace, 2018). A newly founded startup that does not have any revenue yet can use measures such as cash burn rate and cash on hand to determine its state of growth (Kemell et al., 2020).

The user and customer metric are a growth measure that indicates information about their users and customers in terms of Daily Active Users; Daily active users to Weekly Active users. This gives information about the user's activity. Such as the Customer retention rate which gives a percentage of users who are still using the service after a while (Alexeeva, 2018).

Software engineering metric entails the process and product or service. It provides tech startup growth metrics in terms of its operational life. It includes downloads and installs which gives information on the total number of downloads or installs. The Load time involves the time it takes for the software to respond to the commands put by the user (Causey, 2018). The study will identify the most popular metrics used by Kenyan tech startups.

2.5. Nairobi Tech Startups ecosystem

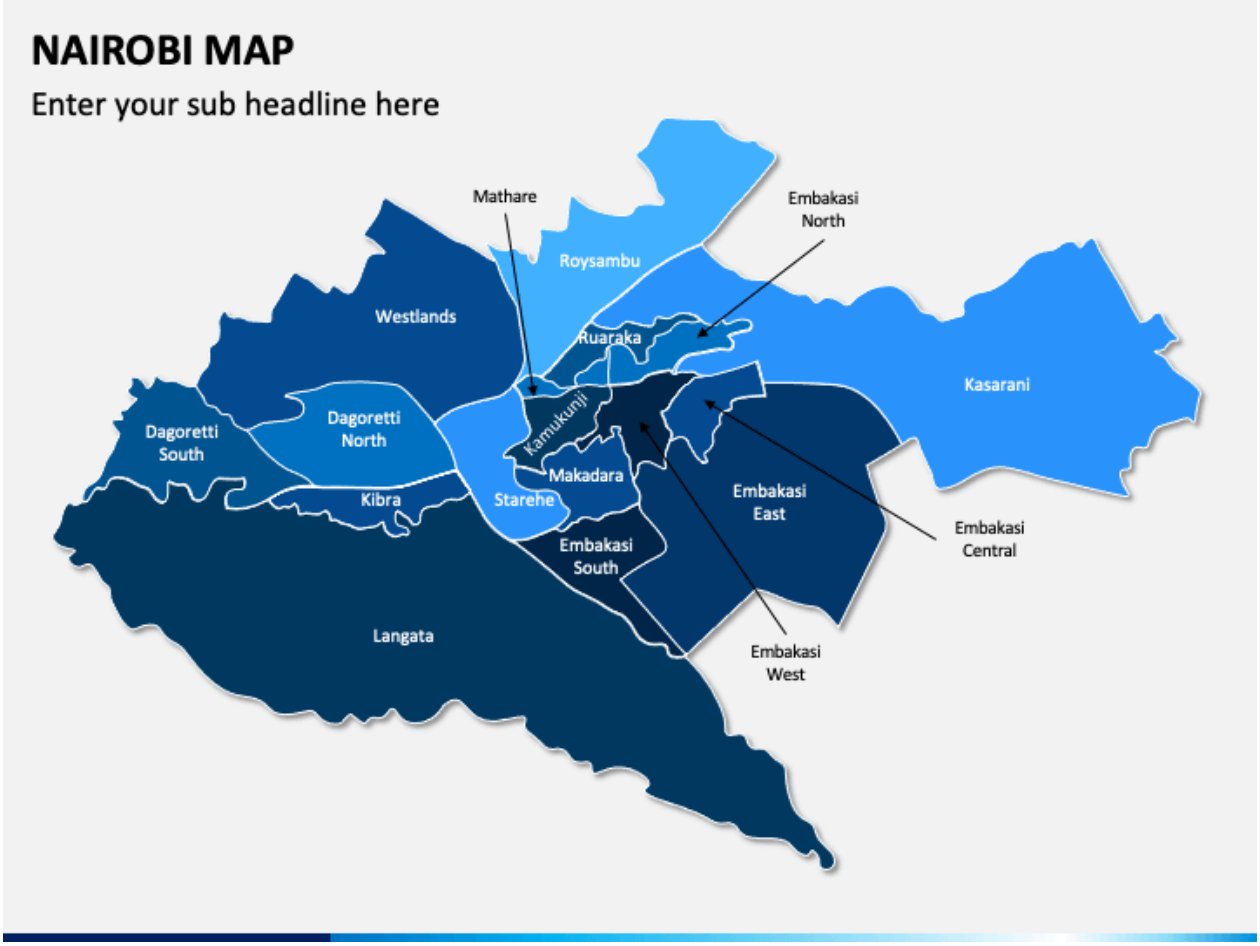

Figure 2.1 1

The start-up ecosystem involves founders, start-up teams, accelerators, innovation hubs, event organizers, corporations, government (county and national), NGO start-up building organizations and. Kenya's startup ecosystem is one of the most stable and developed in Africa and it is attributed to high-tech entrepreneurial talent, a large consumer and business market, and a strong corporate sector. It has the most mature startup ecosystem on the Continent. Based on the research conducted on 1333 ventures registered in the country, it was clear venture performance is influenced by the support from the Kenya Startup ecosystem (Gugu, 2018).

The key driver to the ecosystem was the undersea fiber optic cable laid in 2009 were laying, resulting in increased bandwidth and cheaper high-speed internet connectivity and later the growth of 3G and now 4G mobile internet connectivity. This led to the growth of the mobile consumer market thus a rise in 'apps' focused startups. The ministry of ICT in Kenya has played a major role by offering Tandaa Grants to fund a few startups to ignite activity in the sector and also showcase Kenya's talent in various sectors. Between 2010 and 2012, a total of 45 ventures received funding (Gugu, 2018).

In 2020, MLAB was founded thus becoming a defining moment in the Kenyan tech Start-up ecosystem. It was birthed by the University of Nairobi, hub, and Enablis. This provided training and incubation services to entrepreneurs innovating in mobile technologies. It held the first regional pitching competition for startups (Gugu, 2018).

One cannot mention Kenya's start-up ecosystem without M-Pesa. It is owned by Safaricom which is Kenya's number one telco and has revolutionized the mobile money transfer system. This has been a big boost to B2C and B2B start-ups that get payments from their customers. This has made start-ups build on top of this mobile payment infrastructure and thus focus on their product (Gugu, 2018).

2.6. Tech Startups: a global view

Around the world, startups are increasing rapidly in major cities, including London, Cape Town, Berlin, Madrid, Boston Buenos Aires, Moscow, Istanbul, Tel Aviv (for security), New York (financial technology), Mumbai, Paris, and Rio de Janeiro, to name a few (Florida, 2013). These

regions have many startups, leading academic and research institutes, availability of funds, talent, and a collaborative ecosystem. Over a third of the 141 companies in the Asia Pacific, America, and Europe whose value raised to $1 billion or more around 2015 were located in the Bay Area Silicon Valley (Deloitte, 2015).

Silicon Valley was and still is the most important center and technology disruption globally. With the invention of transistors, tech firms that began as startups have revolutionized the world of computing thus ushering in the digital age. Tech companies include Hewlett Packard, Apple, Intel (microchips), Cisco Systems (Internet networking), Microsoft (Operating System), Oracle (databases) sun microsystems (servers and workstations), Google, Facebook, and Twitter (internet Giants). Uber (transportation), Airbnb (accommodation and hotels), Tesla (automobiles) and so many more. Silicon Valley is at times seen as a mecca for startups (Kushida, 2015).

Shenzhen is the Silicon Valley of China and is also on its way to being the world's new Silicon Valley. This is because they are highly innovative, if not more than their best competitors. With top world companies like Huawei (leading global ICT solutions provider), Tencent (Internet services in China), DJI (world's largest consumer drone manufacturers) ZTE, and BYD (rechargeable batteries).

India is the third largest startup ecosystem in the world according to the NASSCOM Startup report in terms of the number of startups. The technology-based startups are approximately 9000 among them are 24 active unicorns - startups with a value exceeding USD 1 billion. The startups in India growth rate are between 12-15% annually (NASCCOM, 2019).

The global tech startup scene has also seen epic failure in some initially flourishing tech firms. Yahoo was the main player in the online advertising market but decided to focus more on becoming a media giant and failed to innovate and thus was eaten up by google. Nokia is another failed tech firm that was a global leader in mobile phones. Nokia's failure to grasp the concept of software thus collapsed. Viber IMO collapsed. They were WhatsApp competitors in 2014 that used to offer calls, messages, videos, and photo sharing via the internet. This is because WhatsApp managed to obtain a big pool of users very quickly (TOI Tech & Agencies, 2014). MySpace was overtaken by the growth of Facebook in 2005 and lost its users (Aaslaid, 2018).

2.6. Conceptual Framework.

In this study the dependable variable is growth and the predictor (independent) variables are the competitive priorities; cost, quality, delivery speed, and flexibility.

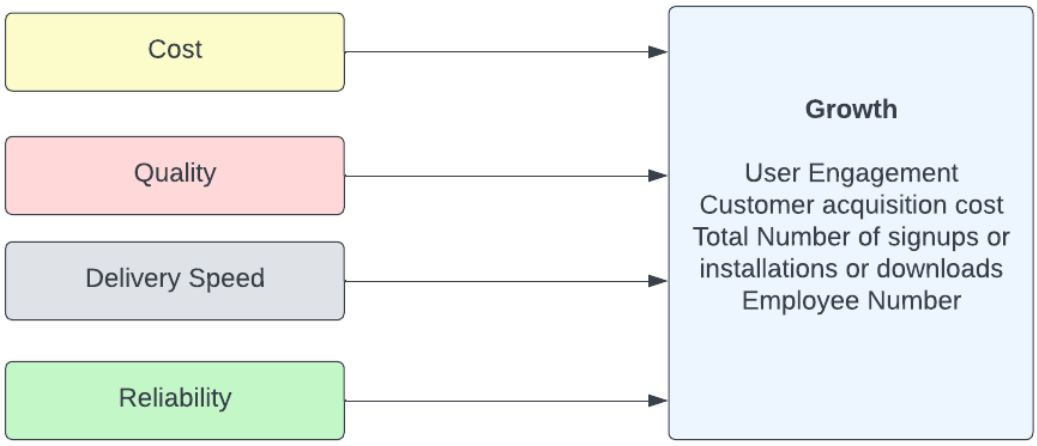

Figure 2.1 2

CHAPTER THREE: METHODOLOGY

3.0 Research Design

The descriptive research design was used in the study since it aims at defining the subject by creating a group of problems, and people, by collecting data and tabulating the frequencies of the defined variables or their interactions (Cooper and Schindler, 2006). The descriptive research was used to provide an accurate, valid, and reliable systematic description concerning the responses on the competitive priorities and growth of tech start-ups in Nairobi, Kenya. With descriptive research design, a descriptive survey design was undertaken which made it possible to describe the variables of the study.

3.1 Population of the study.

There are roughly 1333 Kenyan ventures based on research registered on the VC4A website. (VC4A, 2010). 50 tech startups were studied. This study targeted tech communities within Nairobi that include the Nairobi JavaScript community, React JavaScript Community, Angular Kenya Community, Django-Kenya Community, and Python/Django/Flask Community. (Meetup)

3.2 Sampling.

Stratified sampling was used and the various tech communities, which are grouped based on frameworks of interest and expertise each made a stratum (Nairobi Js, React JS, Angular KE,

Django-Kenya, Python/Django/Flask). A total of 50 tech start-ups were selected using convenience sampling in order of appearance according to their accessibility. The sampling process ended when the total number of participants is reached.

3.3. Data Collection.

A web-based survey was used for data collection since it was less costly to set up, easy to distribute (link sent to respondents), and effective especially now when there is a coronavirus pandemic. It was convenient for the respondents and gives them less pressure, it was easy to follow up and also useful, especially when targeting specialized populations (Rea &Parker, 2014).

Questionnaires are closed-ended and give uniform answers resulting in comparisons between respondent types and variables. (Bryman & Bell, 2011; Rea &Parker, 2014) It was useful to identify the competitive priorities employed amongst different tech start-ups in Nairobi. Closed-ended questions were implemented to enhance clear questions, simplicity of answering, and quick responses. The fixed answers made it easy to process data for analysis. (Bryman & Bell, 2011; Rea & Parker, 2014)

The questionnaire was clear in terms of guaranteeing the privacy and confidence of the respondent. It will be short, precise and easy to understand, and interesting to the respondent to answer. (Bryman & Bell, 2011; Rea & Parker, 2014) They were developed, then pre-tested to remove flaws and feasibility determined then it will be adjusted before being used to ensure quality, reliability, and validity.

3.4. Data analysis.

The study used tables and graphs to visualize the results as they will make it easy to explain and interpret and understand the collected quantitative data (Bryman & Bell, 2011).

The first objective was to identify the competitive priorities adopted by tech start-ups in Nairobi, Kenya. The summary measures of mean and standard deviation were calculated to indicate the key competitive priorities adopted by tech start-ups.

The second objective was achieved using the global average to determine the average growth rate of tech startups in Nairobi, Kenya.

The fourth objective was attained by a linear regression model that was used to assess the strength of the relationship between the dependable variable growth and the several predictor variables which are the competitive priorities; cost, quality, delivery speed, and flexibility.

$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

Where:

Y is the growth of startups

β_o= Represents the growth of start-ups when (X_1, X_2, X_3, X_4) =0

X_1 = Cost

X_2= Quality

X_3= delivery speed

X_4 = Flexibility

β_1, β_2, β_3, and β_4, represent the average effect on Y of a one unit increase of the coefficient of X_1, X_2, X_3, and X_4 holding other predictors fixed.

ε represents the error term

CHAPTER FOUR: RESULTS AND FINDINGS

4.0. Introduction

This chapter shows the results and findings of the study addressing the objectives which include: To determine the competitive priorities adopted by tech startups in Nairobi, Kenya to determine the growth of tech startups in Nairobi, Kenya. To determine the effect of competitive priorities on startup growth in Nairobi, Kenya. To benchmark the competitive priorities of Kenyan tech startups with Silicon Valley priorities.

4.1. Response Rate

A web-based survey in the format of a URL using the google form application was sent to the various strata (Nairobi Js, React JS, Angular KE, Django-Kenya, Python/Django/Flask) via an online link sent (See Appendix 3) via WhatsApp. 50 questionnaires were duly from a total population of 176 from the various strata selected based on the tech community in Nairobi Kenya, which are grouped based on frameworks of interest and expertise.

A response rate of 25%. According to Genre, the survey response rate which is greater than 20% is good. A realistic response rate range from 5% to 30% (Genroe,2019).

4.2. Demographic Information

The respondent's role in the startup was asked in the questionnaire. *Figure 1.1* indicates that 40% of the respondents were the co-founders of the tech startups, 38% were the founders, 20% were engineers who were working at the tech startups and 2% were the owners of the tech startups.

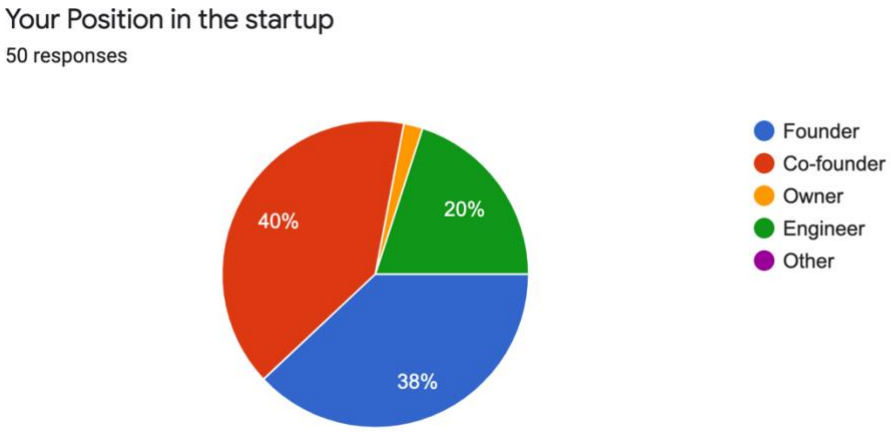

Figure 4.1

This shows that they had a vast understanding of the competitive priorities adopted by the tech startups and thus the information obtained from the respondent was credible.

4.3. Competitive Priorities adopted by tech startups in Nairobi, Kenya.

The mean score of the percentages was computed to show the respondents' ratings on the various competitive priorities. A Likert Scale Of 1-5 was used where 1= Strongly disagree, 2 = Disagree, 3= Neutral, 4= Agree and 5= Strongly agree.

Table 1

Name of Tech Startup	Mean Score on Cost	Mean Score Quality Average	Mean Score Delivery Speed Average	Mean Score Flexibility Average
Jijirentals	3.5	3.75	3.25	2.33333333
Alpha Manuscript	3	4.25	3.75	3.66666667
oto solutions	3.25	4.25	3.25	2.66666667
Mzigoh	3	4.25	3.5	4
NovaSoft	2.75	4.75	3.5	3.33333333
Smart Banana	3.5	2.5	2.75	3
Ciftec ltd	3.25	4	4	3.33333333
Studio 60four	2.75	3	2.25	3.33333333
Bitrate Digital Solution Ltd	4.25	4	5	3.66666667
Fingo	3.5	3	3.25	2.66666667
DT Digital Design Agency	3	3.75	2.75	2

Voice Corp.	4	4	3.75	3
Binary	2.75	3	3.75	4
Noria Tech	3	3.75	3.25	3.33333333
Light touch tech	3.75	4.25	3	3
ChangSoft Technologies	3.25	3.75	4.75	2.33333333
GrayLine technologies	4	4.25	4.25	1.66666667
azeez aweda	4.75	4.75	4.5	4.66666667
Talanta	4	4.25	5	5
Ahadi Wireless	4.25	2.5	4	2
Otblabs	3	3.75	3.5	3
Pro Tech	3.5	3.25	4.25	3.33333333
RMG Inc	3.5	4	3.75	2.66666667
Bochie ltd	2.5	4	3.25	2.33333333
Inuua	4.5	4	4	4
Shulesuite softwares	3	4.5	4	3

GamerX	2.75	3.25	3	2.66666667
Data Alma	3.25	3.75	3.5	2.66666667
Softnet Elite	4.25	4.25	5	5
Treestate	3.75	4.5	4	3.66666667
Daphas Computer Consultants.	3.25	3.5	4.5	3
TIKVAH Solutions	3.25	3.75	3	2
Advernet Africa	4.25	4.25	3.5	2.33333333
cyber hawk	4	4.5	2.75	1.66666667
SpikeBit	2.75	3.5	3.25	3.66666667
Letco	2.25	4.25	2.75	2
NextUs LLC	3.5	3.75	3.5	3.33333333
Freelance	3.5	4	3.75	2
Musima	4	4	4	4
Justus	4.5	3.5	3.75	2.66666667
Peet solutions	3.5	3	3	2.33333333

	2.75	3	3	3.66666667
Otul Robotics	4.25	4.5	4.25	3
Cloudix	3.75	4.25	4	2.66666667
iNFINITECH	4.25	3.5	4.25	2.66666667
Skypesa	3.5	4.75	4	3
I-Tech Computer solutions	3.5	4.25	3.5	3
Shule Plus	3.75	3.5	3.25	3.66666667
Chrispine Pius	4.25	4.5	3.75	3.66666667
Kanatech	3	4.5	4	2.66666667
Average	3.5	3.8	3.7	3.0

According to *Table 4.5*, Quality is the competitive priority adopted by most tech startups in Nairobi with an average mean of 3.8. Followed by the delivery speed with an average mean of 3.7 then cost at 3.7 and flexibility as the least adopted competitive priority with an average mean of 3.0.

Figure 1.3 below (pie chart) indicates that 62% of tech startups focus on Quality, 30% on Reliability, 6% on cost, and 2% on delivery speed.

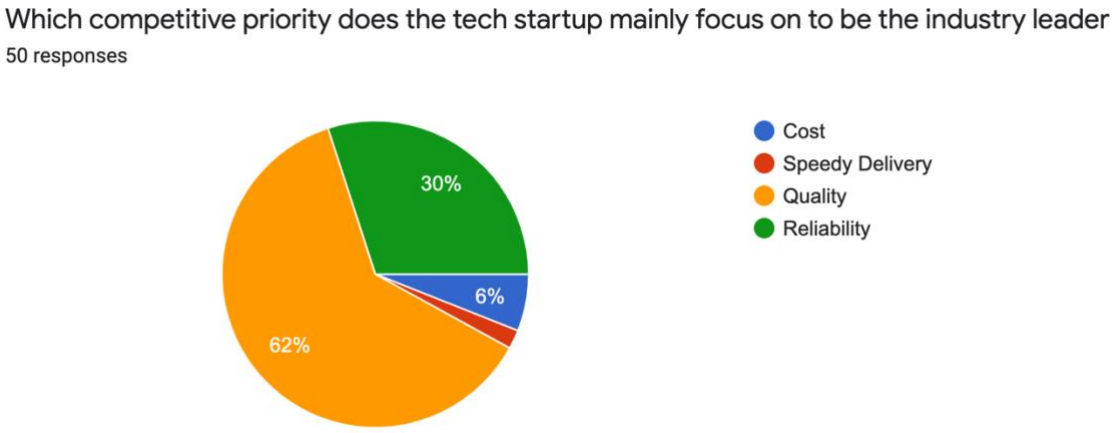

Figure 3.3

According to *Figure 3.3* above, Quality is the most adopted competitive priority by Nairobi, Kenya tech startups at 62% followed by reliability at 30%, then cost at 5%, and delivery speed the least with 2%. This indicates that most tech startups in Nairobi Kenya mostly adopt quality as their competitive priority followed by reliability, then cost and Speedy delivery is the least adopted competitive priority.

4.4. Growth of Tech Startups in Nairobi

4.4.1. Average growth rate of tech startups in Nairobi based on Number of Employees

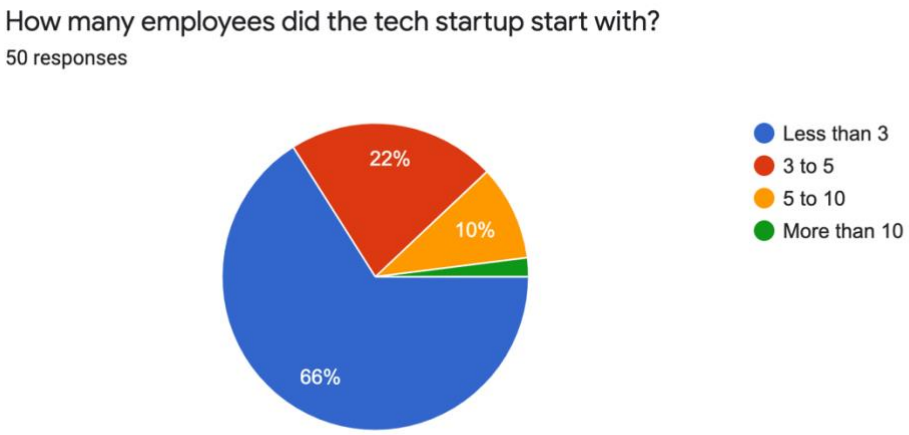

Figure 1.5

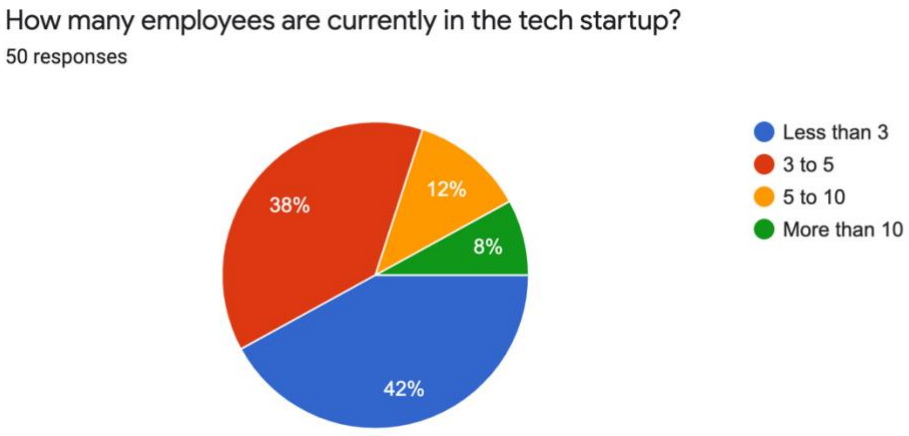

Figure 2.5

Table 2

AVERAGE NO. OF EMPLOYEES WHO STARTED WITH	AVERAGE NO. OF EMPLOYEES NOW	GROWTH RATE
1.5	1.86	24

Based on the estimated number of employees the tech startups started with which is 75 compared to the estimated average number of employees the tech startups have current 93. The average growth rate of tech startups is calculated as (1.86-1.5)/1.5 *100. This gives a 24% growth rate for tech startups in Nairobi.

4.4.2. Growth matrix of tech startups in Nairobi based on User Engagement

Table 3

DAU (DAILY ACTIVE USERS)	WAU (WEEKLY ACTIVE USERS)	UE (USER ENGAGEMENT)
320.68	360.54	0.89

User engagement is determined by dividing the DAU over WAU (UE = DAU/WAU) which is on average 0.89%.

4.4.3. Growth matrix of tech startups in Nairobi based on Customer Retention Cost

Table 4

AVERAGE COST OF RETAINING CUSTOMERS	TOTAL NUMBER OF ACTIVE CUSTOMERS	GROWTH RATE
20190.80	358.4	56.3

Customer Retention cost is determined by dividing the Cost of Retaining a customer/Total Number of Active Customers

20190.80/358.4 = 56.3%

4.4.4. Growth matrix of tech startups in Nairobi based on Number of downloads, and signups within a given period (one month)

Table 5

Total number of downloads, installations, or sign-ins this month	Total number of downloads, installations, or sign-ins same date last month	GROWTH RATE
8273	88816	9.7

The growth rate is determined by dividing the

(Total number of downloads, installations, or sign-ins same date last month -Total number of downloads, installations, or sign-ins this month)/ Total number of downloads, installations, or sign-ins same date last month.

(88816-8273)/ 8273= 9.7

4.4.5 Average growth rate

Based on the data from Table 1, Table 2, Table 3, and Table 4 above,

Growth Rate based on no. of employees, User Engagement, Customer Retention Cost, and the number of downloads installations or sign-ups.

(24+56.3+0.89+9.7) / 4 = 22.7%;

The average growth rate of 22.7%

4.5. Effects of Competitive priorities on tech startup growth in Nairobi, Kenya

A linear regression model will be used to assess the strength of the relationship between the dependable variable growth and the several predictor variables which are the competitive priorities; cost, quality, delivery speed, and flexibility. The importance of each predictor to the relationship will be analyzed and the effects of other predictors will be statistically eliminated.

Table 6

Name of Tech Startup	Mean Score on Cost	Mean Score Quality Average	Mean Score Delivery Speed Average	Mean Score Flexibility Average	Growth Rate based on employee No. (%)
Jijirentals	3.5	3.75	3.25	2.33333333	0
Alpha Manuscript	3	4.25	3.75	3.66666667	100
oto solutions	3.25	4.25	3.25	2.66666667	0
Mzigoh	3	4.25	3.5	4	100
NovaSoft	2.75	4.75	3.5	3.33333333	100

Smart Banana	3.5	2.5	2.75	3	100
Ciftec ltd	3.25	4	4	3.33333333	100
Studio 60four	2.75	3	2.25	3.33333333	50
Bitrate Digital Solution Ltd	4.25	4	5	3.66666667	0
Fingo	3.5	3	3.25	2.66666667	0
DT Digital Design Agency	3	3.75	2.75	2	0
Voice Corp.	4	4	3.75	3	200
Binary	2.75	3	3.75	4	-75
Noria Tech	3	3.75	3.25	3.33333333	200
Light touch tech	3.75	4.25	3	3	0
ChangSoft Technologies	3.25	3.75	4.75	2.33333333	0
GrayLine technologies	4	4.25	4.25	1.66666667	0
azeez aweda	4.75	4.75	4.5	4.66666667	-50
Talanta	4	4.25	5	5	0

Ahadi Wireless	4.25	2.5	4	2	33.3333333
Otblabs	3	3.75	3.5	3	0
Pro Tech	3.5	3.25	4.25	3.33333333	0
RMG Inc	3.5	4	3.75	2.66666667	0
Bochie ltd	2.5	4	3.25	2.33333333	0
Inuua	4.5	4	4	4	300
Shulesuite softwares	3	4.5	4	3	0
GamerX	2.75	3.25	3	2.66666667	0
Data Alma	3.25	3.75	3.5	2.66666667	0
Softnet Elite	4.25	4.25	5	5	0
Treestate	3.75	4.5	4	3.66666667	200
Daphas Computer Consultants.	3.25	3.5	4.5	3	0
TIKVAH Solutions	3.25	3.75	3	2	100
Advernet Africa	4.25	4.25	3.5	2.33333333	0
cyber hawk	4	4.5	2.75	1.66666667	0

SpikeBit	2.75	3.5	3.25	3.66666667	0
Letco	2.25	4.25	2.75	2	0
NextUs LLC	3.5	3.75	3.5	3.33333333	0
Freelance	3.5	4	3.75	2	0
Musima	4	4	4	4	0
Justus	4.5	3.5	3.75	2.66666667	100
Peet solutions	3.5	3	3	2.33333333	0
	2.75	3	3	3.66666667	50
Otul Robotics	4.25	4.5	4.25	3	0
Cloudix	3.75	4.25	4	2.66666667	0
iNFINITECH	4.25	3.5	4.25	2.66666667	0
Skypesa	3.5	4.75	4	3	100
I-Tech Computer Solutions	3.5	4.25	3.5	3	0
Shule Plus	3.75	3.5	3.25	3.66666667	100
Chrispine Pius	4.25	4.5	3.75	3.66666667	100
Kanatech	3	4.5	4	2.66666667	0

Average	3.5	3.8	3.7	3.0	24

SUMMARY OUTPUT 1

Regression Statistics	
Multiple R	0.3430333
R Square	0.11767184
Adjusted R Square	0.03924267
Standard Error	70.2089776
Observations	50

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	29582.8647	7395.71618	1.50035814	0.21811588
Residual	45	221818.524	4929.30054		
Total	49	251401.389			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-41.997353	-88.0557809	-0.476940 3	0.63571272	-219.3508	135.356093	-219.3508	135.356093
Cost Average	28.990562 8	19.83444 84	1.461626 87	0.150791 99	-10.958067	68.939192 5	-10.958067	68.939192 5
Quality Average	13.472861 1	18.82357 51	0.715744 01	0.477847 15	-24.439765	51.385487 6	-24.439765	51.385487 6

Delivery speed Average	-40.68755	-20.835682	-1.952782	0.057081	-82.65277	1.277665	-82.65277	1.277665
Flexibility Average	24.81423	14.06923	1.763723	0.084567	-3.522657	53.15113	-3.522657	53.15113

4.5.1. Evaluating the R-Squared

The value of R Squared is 0.11767184. This indicates that 10% of the variance in the outcome variable can be attributed to the predictor variables. That is 10% of the variance in the growth of tech startups in Nairobi Kenya can be attributed to the quality, cost, delivery speed, and reliability.

4.5.2. Evaluation of P-Values from the

The threshold is $\propto = 0.05$. Quality has a p-value of 0.47, Cost has a p-value of 0.15 which is higher than the significant level. Delivery speed has a p-value of p =0.057 and Flexibility has a p-value of 0.08. They are therefore not statistically significant. The P values of Quality, Cost, and Flexibility are greater than the thresholds while the Delivery Speed P value is equal to the threshold thus, they have insufficient evidence to conclude that a non-zero correlation exists and thus, does not matter in predicting the outcome which in this case is growth.

4.5.3. Evaluation of Beta Coefficients

The Beta Coefficient for Cost is 28.99 for Quality is 13.47, delivery speed is -40.69 and flexibility is 24.81.

The marginal effect of Cost on growth is that a 28.99 increase in cost results in a 28.99 Beta increase in the growth rate when Quality and Flexibility are held constant.

The marginal effect of Flexibility on growth is that a 24.81 increase in flexibility results in a 28.99 Beta increase in the growth rate when Quality and Cost are held constant.

The marginal effect of Quality on growth is that a 13.47 increase in Quality results in a 13.47 Beta increase in the growth rate when Cost and Flexibility are held constant.

4.5.4 Analysis of Variance (ANOVA)

ANOVA: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*

Column 1	51	197.88	3.88	0.3106
Column 2	51	178.755	3.505	0.341225
Column 3	51	187.17	3.67	0.3861
Column 4	51	155.38	3.04666667	0.60448889

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	19.1888562	3	6.39628541	15.5777675	3.8188E-09	2.64975164
Within Groups	82.1206945	200	0.41060347			
Total	101.309551	203				

The p-value is very small 3.8188E-09 it is less than 0.05, thus a high degree of certainty that the competitive priorities are not the same.

4.5.5. t-Test

To test the hypothesis of whether competitive priorities flexibility, quality, delivery speed, and cost affect the growth of tech startups in Nairobi. The difference between the competitive priorities is obtained using a t-test a null and alternative hypothesis.

The null hypothesis is that the true difference between these competitive priorities means is zero.

The alternative hypothesis is that the true difference between these competitive priorities means is different from zero.

4.5.5.1. Quality and Cost Paired Two Samples for Means.

t-Test: Paired Two Samples for Means

	Variable 1	*Variable 2*
Mean	3.88	3.505
Variance	0.3106	0.341225
Observations	51	51
Pearson Correlation	0.1784657	
Hypothesized Mean Difference	0	

df	50
t Stat	3.6591982
P(T<=t) one-tail	2
t Critical one-tail	0.0003045
P(T<=t) two-tail	1.6759050
t Critical two-tail	3
	0.0006090
	1
	2.0085591
	1

The two-tail P value is 0.00060901 thus less than 0.05 thus there is a difference between Quality and Cost

4.5.5.2. Quality and Delivery Speed Paired Two Samples for Means.

t-Test: Paired Two Samples for Means

	Variable 1	*Variable 2*
Mean	3.88	3.67

Variance	0.3106	0.3861
Observations	51	51
Pearson Correlation	0.3224097	
Hypothesized Mean Difference	0	
df	50	
t Stat	2.1796675	
P(T<=t) one-tail	0.0170092	
t Critical one-tail	1.6759050	
P(T<=t) two-tail	0.0340185	
t Critical two-tail	2.0085591	

The two-tail P value is 0.03401852 thus less than 0.05 thus there is a difference between Quality and Delivery Speed.

4.5.5.3. Quality and Flexibility Paired Two Samples for Means.

t-Test: Paired Two Samples for Means

	Variable 1	*Variable 2*
Mean	3.88	3.0466666 7
Variance	0.3106	0.6044888 9
Observations	51	51
Pearson Correlation	0.1398549 2	
Hypothesized Mean Difference	0	
df	50	
t Stat	6.6791928	
P(T<=t) one-tail	9.5328E-09	
t Critical one-tail	1.6759050 3	
P(T<=t) two-tail	1.9066E-08	
t Critical two-tail	2.0085591 1	

The two-tail P value is 1.9066E-08 thus less than 0.05 thus there is a difference between Quality and Flexibility.

4.5.5.4. Cost and Delivery Speed Paired Two Samples for Means

t-Test: Paired Two Samples for Means

	Variable 1	*Variable 2*
Mean	3.505	3.67
Variance	0.341225	0.3861
Observations	51	51
Pearson Correlation	0.5142303	
Hypothesized Mean Difference	1	
df	0	
t Stat	50	
P(T<=t) one-tail	-1.9803961	
	0.0265873	
	6	

	1.6759050
t Critical one-tail	3
	0.0531747
P(T<=t) two-tail	2
	2.0085591
t Critical two-tail	1

The two-tail P value is 0.05317472 thus more than 0.05 thus there is no difference between Cost and Delivery Speed.

4.5.5.5. Cost and Flexibility Paired Two Samples for Means

t-Test: Paired Two Samples for Means

	Variable 1	*Variable 2*
		3.0466666
Mean	3.505	7
		0.6044888
Variance	0.341225	9
Observations	51	51

	0.1866424
Pearson Correlation	9
Hypothesized Mean Difference	0
df	50
	3.7152252
t Stat	7
P(T<=t) one-tail	0.0002562
	1.6759050
t Critical one-tail	3
P(T<=t) two-tail	0.0005124
	2.0085591
t Critical two-tail	1

The two-tail P value is 0.0005124 thus less than 0.05 thus there is a difference between Cost and Flexibility.

4.5.5.6. Delivery Speed and Flexibility Paired Two Samples for Means

t-Test: Paired Two Samples for Means

	Variable 1	*Variable 2*
Mean	3.67	3.04666667
Variance	0.3861	0.60448889
Observations	51	51
Pearson Correlation	0.41826412	
Hypothesized Mean Difference	0	
df	50	
t Stat	5.81283355	
P(T<=t) one-tail	2.1351E-07	
t Critical one-tail	1.67590503	
P(T<=t) two-tail	4.2702E-07	
t Critical two-tail	2.00855911	

The two-tail P value is 4.2702E-07 thus less than 0.05 thus there is a difference between Delivery Speed and Flexibility.

4.6. Discussion of the Findings

4.6.1. Growth of tech startups in Nairobi, Kenya.

Morelix defined Startups as employer firms less than one-year-old employing at least one person besides the owner. (Morelix et al., 2015). The study agrees with the definition as it found the majority of tech startups have less than 10 employees.

The study indicated a growth rate of 24% of tech startups in Nairobi based on the number of employees the company started with versus the current number of employees. It also indicates a growth matrix of 0.89% based on user engagement (Gorski, 2016). Amount of spending on customer retention at 56.3 % (Lovelace, 2018). 9.7% based on downloads, installations, and signups resulting in an average growth rate of 19.63% (Jordan et.al). The average growth rate of tech startups in Nairobi 24% is lower than Silicon Valley's growth rate of 50% (Levitt,2018).

4.6.2. The competitive priorities adopted by tech startups in Nairobi, Kenya.

The study found out that Quality is the competitive priority that is mostly adopted by tech startups in Nairobi closely followed by Cost. Mpesa for example adopts lower transaction costs so that customers can easily transact (the Republic of Kenya, 2019). Many innovations by tech startups have led to the redesign of products and business models that significantly reduce costs (the Republic of Kenya, 2019). This finding is consistent with Melville et al research that

asserted that the efficiency of the performance of startup business was primarily measured from value addition as a result of cost reduction of the cost of operation. (Melville et al., 2004).

4.6.3. Effects of competitive priorities on tech startups in Nairobi, Kenya.

From the study, Anova analysis of variance on the predictors which were cost, quality, delivery speed, and reliability was done. The P-Value was very small 3.8188E-09 which was less than the 0.05 threshold. Thus, a high degree of certainty that the competitive priorities are not the same.

T-test analysis of Paired Two samples for Mean indicated that there is a difference between the predictors Quality and Cost with a two-tail P value of 0.00060901 which is lower than the 0.05 threshold. There is a difference between Quality and Delivery Speed with a two-tail P value of 0.03401852 which is lower than 0.05. There is a difference between Quality and flexibility with a two-tail P value of 1.9066E-08 which is lower than 0.05.

There is a difference between Cost and Flexibility with a two-tail P value of 0.0005124 which is lower than 0.05. There is a difference between Delivery speed and Flexibility with a two-tail P value of 4.2702E-07 which is lower than 0.05. However, there is no difference between Cost and Delivery Speed since the two-tail P value is 0.05317472 thus more than the 0.05 threshold. This indicates that Delivery Speed and Cost predictors are the same.

CHAPTER FIVE: SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1. SUMMARY

The primary objective of the study was to find out the key competitive priorities and growth of Tech Startups in Nairobi. This was broken down into four specific objectives.

The first objective of the study was to determine the competitive priorities adopted by tech startups in Nairobi, Kenya. The study established that tech startups in Nairobi Kenya adopt all the competitive priorities; Cost, Quality, Delivery speed, and Flexibility. The study found out that quality is the most adapted competitive priority followed by Cost, flexibility, and finally Delivery speed.

The second objective was to determine the growth of tech startups in Nairobi, Kenya. The study shows an average tech startup growth rate of 22.7% based on various growth matrices of tech startups in Nairobi that included Employee Number, User Engagement, Customer Retention Cost, and No. Of Downloads. 22.7% which is lower than Silicon Valley's growth rate of 50% (Levitt,2018).

The study had findings on the effect of competitive priority on startup growth in Nairobi, Kenya. It established the differences between the competitive priorities: Quality and Cost, Quality and Delivery Speed, Quality and Flexibility, Cost and Flexibility, and Delivery Speed and Flexibility. However, there is no difference between the predictors of Delivery Speed and Cost. They are the same. Thus, the effect of Delivery Speed and Cost as predictors are Similar.

The study established that quality is the most adopted competitive priority in tech startups in Nairobi. According to Porter, when the product is undifferentiated, the product quality loses its competitive advantage (Porter,1985). On the other hand, Silicon Valley startups prioritize innovativeness and efficiency in terms of quick adaptability to innovations and technologies thus resulting in disruptive technologies. (Porter, 1985)

5.2. CONCLUSION

The finding concluded that quality is the competitive priority adopted most by tech startups in Nairobi followed by the others; cost, flexibility, and reliability.

The average growth rate of tech startups in Nairobi is approximately 22.7% based on various growth matrices of tech startups that include Employee Number, User Engagement, Customer Retention Cost, and No. Of Downloads.

The competitive priorities that affect the growth of tech startups in Nairobi are cost, delivery speed, and flexibility. Delivery speed is the competitive priority that mostly has an effect on tech startup growth in Nairobi Kenya and cost is the least affecting growth of tech startups in Nairobi Kenya.

To compete on the global scale, tech startups in Nairobi need to focus more on effectiveness and adapt quickly to new technology and be innovative. They should not only rely upon themselves to meet their local market needs but also outside their market to be disruptive.

5.3. RECOMMENDATIONS

The study recommends that tech startups should consciously adapt competitive priorities in their operations and align their operations to the key competitive priorities.

The study recommends tech startups monitor their Key Performance Indicators (KPI) to ensure their growth.

The study recommends tech startups in Nairobi utilize cost, delivery speed, and flexibility competitive priorities to achieve a competitive advantage and thus grow their tech startups.

To achieve disruption in the tech industry like tech startups in Silicon Valley, Nairobi tech startups should adopt innovativeness as a competitive priority and be flexible and quick to implement new technologies.

5.4. LIMITATIONS OF THE STUDY

The study was mainly to determine the competitive priorities and growth of tech startups in Nairobi, Kenya, focusing on Cost, delivery speed, flexibility, and quality. The tech startups could be focusing on different competitive priorities like innovation, dependability, sustainability, after-sales services, and many more.

It could not be established if there exist trade-offs of the competitive priorities by tech startups.

The response rate of the targeted population. There was fear that the collected information might be used for other purposes other than academic purposes thus fear from the targeted population to give detailed information about their tech startups.

The coronavirus pandemic that started in 2019-2020 adversely affected tech startups in Nairobi. The startup's operations turned to survival other than growth.

5.4. SUGGESTIONS FOR FURTHER STUDIES

The study suggests further research on other competitive priorities like innovation, dependability, dependability, sustainability, after-sales services, and others adopted by tech startups in Nairobi Kenya to determine their effect on tech startup growth.

Further research should be undertaken on the competitive priorities of Kenyan tech startups with those adopted by tech startups in Nigeria, Ghana, and South Africa and its effects on tech startup growth.

Further studies should also be undertaken to determine the competitive priorities and growth of tech startups across the country, of Kenya.

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QUESTIONNAIRE

Web-based survey google form URL:

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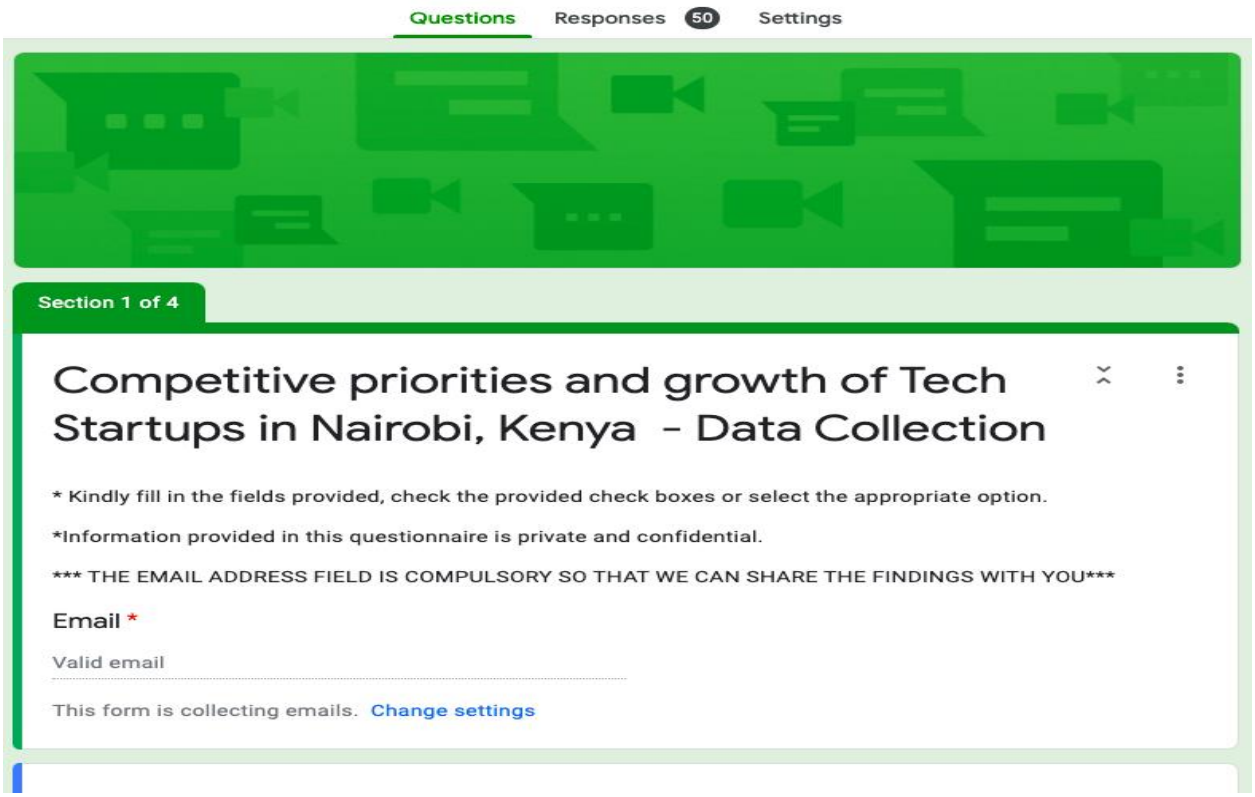
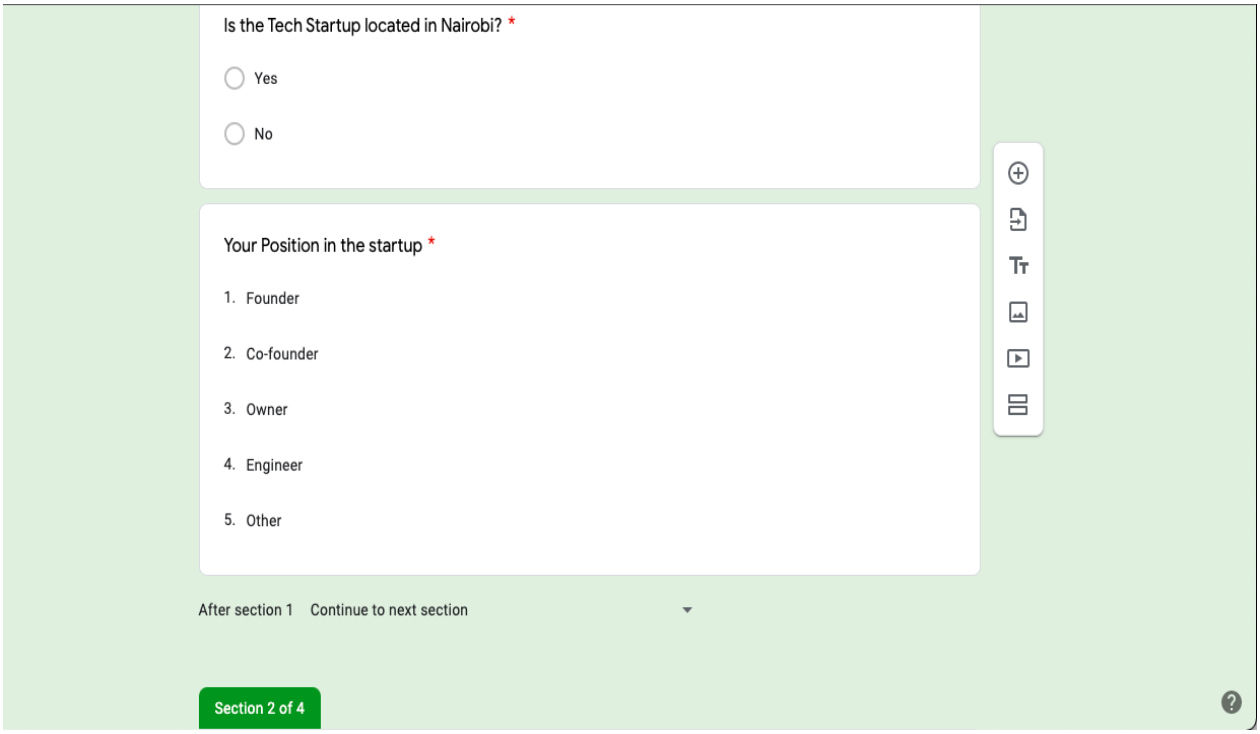
APPENDIX 1


Questions
Responses 50
Settings
Section 1 of 4
Competitive priorities and growth of Tech Startups in Nairobi, Kenya - Data Collection
* Kindly fill in the fields provided, check the provided check boxes or select the appropriate option.
*Information provided in this questionnaire is private and confidential.
*** THE EMAIL ADDRESS FIELD IS COMPULSORY SO THAT WE CAN SHARE THE FINDINGS WITH YOU***
Email *
Valid email
This form is collecting emails. Change settings


Is the Tech Startup located in Nairobi? *
Yes
No
Your Position in the startup *
1. Founder
2. Co-founder
3. Owner
4. Engineer
5. Other
After section 1 Continue to next section
Section 2 of 4

Questions Responses 50 Settings

Section 2 of 4

Growth of tech startups in Nairobi, Kenya

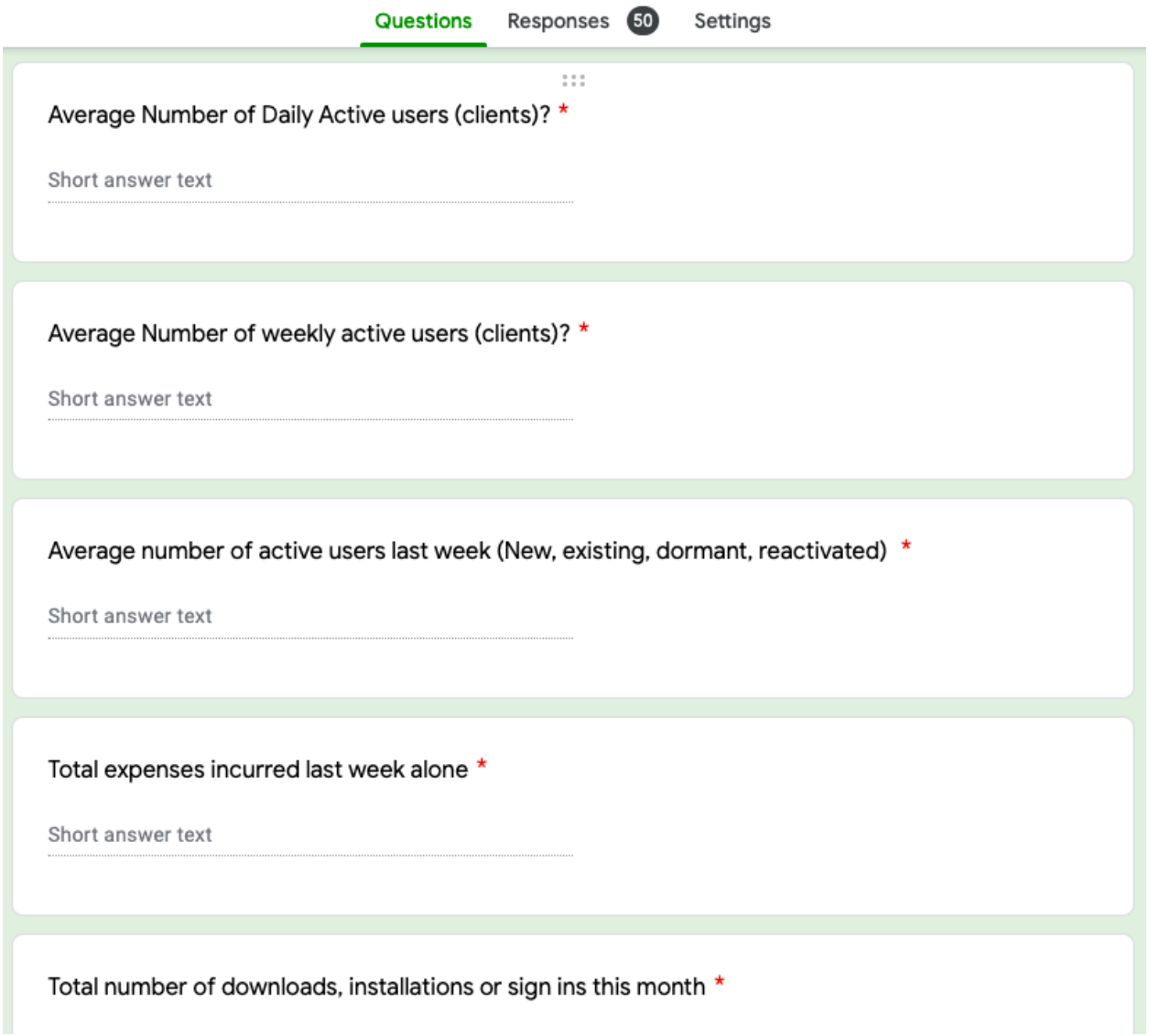
Description (optional)

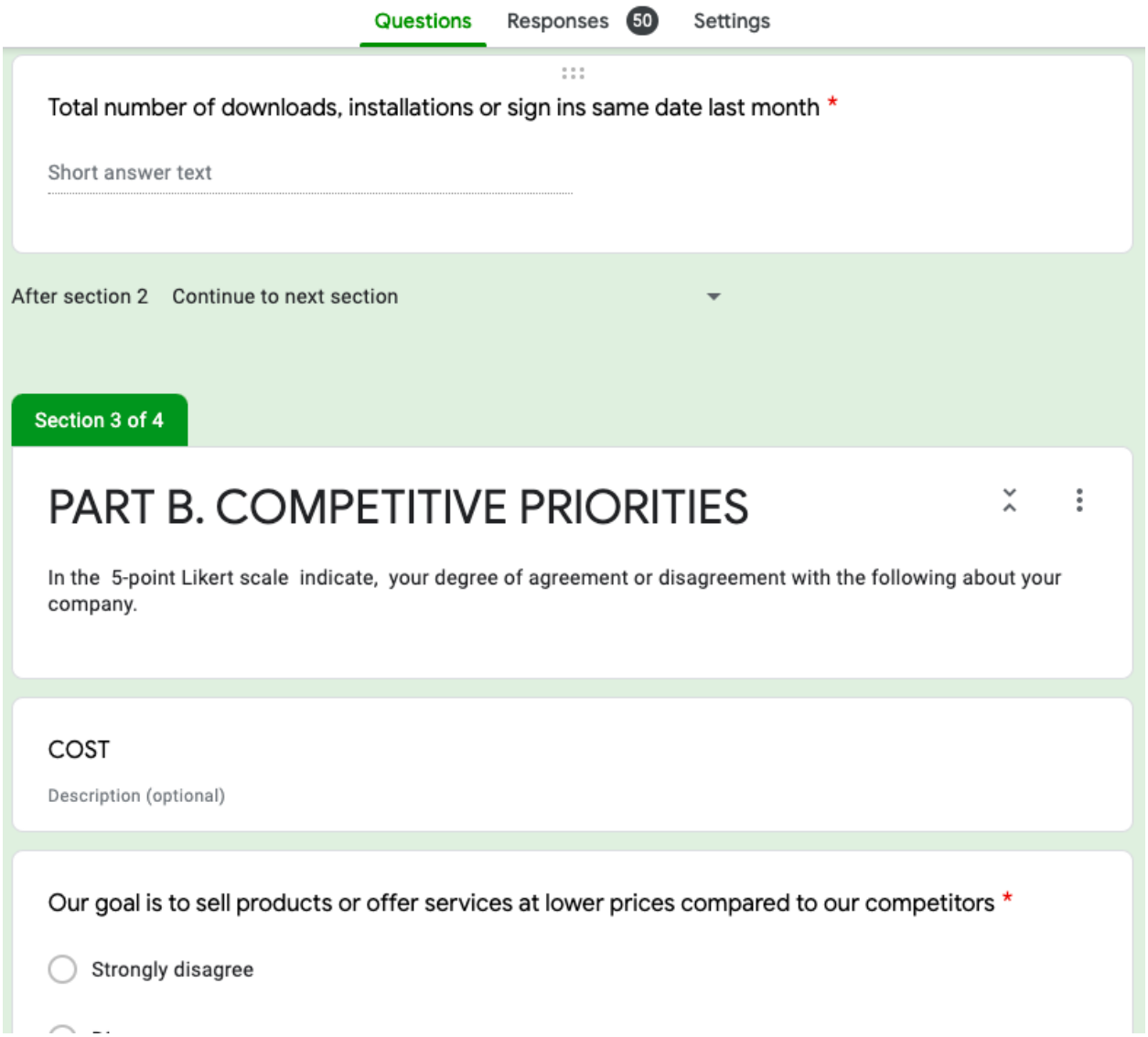
How many employees did the tech startup start with? *

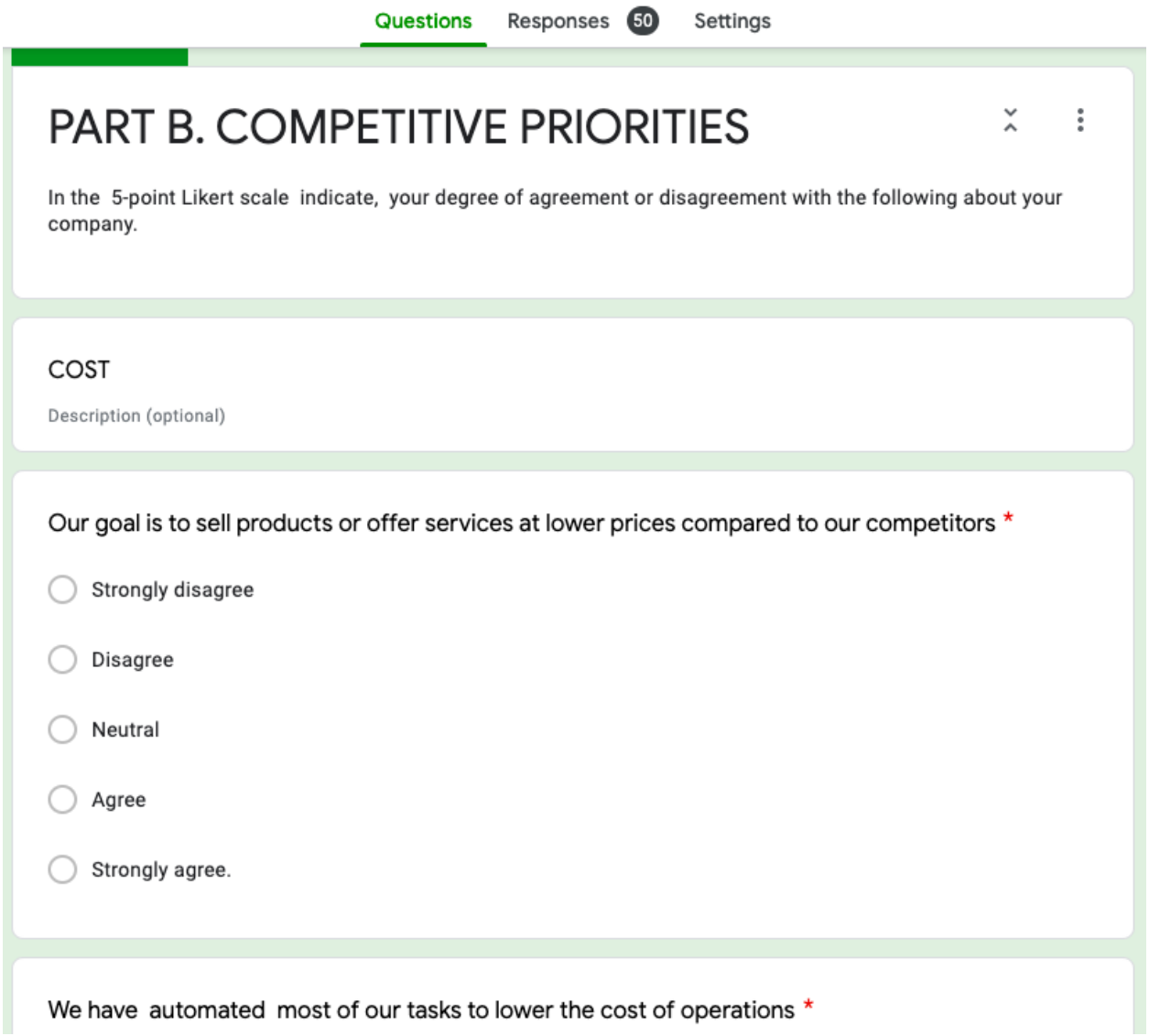
- Less than 3
- 3 to 5
- 5 to 10
- More than 10

How many employees are currently in the tech startup? *

- Less than 3
- 3 to 5
- 5 to 10


Questions
Responses 50
Settings
Average Number of Daily Active users (clients)? *
Short answer text
Average Number of weekly active users (clients)? *
Short answer text
Average number of active users last week (New, existing, dormant, reactivated) *
Short answer text
Total expenses incurred last week alone *
Short answer text
Total number of downloads, installations or sign ins this month *


Questions
Responses 50
Settings
Total number of downloads, installations or sign ins same date last month *
Short answer text
After section 2 Continue to next section
Section 3 of 4
PART B. COMPETITIVE PRIORITIES
In the 5-point Likert scale indicate, your degree of agreement or disagreement with the following about your company.
COST
Description (optional)
Our goal is to sell products or offer services at lower prices compared to our competitors *
Strongly disagree


Questions
Responses 50
Settings
PART B. COMPETITIVE PRIORITIES
In the 5-point Likert scale indicate, your degree of agreement or disagreement with the following about your company.
COST
Description (optional)
Our goal is to sell products or offer services at lower prices compared to our competitors *
Strongly disagree
Disagree
Neutral
Agree
Strongly agree.
We have automated most of our tasks to lower the cost of operations *

Questions Responses 50 Settings

We have automated most of our tasks to lower the cost of operations *

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

We are quick to let go of operations and resources that are not contributing or resulting to revenue generation in the company. *

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Questions Responses 50 Settings

When hiring, we are mainly interested in the cost of labor then followed by other factors. *

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

QUALITY

Description (optional)

The products and Services we offer are mainly determined by what our customers want rather that exploring new market needs *

- Strongly disagree
- Disagree
- Neutral

Questions Responses 50 Settings

We mostly add new features, products or services when our customers request and not when the company sees the need *

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

We mainly focus on continuous training of our personnel on the quality expectations *

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Questions Responses 50 Settings

When hiring we mainly focus on the skill of the employee for product quality followed by other factors *

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

SPEEDY DELIVERY

Description (optional)

Your firm's main aim is to deliver the product or services to the customer at the shortest time compared to your competitors *

- Strongly disagree
- Disagree
- Neutral

Questions Responses 50 Settings

Delivery time is most crucial especially on product launch, product improvement and bug fixes compared to other factors like a completely functioning product *

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

The firm will easily get more resources to ensure time delivery and timely feedback to customers *

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Questions Responses 50 Settings

The firm would rather give the client the available product or service at the shortest time possible rather that ensure the product or service meets all the client's requirement *

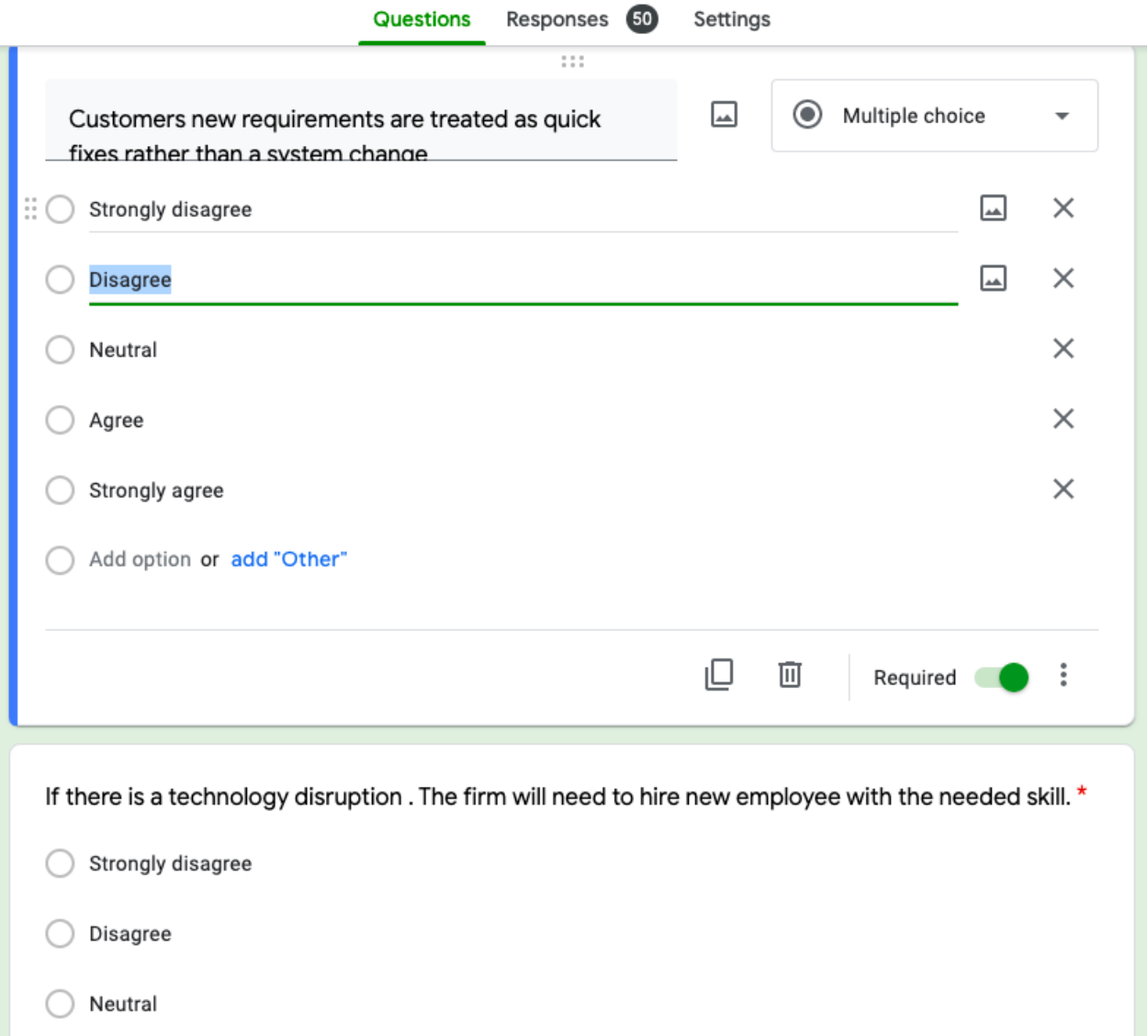
- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

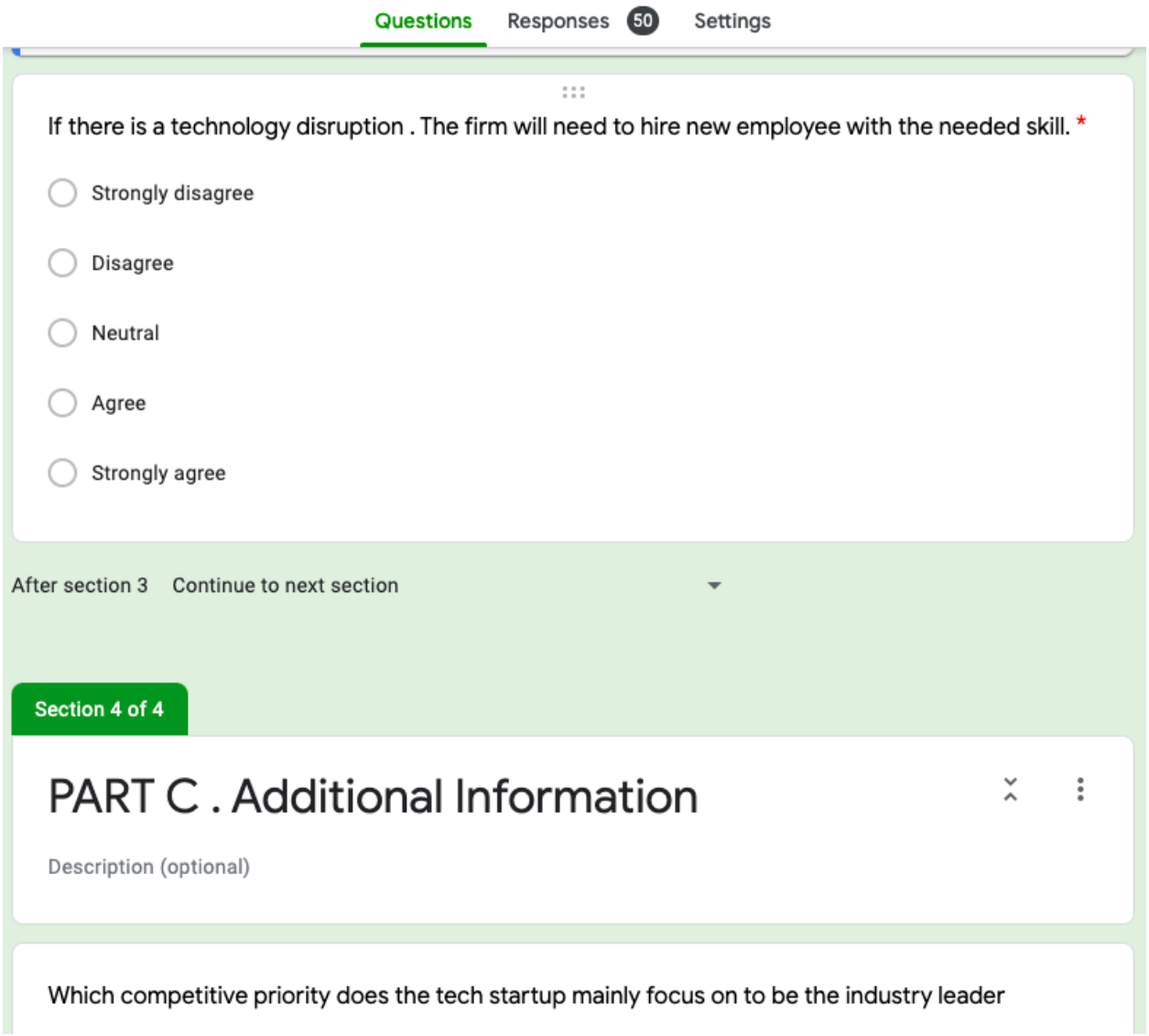
FLEXIBILITY

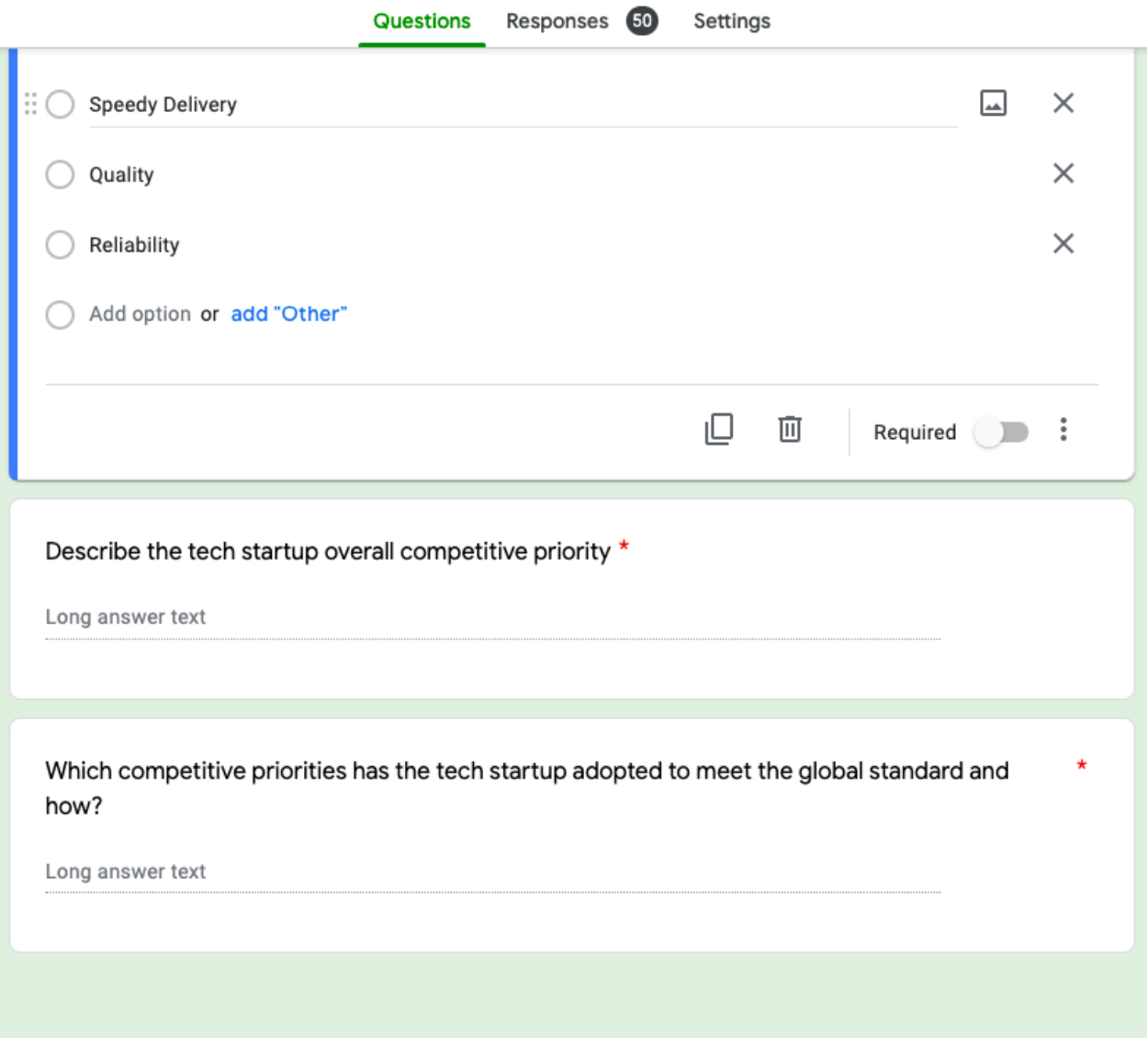
Description (optional)

It can take more that one year for the firm to change the technologies used in making the product or service *

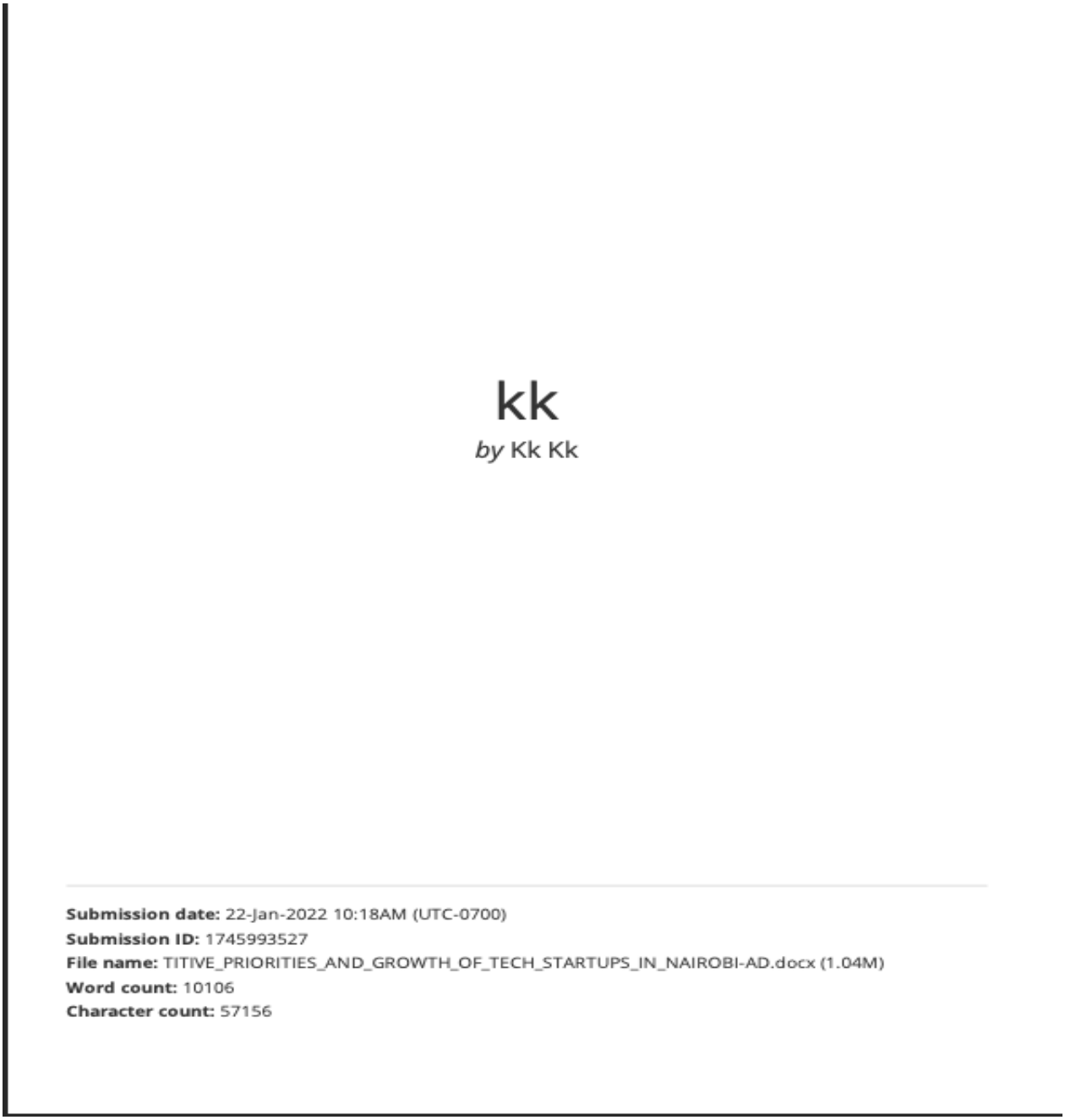
- Strongly disagree
- Disagree
- Neutral


Questions
Responses 50
Settings
Customers new requirements are treated as quick fixes rather than a system change
Multiple choice
Strongly disagree
Disagree
Neutral
Agree
Strongly agree
Add option or add "Other"
Required
If there is a technology disruption . The firm will need to hire new employee with the needed skill. *
Strongly disagree
Disagree
Neutral


Questions
Responses 50
Settings
If there is a technology disruption . The firm will need to hire new employee with the needed skill. *
Strongly disagree
Disagree
Neutral
Agree
Strongly agree
After section 3 Continue to next section
Section 4 of 4
PART C . Additional Information
Description (optional)
Which competitive priority does the tech startup mainly focus on to be the industry leader


Questions
Responses 50
Settings
Speedy Delivery
Quality
Reliability
Add option or add "Other"
Required
Describe the tech startup overall competitive priority *
Long answer text
Which competitive priorities has the tech startup adopted to meet the global standard and how? *
Long answer text

APPENDIX 2



kk

by Kk Kk

Submission date: 22-Jan-2022 10:18AM (UTC-0700)
Submission ID: 1745993527
File name: TITIVE_PRIORITIES_AND_GROWTH_OF_TECH_STARTUPS_IN_NAIROBI-AD.docx (1.04M)
Word count: 10106
Character count: 57156

COMPETITIVE PRIORITIES AND GROWTH OF TECH STARTUPS IN NAIROBI, KENYA

DONATTAH AKINYI AJUANG'

D68/19877/2019

A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT FOR THE REQUIREMENT OF THE DEGREE OF MASTERS IN SCIENCE AT THE UNIVERSITY OF NAIROBI.

DECLARATION

This research is my original work and has not been presented for award of any degree in any other university.

Signature …….. **Date……**

Donattah Akinyi Ajuang'

D68/19877/2019

This research has been submitted for examination with my approval as university of Nairobi Supervisor

Signature …….. **Date ……..**

Prof. X.N.Iraki

Management Science and Project Planning

School of Business

University of Nairobi

This research has been submitted for examination with my approval as university of Nairobi

Moderator

Signature …….. **Date ……..**

Mrs Zipporah Kiruthu

Department of Management Science and Project Planning

School of Business

University of Nairobi

Table of Contents

ABSTRACT

This research studies competitive priorities adopted by tech startups in Nairobi Kenya and how the competitive priorities adopted impact growth of the tech startups. The research questions: What are the competitive priorities adopted by tech startups in Nairobi, Kenya? What are the growth determinants of tech startups in Nairobi, Kenya? What is the effect of competitive priorities on the tech startup growth in Nairobi Kenya? Are the competitive priorities of tech startups in Nairobi similar to Silicon-valley startups? To achieve these objectives the study used descriptive research. Data collected from 50 tech startups in Nairobi Kenya using questionnaires with the respondents who were mainly the founders, co-founders, owners, and software engineers. Among the four main competitive priorities, quality was the most adopted followed by cost then flexibility and lastly delivery speed. The results of the study indicate that that the growth rate of tech startups in Nairobi is 22.7% based on startup growth metric the number of employees, User Engagement, Customer Retention and Number of downloads, Installations or signups. The study concludes that Cost, delivery speed and flexibility competitive priorities influence the growth of tech startups in Nairobi. The study suggested that further research is necessary on the adoption of other competitive priorities such as innovation, customer retention, sustainability, customer service and their influence to the growth of tech startups in Nairobi Kenya.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Nairobi, the capital of Kenya has been dubbed "the Silicon Savannah" because of growth in tech startups. A lot of multinational tech organizations have set up their regional headquarters in Nairobi Kenya including Microsoft, Uber, Oracle and IBM. There are very many other tech communities in Nairobi that entail technology experts as well as beginners. These communities offer support in terms of professional network, mentorship, expertise in various technologies as well as creating partnership in various business ventures. Based on the membership numbers of tech groups in Nairobi on meetup.com as of August 2020, Google Developers Group has approximately 8100 members, Ai community has approximately 4100 members, Nairobi Women in Machine Learning has approximately 3000 members, Python Nairobi has approximately 2100 members, Nairobi Javascript community has approximately 1500 members. (meetup.com, 2020)

In addition, there are various incubation centers in Nairobi to support tech entrepreneurs. C4DLAB and FabLab at the University of Nairobi, iBizAfrica which has partnered with iLabAfrica, ihub, mLab East Africa and Nailab are just a few. In 2007, Facebook Inc and Alphabet Inc.'s Google established a strategic alliance with ihub to access app developers and train them in order to tap the local talent for their coding skills and product development. They also offered machine learning, cloud and artificial intelligence that boosted the region's role as Africa's center for technology. (Stevis, 2017)

There are various learning accelerators that are nurturing and equipping new developers to the growing tech space. They include Moringa school which offers tech-based learning in order to equip there learning with industry specific skills. (Moringa) Lux Tech Academy which offers free online training Boot Camps of coding classes and crush courses. (Lux Tech Academy)

The tech startups are attracted by a highly developed digital infrastructure. Mobile technologies, especially smartphones, tablets and laptops ownership are high in addition to internet connectivity. Thus, resulting in the growth of consumer markets for technology not just in Kenya alone, but the larger East Africa Region. In addition to this, the number of local and international seed funds, angel and impact investors have flooded Nairobi with huge hopes and expectations to spot and sponsor the next big tech startup in Nairobi. (de la Chaux, Okune, 2017) New technology startups are being created annually due to the growing trend towards innovative ideas. (Hormiga et al., 2010) The openness of the Kenyan economic has led to a boom in innovative idea pioneered by mpesa.

Contrary to popular belief, it is still very difficult to create and grow tech startups in Nairobi. (Quartz 2014; Malupi 2013) This has not deterred entrepreneurs from flocking to Nairobi. In addition, there are enough problems to solve and make money if the startup succeeds.

1.2 Tech Startups in Nairobi

Technology startup companies commonly known as tech startups are defined in various ways. It entails understanding technology and creating services as well as products. (Candi, M. & Saemundson, R., 2011) They develop or own the technology and use it in value creation. They

are categorized by the intensity of R&D and the mass of intangible assets which are mainly technical assets. (Kim et. al, 2015)

Nairobi houses more than 200 startups. These tech startups are working towards solving problems that are facing the country such as finding a parking spot, helping farmers achieve maximum yield as well as get access to customers and investors such as M-farm and Twiga food. Finding apartments or land to buy or rent. A good example is buyrent Kenya. (Malonnee, 2018) Wefarm is a free farmer to farmer digital Network that has approximately 1billion farmers thus boasts of being world's largest farmers' network. It helps farmers solve problems, share ideas and innovations. Looking at four successful startups below indicates the potential of Nairobi tech startups.

Pesapal which is one of the most successful Kenyan Tech startups was founded in 2009. It provides a secure way to make and accept payments in Africa to both individuals and businesses. It works via the internet and directly through the phone. It has partnered with banks, credit card partners and network operators to provide payment options to their customers. They process approximately 150,000 transactions per day. It has more than 22,000 registered merchants who are able to receive payment from their clients. (VC4A, 2018)

Africa's Talking is another successful startup based in Nairobi, Kenya. It was founded in 2010 by Eston Kimani and Samuel Gikandi. It provides mobile solutions by integrating a reliable two-way SMS, voice and USSD across various mobile providers in Africa. They have over 20,000 developers registered on their platform. They are helping software developers through making it simple to access local infrastructure and making it open to them. (VC4A, 2018)

Twiga foods was started in 2014 by Peter Njojo and Grant Brooke. It offers business to business marketplace that source quality fresh and processed foods from farmers and manufacturers and delivered to vendors at friendly prices. It has bridged the gap in food and market security as it has enhanced efficiency, transparency and fairness in the market from retail outlets, kiosks and market stalls. Twiga uses a mobile-based, business-to-business supply platform for Africa's retail outlets, kiosks, and market stalls thus enhancing access and distribution to millions to vendors in African markets that largely comprises small and medium-sized vendors. They use technology to offer convenience to urban retailers by saving them a trip to the market. It has linked 9000+ farmers with 5000+ vendors. It has a team of over 400 professionals. Twiga originated from Nairobi Garage and after 176 pitch competitions they managed to obtain Venture Capitalist traction in 2015 (VC4A, 2018).

Kenya has the most expat as co-founders of tech startups compared to Nigeria and Ghana. (McCormick M., 2019) In terms of funds raised by the tech startups. Expat founders tend to get the lion share while the local founders only obtain a paltry of the total. (Njoki A., & Gugu, S.,2020). This is reflected also in America as more than half of its startup companies which are valued at $1 billion or more are owned by immigrants. (Anderson S., 2018).

1.3 Competitive Priorities

Competitive priorities are quality, delivery speed, cost and flexibility characteristics. They are determined by the customers. (Garo Junior, W., & Guimarães, M., 2018) Competitive priorities are the key dimensions which must be addressed by a firm's production system in order to support the market's demands which it wishes to compete with. (Krajewski & Ritzman ,1993)

Skinner (1992) refers to competitive priorities as the dimension of competition, organizational priorities, order winners and qualifiers. Competitive priorities are the key action points which are adopted by a firm to compete in its environment. (Hayes and Wheelwright, 1984) Companies compete mainly through quality, lead time, cost and flexibility (Wheelwright, 1978; Hayes & Wheelwright, 1984). Competitive priorities vary according to various authors. Innovation and dependability are other competitive priorities. (Foo and Friedman, 1992) When an organization focuses on one competitive priority, it limits its ability to focus on another priority. (Rizvi & Saiyed, 2015) There are many variables in an organizations growth and development thus they require intensive research and exploration to find the best means of attaining one of the competitive priorities that will give them competitive advantage. (Robaaiy, 2020)

1.4 Growth Metrics for Tech Startups

Growth is the change in size within a defined time span. (Dobbs & Hamilton, 2007) Growth is a process as it is obtained from various factors and certain activities. (Davidsson et.al, 2010) The probability of a small business closing is reduced by growth (Rauch & Rijskik, 2013). Growth metrics can be revenue, active users or the average customer spend (Stettler, 2018). Growth is one the most sought-after strategies by firms.

There are various metrics that can be used to track a start-up's growth. They include software engineering metrics that involve developing the software further such as load speed. Business and financial metrics which are related to the current and future revenue focus such as customer retention cost.

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Customer retention rate which is obtained by getting the active users at the end of the week minus the active users at the start of the week then divide the number of active users (New, existing, dormant, reactivated) in a given week (WCR = E-N/S). The other important factor to measure is the customer acquisition cost which is obtained by computing the total expenses in a given period, let say last 7 days, divided by the number of active users in a given week (CAC = EN/N). (Sharma, 2019).

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are categorized by the intensity of R&D and the mass of intangible assets which are mainly technical assets. (Kim et. al, 2015)

Nairobi houses more than 200 startups. These tech startups are working towards solving problems that are facing the country such as finding a parking spot, helping farmers achieve maximum yield as well as get access to customers and investors such as M-farm and Twiga food. Finding apartments or land to buy or rent. A good example is buyrent Kenya. (Malonnee, 2018) Wefarm is a free farmer to farmer digital Network that has approximately 1billion farmers thus boasts of being world's largest farmers' network. It helps farmers solve problems, share ideas and innovations. Looking at four successful startups below indicates the potential of Nairobi tech startups.

Pesapal which is one of the most successful Kenyan Tech startups was founded in 2009. It provides a secure way to make and accept payments in Africa to both individuals and businesses. It works via the internet and directly through the phone. It has partnered with banks, credit card partners and network operators to provide payment options to their customers. They process approximately 150,000 transactions per day. It has more than 22,000 registered merchants who are able to receive payment from their clients. (VC4A, 2018)

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1.3 Competitive Priorities

Competitive priorities are quality, delivery speed, cost and flexibility characteristics. They are determined by the customers. (Garo Junior, W., & Guimarães, M., 2018) Competitive priorities

There are many reasons for tech start up failures, poor team formation is one of them. Tech founders often have no team personnel with marketing, sales, partnership and distribution skills. They find difficult to hire the right people who have the right skill set (GSMA, 2014). The fact that tech entrepreneurs in Nairobi build locally and stay locally due to their local value prepositions and seasonal value propositions is another factor. This results in them flooding the local market, a good example is the recent flood of the loan mobile applications, Tala, Branch and many others which often collapse after doing well for some time (Marex H, 2016).

Although all these studies indicate why tech startups fail in Kenya and elsewhere, they fail to point out how they can enhance their growth and balance their competitive priorities. This study aims to answer the questions: What are the competitive priorities adopted by tech startups in Nairobi Kenya? Is there a relationship between the competitive priorities adopted and the growth of tech startups in Nairobi Kenya? Do the Competitive priorities adopted by tech startups meet the global standards (Silicon Valley)?

1.6 Objectives of the study

1.5.1. General Objectives

The primary objective of this research is to analyze key competitive priorities and growth of Tech Startups in Nairobi.

1.5.2. Specific Objectives

1. To determine the competitive priorities adopted by tech startups in Nairobi, Kenya.
2. To determine the growth of tech startups in Nairobi, Kenya.
3. To determine the effect of competitive priorities on startup growth in Nairobi, Kenya.
4. To benchmark competitive priorities of Kenyan tech startups with Silicon Valley priorities.

1.7 Value of the study

The study will be useful to founders of tech startups in Nairobi so that they can not only concentrate on the idea and the bigger picture but the day-to-day operations of the company to ensure its growth and success. Thus, resulting in customer satisfaction and competitive advantage.

The study will have academic importance as it will contribute to the less available knowledge in Operations Strategy in startups. It can act as a source of Literature for academics in the field of Operations Management.

The study will be an important tool to the government and other policy makers in making decisions and regulations that will impact tech startups in the country. It will guide investors in making funding decisions to tech startups in Nairobi.

CHAPTER TWO: LITERATURE REVIEW

2.0. Introduction

This chapter contains subtopics on key theories, competitive priorities, tech startup growth. A review of Nairobi Tech Startups and ecosystems, a global view of tech startups and conceptual framework that concludes the chapter.

2.1. Key theories

Various theories have been used to explain the rationale of competitive priorities. This study will be rooted on the tradeoff theory, Industrial/Organizational Theory and Competence based theory.

2.1.1. Trade off Theory

The model was founded on the basis of specialization. (Skinner, 1969) The five major performance objectives of operations strategy as mentioned earlier are delivery speed, quality, cost and flexibility. It may be difficult for organizations and companies to excel in all the four competitive priorities.

Operations strategy requires an organization to make trade-offs thus the need to set priorities. A firm has to have set priorities which will determine how the business will fare on as compared to its competitors. (New, 1992). Tech start-ups, may not find it easy to set their priorities; they lack experience.

2.1.2. Industrial/Organizational Theory (I/O)

I/O theory is a competitive strategy framework that defines how market structure influence firm performance. (Porter, 1980) I/O theory indicates the market structure as being the key strategy that results in adjusting operating operations strategy in order to improve performance of the firm. (Ward and Duray, 2000)

Identifying the existing market need and then implementing operations strategy that will adjust the operations resource is a perspective of I/O external orientation in operations strategy (Swamidass, 1989). This will help tech startups in Nairobi Kenya to move away from seasonal value propositions and avoid flooding the market with applications that only solve one market need. (Marex H, 2016). They need to build solutions that meet the various existing market need and be market led and adjust to evolving market requirements.

2.1.3. Competence-based Theory

This is a theory of competitive advantage that is linked to new product development activities. Its main objective is to show the method by which a firm can build competitive advantage via R&D and innovative activities.

A firm can only be competitive if it has a proven ability in market processes with customers and suppliers. Its competitiveness is dependent on its ability to withstand competitive forces of its rivals in the market (Schneider, 1997). Tech startups in Nairobi need to innovate in there

products and services and do a lot of R&D to be able to grow and compete in the Kenyan and also global tech industry

2.2. Competitive Priorities.

This study focused on the four main dimensions of competitive priorities which are cost, quality, delivery speed and flexibility. (Rosenzweig & Easton, 2010) Other studies suggest additional priorities that include After Sales Service (Frohlich & Dixon, 2001), customer service (Russell & Millar, 2014, Sustainability (Johansson & Winroth, 2010) and Innovation (Peng et. Al, 2011). Huge literature exists to theoretically classify competitive priorities into the four main competitive priorities despite the semantic differences that exists among them (Hayes & Wheelwright, 1984, Ward, Duray, Leong, & Sum, 1995).

2.2.1. Cost

This entails selling a product on a low price as compared to competing products. High profit margin can be achieved using this low-cost strategy. Operations managers in these companies base their decision making on cost reduction hence enhancing productivity (Barnes et al. (2003). It is important to keep note that low cost does not mean low quality. An operations manager is expected to study every aspect of costs in labour, material, overhead, and the process and procedure (Slack, 1994).

Companies that compete in terms of cost carefully examine their operations systems and get rid of all wastes. Lean services are utilized, thus incorporating the lean manufacturing idea to service operations. (Hanna & Julia, 2007). They give customers a narrow range of products thus less customizations needed on the products. For example. Apple uses high pricing strategy to put emphasis on the perception of added value therefore maintaining portability. They also set the bar for its competitors who must provide the same features to match the perceived value for Apple products without losing money. (Linton, 2018)

Tracey, Vonderembse, & Lim (1999) and Safizadeh, Ritzman, Sharma, & Wood, (1996), Ward & Duray (2000) and Ward et al., (1996) have shown robust affirmative association between cost and price. Competitive advantage by lowering the cost is obtained through automation (Porter and Millar, 1985). Tech start-ups can reduce their costs by using IT in design and layout thus increasing their ability to coordinate its activities, therefore lowering the firm's production cost (Sarkar, 2012). This study will investigate if this is a key priority for startups.

2.2.2. Quality

Quality is considered the main priority in terms of obtaining competitive advantage (Flynn, Sakakibara, & Schroeder, 1995; Garvin, 1988). Meeting or surpassing customer needs in service is quality (Grönroos, 1983). To achieve quality as a competitive priority, organizations focus on the measure or determinant of quality which their customer views as important. Customer's acceptance or disapproval of the quality of a product or services given is largely dependent on whether their expectations have been met or exceeded. (Fitzsimmons & Fitzsimmons, 1994; Koufteros et al., 2002).

It is important for these companies to evaluate their customers' expectations before developing new services and then track and get feedback from customers after introduction. (Zeithaml et al.,

are the key dimensions which must be addressed by a firm's production system in order to support the market's demands which it wishes to compete with. (Krajewski & Ritzman ,1993)

Skinner (1992) refers to competitive priorities as the dimension of competition, organizational priorities, order winners and qualifiers. Competitive priorities are the key action points which are adopted by a firm to compete in its environment. (Hayes and Wheelwright, 1984) Companies compete mainly through quality, lead time, cost and flexibility (Wheelwright, 1978; Hayes & Wheelwright, 1984). Competitive priorities vary according to various authors. Innovation and dependability are other competitive priorities. (Foo and Friedman, 1992) When an organization focuses on one competitive priority, it limits its ability to focus on another priority. (Rizvi & Saiyed, 2015) There are many variables in an organizations growth and development thus they require intensive research and exploration to find the best means of attaining one of the competitive priorities that will give them competitive advantage. (Robaaiy, 2020)

1.4 Growth Metrics for Tech Startups

Growth is the change in size within a defined time span. (Dobbs & Hamilton, 2007) Growth is a process as it is obtained from various factors and certain activities. (Davidsson et.al, 2010) The probability of a small business closing is reduced by growth (Rauch & Rijskik, 2013). Growth metrics can be revenue, active users or the average customer spend (Stettler, 2018). Growth is one the most sought-after strategies by firms.

There are various metrics that can be used to track a start-up's growth. They include software engineering metrics that involve developing the software further such as load speed. Business and financial metrics which are related to the current and future revenue focus such as customer retention cost.

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1.5 Statement of the Problem

Clearly the opportunity for growth of tech entrepreneurs in Nairobi is huge. But it is difficult for tech entrepreneurs to create a sustainable business in Nairobi. (Quartz 2014; Mulupi 2013). Data illustrates this difficulty. John Kieti, who runs MLab stated that, out of fifty Tech Startups that go through MLAB, only five to ten survive past one year (Contributor, Bizna Kenya 2017). The case is different in Silicon Valley. According to Levitt (2018), the founder of WebAppoint which was acquired by Microsoft, indicated that only 50% fail.

2.3. Competitive priorities adopted by various industries.

Bouranta and Psomas study verifies that whether an industry is manufacturing or service, the same competitive priorities- quality, delivery speed, cost is- applies. The only difference is the emphasis they give selected competitive priorities. (Bouranta, N. & Psomas, E., 2017)

The distinctive competitive priority in the service industry; cost, flexibility, quality, delivery. Hotel and auto-repair focus on cost. Banks and the private institutions focus on quality and delivery. High performing firms focus on cost as the main priority followed by quality, delivery speed then flexibility while the low performing firm's quality and delivery are the top priorities followed by cost and flexibility. (Idris, F. & Naqshbandi, M.M., 2019)

2.4. Tech startup growth.

Tech startups use various metrics to measure their growth. They can utilize the standard business metrics or specific business metrics for startups and also tech related metrics that are software related such as website metrics at their various life cycle stages. (Wang et al., 2016). The growth metrics are divided into various categories business metrics, user and customer metrics and software engineering metrics. (Kemell et al., 2020).

The business and financial metrics are related to cost and revenues. They indicate growth with reference to various monetary indicators. These growth metrics interest investors who want to see if you can make profits. An example is the Customer Retention Cost which involves the average amount spent on customer retention (Lovelace, 2018). For a newly founded startup which does not have any revenue yet can use measures such as cash burn rate and cash on hand to determine their state of growth (Kemell et al., 2020).

User and customer metric is a growth measure that indicates information about their users and customers in terms of Daily Active Users; Daily active users to Weekly Active users. This gives information about the user activity. Such as the Customer retention rate which gives a percentage of users who are still using the service after a period of time (Alexeeva, 2018).

Software engineering metric entails the process and product or service. It provides tech startup growth metrics in terms of its operational life. It includes downloads and install which gives information on the total number of downloads or installs. The Load time which involves the time it takes for the software to respond to the commands put by the user. (Causey, 2018). The study will identify the most popular metrics used by Kenyan tech startups.

2.5. Nairobi Tech Startups ecosystem.

Start-up ecosystem involves founders, start-up teams, accelerators, innovation hubs, event organizers, corporations, government (county and national), NGO start-up building organizations and. Kenya's startup ecosystem is one of the most stable and developed in Africa and it is attributed to high tech entrepreneurial talent, large consumer and business market and strong

2009). The strong relationship between quality and firm performance conforms to the TQM concept and prior empirical studies (Flynn et al., 1995; Williams et al., 1995).
It is necessary for customers to participate during the production of the service and value creations as it is done in most service delivery systems. (Zeithaml et al., 2009). For a tech start-up to gain a competitive advantage with quality, they have to ensure the processes output the product as exactly as it is designed and the designed product to meet its customer's needs (Gordon, 2003).

2.2.3. Delivery speed

Availability, speed, reliability and convenience defines delivery (Ward et al. (1998). In order to compete based on this strategy, these companies have many general-purpose tools that can be used to do various processes and produce various products. The employees have more skills thus can execute various activities so as to satisfy the customer. (Rondeau et al., 2000).

The three elements of delivery according to Wacker (1996) are speed, reliable delivery, and new product delivery. Li (2000) sees delivery as a time issue that is the speed at which the products/services are improved, the time taken to deliver a product /service to a client and how reliable the delivery is. Speed and reliable deliveries are the two items of delivery based on Wacker (1996). The degree of importance put on increasing delivery reliability or delivery speed highly affects delivery performance (Ward & Duray, 2000).

Technology is highly used to speed up the processes, unnecessary steps are removed from the process and the employees are flexible to meet the demand during the peak period. (Rondeau et al., 2000). Today time is the most competitive advantage. In order for a tech startup to achieve

this, things have to be done faster in response to the demand of the customer by giving short lead times between customer requests and when the service is given to the customer. (Johnson et al., 2005).

2.2.4. Flexibility

Company environment is changing rapidly so customers ' expectations and needs change too thus making flexibility a competitive priority for companies to manage their operations. (Harvey et 13 al, 1997). Zhang, Vonderembse, & Lim (2003) see flexibility as the ability of a firm to either exceed or meet a customer's expectations by managing its resources as well as its uncertainty. To compete based on flexibility, a firm needs to be able to manage environmental uncertainty. (Swamidass & Newell, 1987).

A company's flexibility is determined by its ability to simultaneously switch between products and parts (Hall, 1983). Flexibility is also viewed as a firm's ability to either rapidly increase or decrease the amount of the products produced to be able to meet the ever-changing market demand. Vokurka and O'Leary-Kelly (2000) call it volume flexibility.

Improving distribution of resources and the proper allocating of available resources to perform a given activity is the core of flexibility. It ensuring resources are adopted at the ideal time when they are needed (Duclos et al., 1995)

Flexibility is a useful tool that tech start-ups in Nairobi can adopt to improve their competitive position. It is important to consider the kind of technology to adopt and implement (Fitzsimmons et al., 2006).

corporate sector. It has the most mature startup ecosystem in the Continent. Based on the research conducted on 1333 ventures registered in the country, it was clear venture performance is influenced by the support from Kenya Startup ecosystem (Gugu, 2018).

The key driver to the ecosystem was the undersea fiber optic cable laid in 2009 were laying, resulting in increased bandwidth and cheaper high-speed internet connectivity and later the growth of 3G and now 4G mobile internet connectivity. This led to the growth of the mobile consumer market thus a rise in 'apps' focused startups. The ministry of ICT in Kenya has played a major role by offering Tandaa Grants to fund a few startups to ignite activity in the sector and also showcase Kenya's talent in various sectors. Between 2010 and 2012, a total of 45 ventures received the funding (Gugu, 2018).

In 2020, MLAB was founded thus becoming a defining moment of the Kenyan tech Start-up ecosystem. It was birthed by the University of Nairobi, hub and Enablis. This provided training and incubation services to entrepreneurs innovating in mobile technologies. It held the first regional pitching competition for startups. (Gugu, 2018).

One cannot mention Kenya's start-up ecosystem without M-Pesa. It is owned by Safaricom which is Kenya's number one telco which has revolutionized the mobile money transfer system. This has been a big boost to B2C and B2B start-ups that get payments from their customers. This has made start-ups build on top of this mobile payment infrastructure and thus focus on their product. (Gugu, 2018).

2.6. Tech Startups a global view

Around the world, startups are increasing rapidly in major cities, including London, Cape Town, Berlin, Madrid, Boston Buenos Aires, Moscow, Istanbul, Tel Aviv (for security), New York (financial technology), Mumbai, Paris, and Rio de Janeiro, to name a few. (Florida, 2013) These regions have many startups, leading academic and research institutes, availability of funds, talent and collaborative ecosystem. Over a third of the 141 companies in Asia Pacific, America and Europe whose value raised to $1 billion or more around 2015 were located in the Bay Area Silicon Valley. (Deloitte)

Silicon Valley was and still is the most important center and technology disruption globally. With the invention of transistors, tech firms which began as startups have revolutionized the world of computing thus ushering the digital age. Tech companies include Hewlett Packard, Apple, Intel (microchips), Cisco Systems (Internet networking), Microsoft (Operating System), Oracle (databases) sun microsystems (servers and workstations), Google, Facebook, Twitter (internet Giants). Uber (transportation), Airbnb (accommodation and hotels), Tesla (automobiles) and so many more. Silicon Valley is at times seen as a mecca for startups. (Kushida, 2015)

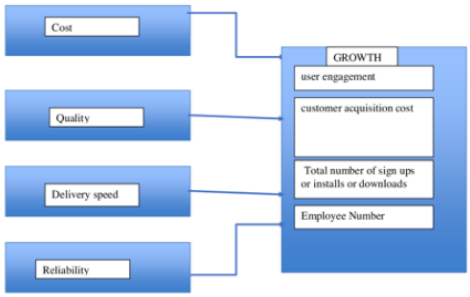
Shenzhen is the Silicon Valley of China and also on its way to be the world's new Silicon Valley. This is because they are highly innovative, if not more than their best competitors. With top world companies like Huawei (leading global ICT solutions provider), Tencent (Internet services in China), DJI (world's largest consumer drone manufacturers) ZTE, BYD (rechargeable batteries).

India is the third largest startup ecosystem in the world according to NASSCOM Startup report in terms of the number of startups. The technology-based startups are approximately 9000 among them are 24 active unicorns - startups value exceeding USD 1 billion. The startups in India growth rate are between 12-15% annually. (NASCCOM, 2019)

The global tech startup scene has also seen epic failure in some initially flourishing tech firms. Yahoo was the main player in the online advertising market but decided to focus more on becoming a media giant and failed to innovate and thus was eaten up by google. Nokia is another failed tech firm which was a global leader in mobile phones. Nokia's failure to grasp the concept of software thus collapsed. Viber, IMO collapsed. They were whatsApp competitors in 2014 that used to offer calls, messages, videos and photo sharing via the internet. This is because whatsapp managed to obtain a big pool of users very quickly. (TOI Tech & Agencies, 2014) MySpace was overtaken by the growth Facebook in 2005 and lost its users. (Aaslaid, 2018)

2.6. Conceptual Framework.

In this study the dependable variable is growth and the several predictor (independent) variables are the competitive priorities; cost, quality, delivery speed and flexibility.



CHAPTER THREE: METHODOLOGY

3.0 Research Design

Descriptive research design was used in the study since it aims at defining the subject by creating a group of problems, people, by collecting data and tabulating the frequencies on the defined variables or their interactions (Cooper and Schindler, 2006). The novelty of the research also calls for such a design. The descriptive research was used to provide an accurate, valid and reliable systematic description with regards to the responses on the competitive priorities and growth of tech start-ups in Nairobi, Kenya. With descriptive research design, descriptive survey design was undertaken which made it possible to describe the variables of the study.

3.1 Population of the study.

There are roughly 1333 Kenyan ventures based on research that registered on VC4A website. (VC4A, 2010). 50 tech startups were studied. This study targeted tech communities (Nairobi Js, React JS, Angular KE, Django-Kenya, Python/Django/Flask).

3.2 Sampling.

Stratified sampling was used and the various tech communities each made a stratum (Nairobi Js, React JS, Angular KE, Django-Kenya, Python/Django/Flask). A total of 50 tech start-ups was selected using convenience sampling in order of appearance according to their convenient accessibility. The sampling process ended when the total number of participants limit is reached.

3.3. Data Collection.

A web-based survey was used for data collection since it was less costly to set up, easy distribution (link sent to respondents) and effective especially now when there is a coronavirus pandemic. It was convenient to the respondents and gives them less pressure, it was easy to follow-up and also useful especially when targeting specialized populations (Rea &Parker, 2014).

Questionnaires was used to collect data since it is straightforward, easy to answer and time efficient. Questionnaires with closed-ended give uniformed answers resulting in comparisons between respondent types and variables. (Bryman &Bell, 2011; Rea &Parker, 2014) It was useful to identify the competitive priorities employed amongst different tech start-ups in Nairobi. Closed-ended questions were implemented to enhance clear questions, simplicity of answering and quick responses. The fixed answers made it easy to process data for analysis. (Bryman &Bell, 2011; Rea &Parker, 2014)

The questionnaires was clear in terms of guaranteeing the privacy and confidence of the respondent. It will be short, precise and easy to understand and interesting to the respondent to answer. (Bryman & Bell, 2011; Rea & Parker, 2014) They will be developed, then be pre tested prior to remove flaws and feasibility determined then it will be adjusted before being used to ensure quality, reliability and validity.

3.4. Data analysis.

The study used tables and graphs to visualize the results as they will make it easy to explain and interpret and understand the collected quantitative data. (Bryman & Bell, 2011).

To be able identify the competitive priorities adopted by tech start-ups in Nairobi, Kenya, which is the first objective. The summary measures of mean and standard deviation was calculated to indicate the key competitive priorities adopted by tech start-ups.

The second objective was achieved using global average to determine the average growth rate of tech startups in Nairobi, Kenya.

The final objective was attained by multiple linear regression model which will be used to assess the strength of the relationship between the dependable variable growth and the several predictor variables which are the competitive priorities; cost, quality, delivery speed and flexibility. The importance of each predictor to the relationship will be analyzed and the effects of other predictors will be statistically eliminated.

$$Y = \beta_{o+} \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y is the growth of startups

β_o= Represents the growth of start-ups when (X_1, X_2, X_3, X_4) =0

X_1 = Cost

X_2= Quality

X_3= delivery speed

X_4 = Flexibility

β_1, β_2, β_3, β_4, represent the average effect on Y of a one unit increase of coefficient of X_1, X_2, X_3 and X_4 holding other predictors fixed.

ε represents the error term

CHAPTER FOUR: RESULTS AND FINDINGS

4.0. Response Rate

A web-based survey in the format of a URL using the google form application was sent in the various strata (Nairobi Js, React JS, Angular KE, Django-Kenya, Python/Django/Flask) via an online link sent (See Appendix 3) via WhatsApp. 50 questionnaires were duly filled representing a total population of 200 from all the strata.

A response rate of 25%. According to Genroe, survey response rate which is greater than 20% is good. A realistic response rate range between 5% to 30%. (Genroe,2019)

4.1. Demographic Information

The respondent role in the startup was asked in the questionnaire. *Figure 1.1* indicates that 40% of the respondents were the co-founders of the tech startups, 38% were the founders, 20% were engineers who were working at the tech startups and 2% were the owners of the tech startups.

Figure 4.1

4.2. Competitive Priorities adopted by tech startups in Nairobi, Kenya.

The mean score of the percentages were computed to show the respondents ratings on the various competitive priorities. A Likert Scale Of 1-5 was used where 1= Strongly disagree, 2 = Disagree, 3= Neutral, 4= Agree and 5= Strongly agree.

Table 1

Name of Tech Startup	Mean Score on Cost	Mean Score Quality Average	Mean Score Delivery Speed Average	Mean Score Flexibility Average
Jijirentals	3.5	3.75	3.25	2.33333333
Alpha Manuscript	3	4.25	3.75	3.66666667
oto solutions	3.25	4.25	3.25	2.66666667
Mzigoh	3	4.25	3.5	4
NovaSoft	2.75	4.75	3.5	3.33333333
Smart Banana	3.5	2.5	2.75	3
Ciftec ltd	3.25	4	4	3.33333333
Studio 60four	2.75	3	2.25	3.33333333
Bitrate Digital Solution Ltd	4.25	4	5	3.66666667
Fingo	3.5	3	3.25	2.66666667
DT Digital Design Agency	3	3.75	2.75	2
Voice Corp.	4	4	3.75	3
Binary	2.75	3	3.75	4
Noria Tech	3	3.75	3.25	3.33333333
Light touch tech	3.75	4.25	3	3
ChangSoft Technologies	3.25	3.75	4.75	2.33333333
GrayLine technologies	4	4.25	4.25	1.66666667
azeez aweda	4.75	4.75	4.5	4.66666667
Talanta	4	4.25	5	5
Ahadi Wireless	4.25	2.5	4	2
Otblabs	3	3.75	3.5	3
Pro Tech	3.5	3.25	4.25	3.33333333
RMG Inc	3.5	4	3.75	2.66666667
Bochie ltd	2.5	4	3.25	2.33333333
Inuua	4.5	4	4	4
Shulesuite softwares	3	4.5	4	3
GamerX	2.75	3.25	3	2.66666667
Data Alma	3.25	3.75	3.5	2.66666667
Softnet Elite	4.25	4.25	5	5
Treestate	3.75	4.5	4	3.66666667
Daphas Computer Consultants.	3.25	3.5	4.5	3
TIKVAH Solutions	3.25	3.75	3	2
Advernet Africa	4.25	4.25	3.5	2.33333333
cyber hawk	4	4.5	2.75	1.66666667
SpikeBit	2.75	3.5	3.25	3.66666667
Letco	2.25	4.25	2.75	2
NextUs LLC	3.5	3.75	3.5	3.33333333
Freelance	3.5	4	3.75	2
Musima	4	4	4	4
Justus	4.5	3.5	3.75	2.66666667

Peet solutions	3.5	3	3	2.33333333
	2.75	3	3	3.66666667
Otul Robotics	4.25	4.5	4.25	3
Cloudix	3.75	4.25	4	2.66666667
INFINITECH	4.25	3.5	4.25	2.66666667
Skypesa	3.5	4.75	4	3
I-Tech Computer solutions	3.5	4.25	3.5	3
Shule Plus	3.75	3.5	3.25	3.66666667
Chrispine Pius	4.25	4.5	3.75	3.66666667
Kanatech	3	4.5	4	2.66666667
Average	3.5	3.8	3.7	3.0

According to *Table 4.5*, Quality is the competitive priority adopted by most tech startups in Nairobi with an average mean of 3.8. Followed by delivery speed with an average mean of 3.7 then cost at 3.7 and flexibility as the least adopted competitive priority with an average mean of 3.0.

Figure 1.3 below (pie chart) indicates 62% of tech startup focus on Quality, 30% Reliability, 6% cost and 2% delivery speed.

Figure 3.3

According to *Figure 3.3* above, Quality is the most adopted competitive priorities by Nairobi, Kenya tech startups at 62% followed by reliability at 30%, then cost at 5% and delivery speed the least with 2%.

4.3.3. Growth matrix of tech startups in Nairobi based on Customer Retention Cost

Table 4

AVERAGE COST OF RETAINING CUSTOMERS	TOTAL NUMBER OF ACTIVE CUSTOMERS	GROWTH RATE
20190.80	358.4	56.3

Customer Retention cost is determined by dividing the Cost of Retaining a customer/Total Number of Active Customers

20190.80/358.4 = 56.3%

4.3.4. Growth matrix of tech startups in Nairobi based on Number of downloads, signups within a given period (one month)

Table 5

Total number of downloads, installations or sign ins this month	Total number of downloads, installations or sign ins same date last month	GROWTH RATE
8273	88816	9.7

Growth rate is determined by dividing the

(Total number of downloads, installations or sign ins same date last month -Total number of downloads, installations or sign ins this month)/ Total number of downloads, installations or sign ins same date last month

(88816-8273)/ 8273= 9.7

4.3.5 Average growth rate

Based on the data from Table 1, Table 2, Table 3 and Table 4 above,

Growth Rate based on no. of employees , User Engagement , Customer Retention Cost and number of downloads installations or sign ups.

(24+56.3+0.89+9.7) / 4 = 22.7%;

Average growth rate of 22.7%

4.4. Effects of Competitive priorities on tech startup growth in Nairobi, Kenya

Multiple linear regression model which will be used to assess the strength of the relationship between the dependable variable growth and the several predictor variables which are the competitive priorities; cost, quality, delivery speed and flexibility. The importance of each

4.3. Growth of Tech Startups in Nairobi

4.3.1. Average growth rate of tech startups in Nairobi based on Number of Employees

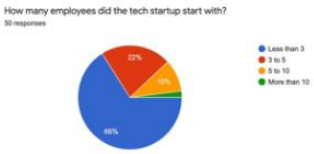


Figure 1.5

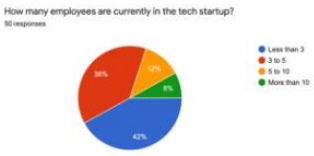


Figure 2.5

Table 2

AVERAGE NO. OF EMPLOYEES STARTED WITH	AVERAGE NO. OF EMPLOYEES NOW	GROWTH RATE
1.5	1.86	24

Based on the estimated number of employees the tech startups started with which is 75 compared to the estimated average number of employees the tech startups have current 93. The average growth rate of tech startups is calculated as (1.86-1.5)/1.5 *100. This gives 24% growth rate of tech startups in Nairobi.

4.3.2. Growth matrix of tech startups in Nairobi based on User engagement

Table 3

DAU (DAILY ACTIVE USERS)	WAU (WEEKLY ACTIVE USERS)	UE (USER ENGAGEMENT)
320.68	360.54	0.89

User engagement is determined by dividing the DAU over WAU (UE = DAU/WAU) which is on average 0.89%.

predictor to the relationship will be analyzed and the effects of other predictors will be statistically eliminated.

Table 6

Name of Tech Startup	Mean Score on Cost	Mean Score Quality Average	Mean Score Delivery speed Average	Mean Score Flexibility Average	Growth Rate based on employee No. (%)
Jijirentals	3.5	3.75	3.25	2.33333333	0
Alpha Manuscript	3	4.25	3.75	3.66666667	100
oto solutions	3.25	4.25	3.25	2.66666667	0
Mzigoh	3	4.25	3.5	4	100
NovaSoft	2.75	4.75	3.5	3.33333333	100
Smart Banana	3.5	2.5	2.75	3	100
Ciftec ltd	3.25	4	4	3.33333333	100
Studio 60four	2.75	3	2.25	3.33333333	50
Bitrate Digital Solution Ltd	4.25	4	5	3.66666667	0
Fingo	3.5	3	3.25	2.66666667	0
DT Digital Design Agency	3	3.75	2.75	2	0
Voice Corp.	4	4	3.75	3	200
Binary	2.75	3	3.75	4	-75
Noria Tech	3	3.75	3.25	3.33333333	200
Light touch tech	3.75	4.25	3	3	0
ChangSoft Technologies	3.25	3.75	4.75	2.33333333	0
GrayLine technologies	4	4.25	4.25	1.66666667	0
azeez aweda	4.75	4.75	4.5	4.66666667	-50
Talanta	4	4.25	5	5	0
Ahadi Wireless	4.25	2.5	4	2	33.3333333
Otblabs	3	3.75	3.5	3	0
Pro Tech	3.5	3.25	4.25	3.33333333	0
RMG Inc	3.5	4	3.75	2.66666667	0
Bochie ltd	2.5	4	3.25	2.33333333	0
Inuua	4.5	4	4	4	300
Shulesuite softwares	3	4.5	4	3	0
GamerX	2.75	3.25	3	2.66666667	0
Data Alma	3.25	3.75	3.5	2.66666667	0
Softnet Elite	4.25	4.25	5	5	0
Treestate	3.75	4.5	4	3.66666667	200
Daphas Computer Consultants.	3.25	3.5	4.5	3	0
TIKVAH Solutions	3.25	3.75	3	2	100

4.4.1. Evaluation of P-Values

The P-Value of Quality is P-Value of p =.47, it is greater than the significance level of p > .15. This indicates Quality has insufficient evidence to conclude that a non-zero correlation exists thus, does not really matter in predicting the outcome which in this case is growth. Quality is not of significance. The predictive value of Quality will therefore not be used.

Cost has a P-Value which is equal to the significant level which is p = .15 thus is statistically significant.

The P value of Delivery speed and Flexibility are less than the significant level of p = .15. delivery speed had a P-value of p =.05 while Flexibility has a P-value of p = .08. They are therefore statistically significant.

Since the predictive value of Quality is low, we will run another regression with only Cost, Quality, delivery speed as independent variables.

4.4.2. Multiple Regression without the Independent variable Quality.

SUMMARY OUTPUT 2

Regression Statistics	
Multiple R	0.3280659
R Square	0.10762723
Adjusted R Square	0.04942901
Standard Error	69.8357939
Observations	50

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	27057.6359	9019.21197	1.84932161	0.15149435
Residual	46	224343.753	4877.03811		
Total	49	251401.389			

	Coefficients	*Standard Error*	*tStat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-4.4824979	70.3813406	-0.0636887	0.94949404	-146.15279	137.187793	-146.15279	137.18779
Cost Average	29.2153361	19.7265487	1.48101609	0.14541999	-10.492147	68.9228192	-10.492147	68.922819
Delivery speed Average	-36.933907	20.0576863	-1.8413842	0.07201889	-77.307936	3.44012145	-77.307936	3.4401214
Flexibility Average	24.8786162	13.9941673	1.77778468	0.08205021	-3.2901816	53.0474139	-3.2901816	53.047413

The P-value of the other independent variables Cost, delivery speed and Flexibility have fallen significantly thus have very strong predictive values each of them lower than the significant level of .15. Cost P-Value .14, Delivery speed .07, Flexibility .08.

4.4.2. Putting the coefficients into the formulae

Using the competitive priorities cost, delivery speed and flexibility we can predict a Nairobi tech startup growth

$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$

Where: Y is the growth of startups

β_o= Represents the growth of start-ups when (X_1, X_2, X_3) =0

X_1 = Cost

X_3= Delivery speed

X_4 = Flexibility

β_1, β_2, β_3, represent the coefficient of X_1, X_2, X_3

ε represents the error term

$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$

E.g., Predict Growth of a startup in Nairobi if the rate of utilizing competitive priorities is Delivery speed 3, Flexibility 2, cost 5.

Y = -4.4824979 + (29.2153361*5) + (-36.933907*3) +(24.8786162*2)

Y = 80.55%

Growth rate will be 80.55%

4.5. Discussion of the Findings

4.5.1. Growth of tech startups in Nairobi, Kenya.

Morelix defined Startups as employer firms less than one year old employing at least one person besides the owner. (Morelix et al., 2015). The study agrees with the definition as it found the majority of tech startups have less than 10 employees.

The study indicated a growth rate of 24% of tech startups in Nairobi based on the number of employees the company started with versus the current number of employees. It also indicates a growth matrix of 0.89% based on user engagement (Gorski, 2016). Amount of spending on customer retention at 56.3 % (Lovelace, 2018). 9.7% based on downloads, installations and signups resulting in an average growth rate of 19.63%. (Jordan et.al)

4.5.2. The competitive priorities adopted by tech startups in Nairobi, Kenya.

The four competitive priorities which are Cost, Flexibility, Delivery speed and Quality exists in all the tech startups covered in the sample. These priorities play a major role in the various tech startup growth.

The study found out that Quality is the competitive priorities that is mostly adapted by tech startups in Nairobi closely followed by Cost. This finding is consistent with Melville et al research that asserted that the efficiency of the performance of startup business was primarily measured from value addition as a result of cost reduction of the cost of operation. (Melville et al., 2004).

4.5.3. Effects of competitive priorities on tech startups in Nairobi, Kenya.

From the study, the multiple regression analysis quality as a predictor was statistically eliminated in predicting the outcome since it is not of significance. Its P-value was higher than the significance level. It does not really matter as it has insufficient evidence in predicting the outcome which in this case was growth of tech startups. It does not influence the growth of tech startups in Nairobi Kenya. The findings of the study indicated that cost, delivery speed and flexibility competitive priorities influence the growth of tech startups in Nairobi as their P-Value was lower than the significance level.

Advernet Africa	4.25	4.25	3.5	2.33333333	0
cyber hawk	4	4.5	2.75	1.66666667	0
SpikeBit	2.75	3.5	3.25	3.66666667	0
Letco	2.25	4.25	2.75	2	0
NextUs LLC	3.5	3.75	3.5	3.33333333	0
Freelance	3.5	4	3.75	2	0
Musima	4	4	4	4	0
Justus	4.5	3.5	3.75	2.66666667	100
Peet solutions	3.5	3	3	2.33333333	0
	2.75	3	3	3.66666667	50
Otul Robotics	4.25	4.5	4.25	3	0
Cloudix	3.75	4.25	4	2.66666667	0
iNFINITECH	4.25	3.5	4.25	2.66666667	0
Skypesa	3.5	4.75	4	3	100
I-Tech Computer solutions	3.5	4.25	3.5	3	0
Shule Plus	3.75	3.5	3.25	3.66666667	100
Chrispine Pius	4.25	4.5	3.75	3.66666667	100
Kanatech	3	4.5	4	2.66666667	0
Average	3.5	3.8	3.7	3.0	24

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.3430333
R Square	0.11767184
Adjusted R Square	0.03924267
Standard Error	70.2089776
Observations	50

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	29582.8647	7395.71618	1.50035814	0.21811588
Residual	45	221818.524	4929.30054		
Total	49	251401.389			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-41.997353	88.0557809	-0.4769403	0.63571272	-219.3508	135.356093	-219.3508	135.35609
Cost Average	28.9905628	19.8344484	1.46162687	0.15079199	-10.958067	68.9391925	-10.958067	68.939192
Quality Average	13.4728611	18.8235751	0.71574401	0.47784715	-24.439765	51.3854876	-24.439765	51.385487
Delivery speed Average	-40.687552	20.835682	-1.9527824	0.05708193	-82.65277	1.27766532	-82.65277	1.277665
Flexibility Average	24.8142386	14.0692359	1.76372327	0.08456712	-3.522657	53.1511342	-3.522657	53.151134

P-Value of P = 0.47784715 is higher than the significant value of .15. Cost has the least significance on tech startup growth with a P-Value of .14541999. Delivery speed has the most significance on tech startup growth in Nairobi Kenya with a P – Value of .07201889 followed by Flexibility with a P-Value of 0.08205021.

The study established that quality is the most adopted competitive priority in tech startups in Nairobi. According to Porter, when the product is undifferentiated, the product quality loses its competitive advantage (Porter 1985). On the other hand, Silicon Valley startups prioritize innovativeness and efficiency in terms of quick adaptability to the new innovations and technologies thus resulting to disruptive technologies. (Porter, 1985)

5.2. CONCLUSION

The finding concluded that quality is the competitive priority adopted by tech startups in Nairobi followed by the others; cost, flexibility and reliability.

The average growth rate of tech startups in Nairobi is approximately 22.7% based on various growth matrices of tech startups that include Employee Number, User Engagement, Customer Retention Cost and No. Of Downloads.

The competitive priorities that affect growth of tech startups in Nairobi are cost, delivery speed and flexibility. Delivery speed is the competitive priority that mostly has an effect on tech startup growth in Nairobi Kenya and cost being the least in affecting growth of tech startups in Nairobi Kenya.

To compete on the global scale, tech startups in Nairobi need to focus more on effectiveness and adapt quickly to new technology and be innovative. They should not only rely to meet their local market needs but also outside their market in order to be disruptive.

5.3. RECOMMENDATIONS

The study recommends that tech startups should consciously adapt competitive priorities in their operations and align their operations to the key competitive priorities to gain competitive advantage in the market.

The study recommends tech startups to monitor their KPI and track their growth metrics to ensure their growth.

The study recommends tech startups in Nairobi to utilize cost, delivery speed and flexibility competitive priorities to achieve competitive advantage thus grow their tech startups.

To achieve disruption in the tech industry like tech startups in Silicon Valley, Nairobi tech startup should adopt innovativeness as a competitive priority and be flexible and quick to implement new technologies.

5.4. LIMITATIONS OF THE STUDY

The study was mainly to determine competitive priorities and growth of tech startups in Nairobi, Kenya, focusing on Cost, delivery speed, flexibility and quality. The tech startups could be

4.5.3. Competitive priorities of Kenyan tech startups with Silicon Valley priorities.

Silicon Valley startups thrive and succeed by innovating and adopting emerging technology quickly. They have a forward view of their specific industry by looking inside and outside of it. (Schroeck et al). The study indicates that Nairobi tech startups mainly focus on quality to gain competitive advantage.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. SUMMARY

The primary objective of the study was to find out the key competitive priorities and growth of Tech Startups in Nairobi. This was broken down into four specific objectives.

The first objective of the study was to determine the competitive priorities adopted by tech startups in Nairobi, Kenya. The study established that tech startups in Nairobi Kenya adopt all the competitive priorities; Cost, Quality, Delivery speed, Flexibility. The study found out that quality is the most adopted competitive priority followed by Cost, flexibility and finally Delivery speed.

The second objective was to determine the growth of tech startups in Nairobi, Kenya. The study shows an average tech startup growth rate of 22.7% based on various growth matrices of tech startups in Nairobi that included Employee Number, User Engagement, Customer Retention Cost and No. Of Downloads.

The study had findings on the effect of competitive priority on startup growth in Nairobi, Kenya. It established that quality as a competitive priority has no effect on tech startup growth since its

focusing on different competitive priorities like innovation, dependability, sustainability, after-sales services and many more.

It could not be established if there exist trade-offs of the competitive priorities by tech startups.

The response rate of the targeted population. There was fear that the collected information might be used for other purposes other than for academic purposes thus fear from targeted population.

The corona virus pandemic that started in 2019-2020 adversely affected tech startups in Nairobi. Startup's operations turned to survival other than growth.

5.4. SUGGESTIONS FOR FURTHER STUDIES

The study suggests further research on other competitive priorities like innovation, dependability, dependability, sustainability, after-sales services and others adopted by tech startups in Nairobi Kenya to determine their effect on tech startup growth.

Further research should be undertaken on the competitive priorities of Kenyan tech startups with Nigeria, Ghana and South Africa priorities.

Further studies should also be undertaken to determine the competitive priorities and growth of tech startups across the country, Kenya.

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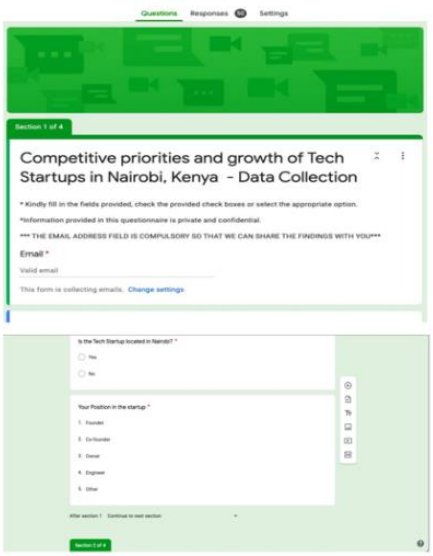

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