

https://dspace.org/

Site, Power Acquisition and Real Estate Services for Telecommunication Companies in South Africa

Choenyana, Kagisho Mmaseleke

2023

University of the Witwatersrand, Johannesburg

https://hdl.handle.net/10539/44393

Choenyana, Kagisho Mmaseleke . (2023). Site, Power Acquisition and Real Estate Services for Telecommunication Companies in South Africa [Master's dissertation, University of the Witwatersrand, Johannesburg].WireDSpace.https://hdl.handle.net/10539/44393

Downloaded from a DSpace repository. https://dspace.org/

Site, Power Acquisition and Real Estate Services for Telecommunication Companies in South Africa

Applied Research Project Proposal

submitted by

Kagisho Mmaseleke Choenyana

Student number: 1276788

Tel: +27 79 185 8894

Email: cmmaseleke@yahoo.com

Supervisor:

Professor Zunaid Bulbulia

Wits Business School Draft Final Project Report: 28 February 2023

DECLARATION

I, Kagisho M Choenyana, declare that this business venture proposal is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the Graduate School of Business Administration, University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Kagisho Mmaseleke Choenyana

Signed at ……

On the ……. day of …… 20….

DEDICATION

This business proposal is dedicated to my daughter Omolemo. You continue to be so understanding and compassionate, despite my busy schedule. Thank you for giving me a reason to live and try each day, and for lighting my life brighter than I thought it was possible.

ACKNOWLEDGEMENTS

The idea for this business venture proposal came up as part of the work I was appointed to do during my tenure at Huawei Technologies. I worked for Huawei as a site acquisition manager within SADC and further got promoted to the role of Project Director for power acquisitions, in Zimbabwe. This is where the gaps within the value chain of providing efficient site and power acquisition services to telecommunications companies were identified.

I would like to thank all those who volunteered their time by participating in the qualitative data collection processes. Mr. Groenewald, the Municipal Manager of Midvaal Municipality, his Executive Director for Planning and Development Mr. David Chamboko, Mr. Wynand Marx of JB Marks Municipality, Ms. Esti Undemeaning from Huawei technologies, and Ms. Andiswa Lobelo of Isibonelo Property Services, your participation is greatly appreciated.

To my sister Mahlako Choenyana, thank you for stepping in and providing emotional and financial support when I lost my job in the middle of the MBA program. I wouldn't have survived had it not been for your presence and understanding.

Lastly, to my supervisor Professor Zunaid Bulbulia, I am so grateful to have worked under your supervision. I would like to appreciate how you have continuously encouraged and guided me with efforts to achieve the very best out of each stage of this process. I have learned the true meaning of leadership under your supervision. You allowed me to work on a flexible schedule, yet you'd be easily accessible for consultations.

Dear God, thank you for being so faithful. What was once a dream has come to reality. Thank you for your grace.

TABLE OF CONTENTS

DECLARATION **2**

DEDICATION **3**

ACKNOWLEDGEMENTS **4**

1. EXECUTIVE SUMMARY **1**

2. Section 1: Introduction and Scope **1**

2.1 Overview 1

2.2 Purpose of the proposal 3

2.3 Market Analysis 3

2.3.1 Potential Customers *3*

2.3.2 Market Size *4*

2.3.3 Demand factors and closing the acquisition gap. *5*

2.3.4 Main Competitors *6*

2.4 Background of Land Use Management and Real Estate in Telecommunications 7

2.5 Key Role Players in the Telecommunications Industry 7

2.6 Scope of the Proposed Business Venture 8

2.7 Objectives of the Proposed Business Venture 9

2.7.1 Acquisition of sites *9*

2.7.2 Acquisition of Power *10*

2.7.3 Real Estate Management Services *10*

3. Section 2: Literature Review **11**

3.1 Introduction 11

3.2 Theoretical foundation 11

3.2.1 Telecommunications Management Network Model (TMN) *11*

3.2.2 The Theory of Search-Marching of Unemployment *13*

3.2.3 Theory of Integrated Development Planning (IDP) *15*

a) Site Acquisitions in conjunction with the IDP *16*

b) Planning and Legislation *17*

c) Responsibility Metrics *18*

d) Permitting for Telecommunications Sites *19*

3.3 Mergers and Acquisitions 20

3.4 Conclusion 20

3 Section 3: Methodology **22**

3.1 Introduction 22

3.2 Research Structure 22

3.3 Research participation 23

3.3.1 Participants and research methodology *23*

3.3.2 Hypothesis for quantitative data *24*
3.3.3 Data Analytics *25*
3.3.4 Research Findings *28*
3.3.5 Summary *28*
3.4 Business Venture Proposal 30
3.4.1 Company Overview *30*
3.4.1.1 Mission Statement *30*
3.4.1.2 Vision Statement *30*
3.4.2 Business Venture Details *30*
3.4.2.1 Site Acquisition *30*
b. Rendering of services to customers *33*
3.4.2.2 Power Acquisition *33*
3.4.2.3 Real Estate Management *34*
3.4.3.1 Process Overview *35*
The entire SAQ scope consists of four main steps. *35*
1. Site search (5 to 6 days) *35*
2. Site evaluation, lease, and power investigations (3-8 days) *35*
3. Legal/ Permit approvals (6-20 weeks) *35*
4. Land Use application and approval (+30 days) *35*
The overall process takes up to 39 weeks from inception to completion, as outlined in the SAQ process flow in Annexure I. *35*
3.4.4 Financial Overview *35*
3.4.3.1 Market Analysis *35*
3.4.3.2 Breakeven Analysis *36*

4 Section 4: Reference **38**

5. Section 5: Research Instrument **45**
5.1 Property Owner interview guideline 45
5.2 Mobile Operator interview guideline 45
5.3 Government officials interview guideline 46
5.4 Interview links and transcripts 47

6. Section 6: Annexures **56**
6.1 Annexure A: Market Analysis 56
6.2 Annexure B: Business Inputs 57
6.3 Annexure C: Revenue Projections 58
6.4 Annexure D: Cash Flow Projections 59
6.5 Break Even Analysis 60
6.6 Annexure E: 5G development across the globe 61
6.7 Annexure F: MTN network coverage by generation in South Africa. 62
6.8 Annexure G: Telkom network coverage by generation in South Africa. 63

6.9 Annexure H: Vodacom network coverage by generation in South Africa. 64
6.10 Annexure I: Site Acquisition Process Flow.....64

1. EXECUTIVE SUMMARY

This business venture proposal is aimed at addressing inefficiencies that occur during the Site Acquisition application processes and the provision of telecommunication sites to telecommunication companies. Access to suitable sites in ideal locations, is a challenge in South Africa. This hinders growth and development for telecommunication infrastructur, particularly with 5G rollout.

Few property owners are willing to release their properties to accommodate telecommunication's infrastructure. This causes a huge hindrance to the deployment of sites in prime locations. Furthermore, application processes for energizing the acquired sites are lengthy, since the processes are dependent on power utilities' internal procedures, as well as lack of existing infrastructure required to energize sites. This project proposal will address inefficiencies in acquiring sites, and possible collaborative methods required to create win-win solutions for all stakeholders within the acquisition value chain.

2. Section 1: Introduction and Scope

2.1 Overview

According to Kayembe (2019), the fourth industrial revolution has presented an economic opportunity to South Africa, as a developing country. The country can capitalize on the digital evolution taking place around the world by integrating different types of technologies and their interactions across various domains such as physical, digital, and biological. As a result, the South African government has adopted three pillars critical towards achieving digital transformation, in conjunction with the National Development Plan's (NDP) vision 2030, to ensure growth and connectivity within the economy and overall society through the application of Information and Communications Technology (ICT).

The three strategic pillars are: (i) to have digital transformation in government, (ii) to provide digital access and (iii) to ensure digital inclusion. Digitizing the economy by providing fast, reliable modern technology is required to have an inclusive, prosperous society where citizens can enjoy full socio-economic opportunities. According to Falck (2020), digitalization is changing society and the economy by

driving entrepreneurial creativity, and labor growth within the economy.

The construction of brownfield and greenfield telecommunication sites is required across South Africa, to start realizing the full benefits of a digitalized economy. These required sites are in the ownership of the government, the private sector as well as individual property owners.

Pro-active measures are required to identify sites needed by the telecommunication industry well in advance for the fulfillment of the government's digital transformation and development goals, and for Mobile Network Operators (MNOs) to reach their development goals (Ovens et al, 2013).

This will be achieved by providing MNOs with the pool of sites required for development, representing various property owners, and administering the contractual agreements between property owners and MNOs. Monthly fees will be charged by the business for the services, rendered.

In instances where the MNOs require additional services on acquisitions of power or handling land use applications, the business will offer such services at rates, applicable to the type of application as determined by the market.

2.2 Purpose of the proposal

The purpose of this business proposal is to offer solutions to telecommunications companies in South Africa, through the provision of site acquisitions (SAQ), power acquisitions, and real estate management services. In addition, it outlines the benefits and the need for telecommunications companies to collaborate with entrepreneurial firms with the capacity and resources to provide full turnkey solutions for site acquisitions and property management purposes.

Finally, it seeks to strengthen alliance partnerships within the telecommunications value chain by ensuring that suitable sites are identified, surveyed, planned, approved, and managed throughout the site acquisitions value chain, efficiently and proactively.

2.3 Market Analysis

2.3.1 Potential Customers

The business model is designed to provide services to two different types of customers. These are the Mobile Network Operators in South Africa and various types of property owners. Mobile operators are in constant need of sites such as Built-To-Suit (BTS) or greenfield sites for the construction of towers, indoor solutions for antenna installations in huge buildings such as malls, business parks, and airports, and small cell sites, usually constructed on lamp posts and billboards. A process of acquiring these sites must be followed, through the rights and development practices before attaining licenses for constructing telecoms equipment required for communications purposes.

Currently, Mobile Operators execute this function through internal resources. This service already exists through internal structures of MNOs; however, it has resulted

in backlogs, resulting in the service being outsourced to consulting firms specializing in land and power acquisitions as well as real estate services.

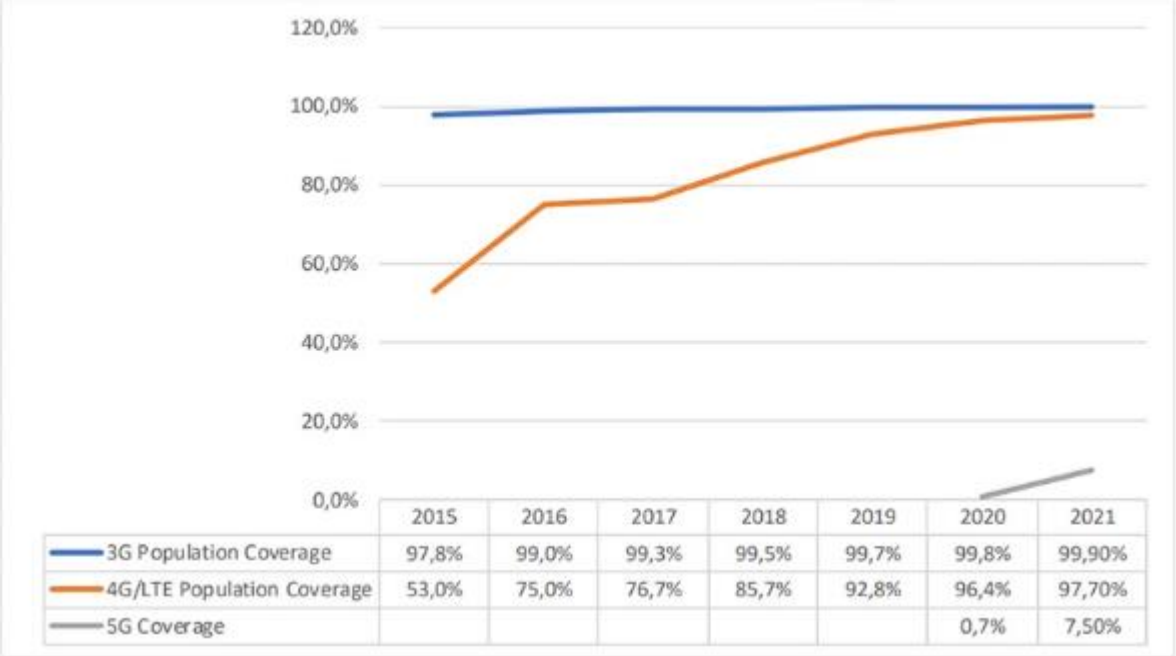
2.3.2 Market Size

In 2021, TowerXchange conducted a study to determine the size of the telecommunications market in South Africa. Out of major players in the industry, such as MTN, Telecom, and Vodacom, it was discovered that there are approximately 25, 767 towers in South Africa making it Africa's best market concerning network coverage (MordorIntellegence, 2021).

More businesses are going mobile and introducing new technology methods such as BYOD (Bring Your Own Device) and cloud-based services (reliant on 4G/5G technology), for purposes of increasing efficiencies within various areas of operation. Therefore, the need to provide high-speed and reliable network coverage has increased.

According to MordorIntellegence (2021), the market has seen significant growth in South Africa, concerning Mobile broadband connections. Mobile Broadband Connections per 100 inhabitants in South Africa increased from 102,22 to 123, 59. It is further estimated that broadband connections would increase to up to 138, 6 per 100 inhabitants, by the year 2025.

According to Mzekandaba, (2022), the deployment of 5G technology has increased tremendously, in major cities in South Africa since 2021. Within the national population context, research shows that 3G coverage was at 99,9% in 2021, while 4G/LTE coverage was at 97.7% This is a great increase from the 2020 figures which reveal national population coverage for 3G and 4G.LTE at 99.8% and 96.4% respectively.



	2015	2016	2017	2018	2019	2020	2021
3G Population Coverage	97,8%	99,0%	99,3%	99,5%	99,7%	99,8%	99,90%
4G/LTE Population Coverage	53,0%	75,0%	76,7%	85,7%	92,8%	96,4%	97,70%
5G Coverage						0,7%	7,50%

Figure 1: South African population coverage for per Generation (3G, 4G/LTE and 5G) Mzekandaba, (2022)

Therefore, MNOs are expected to fulfill communications infrastructure requirements for rural and urban areas across South Africa to reach more than 11 million smartphone subscribers, expected to have access to 5G by the year 2025. This means that there is an urgency to adequately acquire cell sites and telecommunications infrastructure, to achieve the deployment of 3G/4G/5G in the near future (Tomas, 2021).

2.3.3 Demand factors and closing the acquisition gap.

As part of mitigating measures to acquire sites, alliance partnerships can be introduced within the ecosystem in South Africa. The strategic alliance is meant to reduce the technological gaps between stakeholders by allowing corporations t o develop new technologies, enhance high performance, and realize continuous growth through the development of new network infrastructure (Hayes, 2021) Infosim and MTN group got into a strategic alliance to implement StableNert (Infosim 2021).

Alliance partnerships can therefore be applied with property owners being part of the ecosystem. Property owners are any state-owned entities or private property owners with a pool of infrastructure in a form of buildings, lamp posts, and greenfield sites. These property owners will be approached to get into alliance partnerships, where they make their infrastructure available for the telecoms industry and get incentives in a form of monthly rentals payable by MNOs in return.

2.3.4 Main Competitors

Multinational companies such as IHS Holding Limited, Huawei Technologies, and Wireless Africa International are some of the biggest competitors.

IHS Holding Limited, known as IHS Towers is one of the biggest, independent developers of telecommunications infrastructure across the globe. The Company has recently penetrated the South African market where an agreement to acquire 5,709 sites under the ownership of MTN was signed (HIS Towers, 2021).

However, IHS is still in the process of establishing a site acquisition department, with new employees to tackle the management of these assets. The structure will ultimately be like that being applied by MNOs internally as well as Huawei. Privately owned sites will still be acquired on a proactive basis instead of having agreements with private property owners to release a pool of properties way in advance, for future development purposes.

Building and sustaining relationships with property owners is the greatest requirement needed to fulfill the industry's targets. With the connections the company has already in various state-owned entities, this will be achievable to meet the MNO's site demands within reasonable periods.

2.4 Background of Land Use Management and Real Estate in Telecommunications

According to Van Wyk (2012), almost all functional areas within the constitution cannot be carried out without access to land. Municipal by-laws should be developed to define, clear rights and responsibilities of community members, traditional authorities, community forums, and overall government partners in seeking permission for land use or access to develop the land (Ovens, 2013).

2.5 Key Role Players in the Telecommunications Industry

In South Africa, there are four licensed Telecommunications companies, namely, Mobile Telephone Network (MTN), Vodacom, Cell C, and Telkom. Vodacom and MTN control 75% of the market share. By end of the year 2021, 99.9 percent of the South African population had access to a 3G mobile network, while 4G coverage had increased from 53 percent in 2015 to 97.7 percent in 2021.

This growth was followed by a rapid increase in the use of smartphones which doubled to over 90 percent, during the years 2016 to 2019. By end of 2021, at least 7.5 percent of South Africans had 5G coverage, (Statista, 2022).5G has just recently been rolled out and is regarded as a super-fast network, derived from the construction of wireless network sites, near each other to deliver high speed, high quality, and reliable network connection. The big "G" next to 2G,3G,4G, and 5G stands for Generation. In summary, when cell phones first came out when South Africa saw its first democracy (1994), they were being powered by 2G network towers.

About a decade later, mobile network operators started constructing 3G cell phone towers which brought a more stable network connection. This was followed by 4G which is the new and recent generation of network connection that most people rely on (hi- Online, 2022). Generally, 4G is also referred to as LTE (Long Term Evolution) because this is the type of technology used for this generation, therefore in most instances, they are used interchangeably as 4G LTE.

According to Statista (2022), MTN has the highest percentage of 4G network connectivity among its competitors across major cities in South Africa. However, Vodacom maintains the best 4G coverage in East London.
The two top leading operators, Vodacom and MTN launched their 5G networks during the Covid-19 lockdown, using temporary spectrum. An analysis conducted on several devices revealed that the peak speed of 751Mbps was achieved on the Huawei P40 Pro 5G, which was followed by 732Mbps from Samsung Galaxy S21+ 5G and 695 Mbps on Samsung Galaxy Note20 Ultra 5G (Write, 2022).

For the government to comply with various pieces of legislation on adopting a resilient, proactive, and efficient provision of services, there is a need to implement measures that will complement the full requirements of a reliable and fast digital solution. Meaning, 5G infrastructure development, and rollout should be at the center of the government's priorities going forward.

This reveals the need for Mobile Network Operators such as Telkom, Vodacom, and Cell C, to continue intensifying plans of acquiring sites and building the infrastructure necessary to enable adequate access to 4G cellular network in rural and urban areas and ultimately, 5G in major cities.

2.6 Scope of the Proposed Business Venture

This business proposal seeks to provide efficiencies to telecommunications companies, to have the necessarily suitable sites ready for construction. It is also aimed at ensuring that relationships are built with all key stakeholders to enable swift management of lease agreements throughout the validity of the lease, which is usually ten years.

According to Connect44 (n.d) Optimizing time and quality are factors to take into consideration when providing site acquisition processes to mobile operators.

The deployment of sites is generally planned through a thorough market analysis process which takes into consideration the economic activities, total population, future development initiatives, existing telecommunications infrastructure, immigration factors, and urbanization within a specific area. Artificial intelligence (AI) is applied by MNOs to also determine current trends concerning network coverage gaps.

2.7 Objectives of the Proposed Business Venture

There are three main categories that make up the business venture proposal as detailed below.

2.7.1 Acquisition of sites

Site acquisition is mainly aimed at providing town and regional planning services.

The standard duration of the SAQ process is approximately ninety days, with the permitting process being the longest. This is the land use application process required to be taken by any applicant who wishes to build a structure on new or existing buildings and land.

Permitting process can last, up to twelve months. This is due to the objections often submitted by affected parties and inefficiencies from internal departments that must review and comment on the application. This is one of the areas of improvement that the business proposal, seeks to improve by creating efficiencies for telecommunications companies.

Through stakeholder relations and closer monitoring processes, the permitting process can be reduced by up to forty days. This is what the business venture will seek to achieve. For sites that do not require rigorous application processes, the permitting will be reduced to three weeks.

Since the business will not have access to the restricted digital solutions used by MNOs, to plan for future networks, an approach of targeting bulk sites that are critical to the industry will be applied. Meaning, high rise buildings, lamp posts, and greenfield sites, mostly owned by the government will be the main target for the pool of sites that will be collected by the business. All supporting information, often required by MNOs planning teams such as site coordinates, addresses, and ownership details will be attained, and only shared through the landlord's permission, whenever required by the MNO.

Therefore, the primary task of the business will be to create strong relations with property owners and make them realize the benefits, of revenue spinoffs, for adequate participation by the identified property owners.

2.7.2 Acquisition of Power

The second proposed aspect of the business focuses on acquiring power from authorized power providers in the context of telecommunications infrastructure, and these are selected municipalities, private property owners, and the national power utility, Eskom.

Ordinarily, the process should take one month to complete; however, it usually takes longer, due to inefficiencies and a lack of resources from the authorities. Through proactive planning and collaborations with critical decision-makers, this process will be shortened by the business by up to three weeks.

2.7.3 Real Estate Management Services

Once an agreement has been reached between the landlord and the telecommunications company, a lease gets signed for not less than nine years. The business will play a facilitation role between the affected parties for the duration of the lease.

This will result in telecommunications companies reaching their own 4G and 5G goals. Furthermore, this will result in increased revenue spinoffs for telecommunications companies. According to Myggsa (2022), MNO's main revenue streams come from its customers through a subscription that is made to mobile services as well as access to wireless broadband services.

3. Section 2: Literature Review

3.1 Introduction

This section of the study focuses on the management theories applicable to the study on the provision of SAQ services to telecommunications companies. For an economy to function effectively, there is a need to invest in the rollout of small cells which provide smart cities with increased broadband (Cimmino, 2013).

3.2 Theoretical foundation

The theoretical frameworks applicable to the business venture proposal, concerning the theories, models, and service quality definitions are unpacked in detail in this section. This provides insights into the research found through the literature while defining a clear scope of what the various role players within the telecommunications industry, should do to ensure efficiencies in the policy development and network execution phases.

3.2.1 Telecommunications Management Network Model (TMN)

TMN is a type of model applicable to the telecommunications industry where protocols for the management of any telecommunications network are defined. It is also known as a support network that interfaces different networks to provide ways for transporting & processing services related to the overall operations of the infrastructure, maintenance, and administration. It further provides a platform for achieving interconnectivity across different telecommunications operating systems. (Imocha, n.d).

According to Dillahunt (2012), this model relies both on intranets and extranets. However, extranets are more critical to the model structure as it promotes collaborations between contractors, consultants, and businesses to collaborate to build network links that use internet technologies to connect a company's intranets.

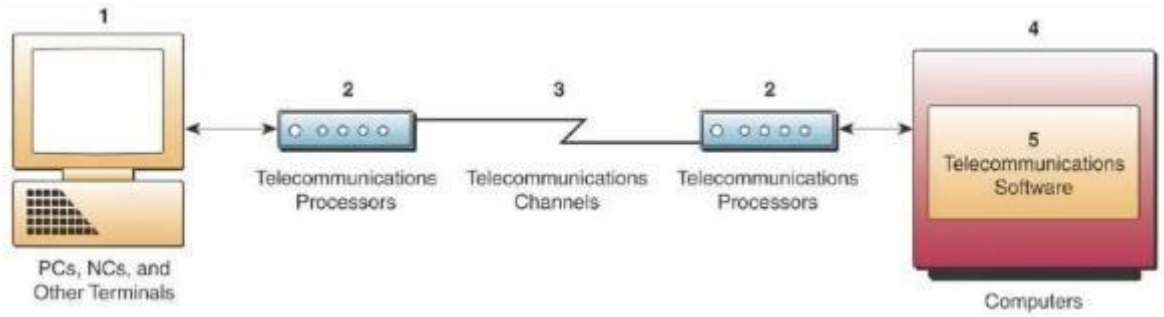


Image by: Dillahunt (2012)

Figure 2: Key components of the Telecommunications Management Network Model

For the Telecommunication Management Network Model to be fully implemented, small cell sites need to be built. This is despite the various hiccups that could exist with the construction or legislative environment in place.

Furthermore, this tiles up with the pace of rolling out 5G technology which has been ongoing across the globe particularly, in countries such as China, South Korea, and Japan where MNOs are doing all they can, to ensure efficiencies in constructing new sites to complement the functioning of the various objects.

Businesses and organizations offering different types of services all demand high-quality and fast network coverage. Large telecommunications companies are therefore working hard to implement such infrastructure, which can only be successfully permitted should there be improvements in the legislative and stakeholder parameters of the land use application processes as the deployment of small cell sites is expected to increase from 86, 000 to over 800, 000 sites by the year 2026 (Christensen 2022).

For the Telecommunication Management Network Model to be fully implemented, small cell sites need to be built. This is despite the various hiccups that could exist with the construction or legislative environment in place.

According to White (2021), there are three major challenges faced by telecommunications companies in recent years concerning small sites and wireless infrastructure rollouts. The first challenge is going digital where 81% of customers continue to make use of digital tools and solutions for online purchases. This is a great increase from the 59% of consumers who made direct contact with telecommunication stores, before the Covid-19, pandemic.

The second challenge is doing more with mobile data, where there are more than 14 billion mobile data devices in the world. This means that a mobile operator serving around 8 million mobile subscribers will be expected to generate data records of about 30 million calls in one day. Predictive analytics are required to reduce customer churn by over 15%. The third challenge is tough competition, eight out of 10 consumers are willing to pay more, in instances where customer satisfaction is guaranteed.

3.2.2 The Theory of Search-Marching of Unemployment

The search and matching theory can be defined as a quantitative framework applied, to describe the development and formation of mutually beneficial relationships amongst stakeholders over a certain period. It is further intended on describing the matching relationships that exist between labor and firms (Duy, 2006).

According to Khoza (2021), Government announced that a total of R27 billion has been set aside collectively by operators and vendors to expand 4G network infrastructure, and further deploy 5G and fiber in South Africa. This initiative is targeted at rural as well as underserved areas and will seek to benefit communities with network coverage as well as the creation of employment.

New and existing sites will be required to realize the success of this initiative. Furthermore, this initiative requires participation from both the private and public sectors where win-win solutions will be created to address unemployment issues as aligned throughout the search and matching theory.

If successfully implemented, this initiative will benefit the economy of South Africa through the number of jobs that could be created. Although the mechanism of matching workers and jobs is complex, and time-consuming as outlined in the search and matching theory, outlines how vacancies and unemployed workers are matched. This is where the production method is applied to correctly align the number of vacancies with the unemployment gaps existing in a project or community, (Duy, 2006).

The private sector is open to partnerships with the government where skills and knowledge can be shared to promote sustainability and future collaborative initiatives. According to Kat (2009), It has been witnessed in both developed and developing countries that broadband rollout is one of the main enablers of job creation.

Table 1: Job created through Telecommunication projects.

Study	*Country*	*Direct*	*Indirect*	*Induced*	*Total*
Crandall (2003)	United States	1	1.17	1.17	2.17
Katz and Suter (2009)	Switzerland	1	0.38	na	1.38
Atkinson (2009)	United States	1	1.47	1.13	3.6
Katz (2009)	United States	1	0.83	1.59	3.42

Source: Kat, L (2009)

The above table demonstrates research made in different countries, to prove a point that job creation may occur as a result of broadband development. In Germany, it was estimated that more than one million jobs were created through telecommunications infrastructure, which contributed to the country's GDP.

In the United States, the country's growth rate on jobs created through telecommunications infrastructure-related projects increased to 1.4 percent. This justifies the fact that developing countries such as South Africa need to capitalize on PPPs to improve the overall creation of Jobs, through broadband projects already announced by the government.

According to Connectivity Capital (2020), It took Nepal's National Electrical Authority approximately three years to finally agree to get into an alliance partnership with Worldlink to share the power utilities' electricity poles. These poles were used to share functions of installing fiber and antennas necessary for better network coverage. The power utility has since benefited tremendously from skills

transferred by Worldlink as well as adequate provision of network connection that eventually got linked to the power infrastructure.
A similar approach could be implemented in South Africa, despite regular power outages due to the inability of the national power utility to provide reliable electricity to all customers. This can be mitigated through temporary power supply in areas where MNOs need lamp poles and other assets needed for 5G development and overall telecommunications infrastructure projects.

According to Duy (2006), unemployment rates vary depending on the business cycle. For example, there is higher unemployment during the recession while the number is lower during the boom. Considering that South Africa is still in recession, it becomes crucial for the Search and Matching Theory to be applied to address unemployment issues caused by the recession and Covid-19 effects on the economy.
Therefore, the government's collaborations with the private sector, particularly the telecommunication industry could further increase the effects of developing social skills networks, through digital solutions to mitigate inefficiencies in power provision which affects the entire broadband development value chain.

Furthermore, dynamic approaches for capturing and disseminating knowledge by various private multinational companies originating from countries with the best broadband development such as Asia could provide the knowledge necessary, to better prepare individuals and governments in realizing the importance to respond efficiently to telecommunications development issues.

3.2.3 Theory of Integrated Development Planning (IDP)

Integrated Development Planning is a coordinated legal instrument t applicable to local municipalities in South Africa, where the structure of the roles and responsibilities of organs of states are defined as well as the mechanisms of providing services to communities in compliance with various policies, frameworks, and pieces of legislation (Dlamini, 2018).
Development priorities of municipalities are defined in the IDP which further unpacks various activities including those aligned to the overall planning and development within the municipal jurisdiction. In handling Site Acquisition related matters, the IDP is applied by municipalities and organs of the state to ensure

compliance. Telecommunications development activities as outlined within the IPD theory are outlined below.

a) Site Acquisitions in conjunction with the IDP

Site acquisition is an exercise practiced by professional town planners and it involves obtaining approval from local authorities and involved stakeholders on the interest expressed for a specific piece of land. In most instances, the process is done for big companies specializing in telecommunications or the energy sector (Mucheru, 2012).

Being familiar with the acquisition strategies and business short to long-term business goals of telecommunications companies is the first and most important part of formulating a strategy required for an acquisition business venture (BDO, 2019). This phase assists with defining the value proposition of the business and various cornerstones of the acquisition process.

It further clarifies the operating space of MNOs in acquiring new sites, involved stakeholders, and competitors within the IDP theory. Network planning can be defined as an integrated process embarked on by telecommunications companies during their planning phases of a new network, development project. The process involves topological designs, network coverage gaps, population dynamics, immigration, and the type of sites suitable for the area (Alarcón, et.al. 2018).

Telecommunications companies conduct feasibility studies to determine the cost of constructing the network, the distance between existing base stations, the acquisitions required, and the timelines thereof. All these requirements are well outlined under the planning bylaws developed to fulfill the socio-economic and town planning factors of the IDP.

However, the IDP process has been met with a lot of challenges, in recent years, despite the planning mechanisms (including forward planning), expected to be implemented as per the structure of the plan. Although the plan encourages an inclusive and forward planning approach taking into consideration the NDP goals and priorities, there is little done to incorporate telecommunications planning initiatives.

As a result, According to Leddo (2015) the development and upgrading; processes of traditional macro sites showed a significant decline across the globe, during the year 2015. This emanates from the frenetic paced rollout requirements as a result of the need to construct new sites or upgrade networks to LTE.

And since SAQ is the initial phase for upgrading sites or constructing new sites, the forecast date for obtaining necessary permits cannot be missed. If the forecast date is missed, the entire project forecast gets affected which results in the construction and installation processes being thrown out of schedule and that results in serious budget strains.

The National Department of Communications, in conjunction with Broadband Infraco SOC and the Independent Communications Authority of South Africa, is tasked with the mandate of defining policies and frameworks on how the national infrastructure can benefit users.

At the same time, it provides a fair and attractive platform for various vendors to innovate, compete and invest in the industry (Skenderoski, 2018). However, these plans need to conform to the planning processes of municipalities through the IDP, for planned infrastructure projects to get recognition in the Spatial Development plan, in terms of the areas earmarked for network development initiatives, and future projections thereof.

b) Planning and Legislation

At the center of the IDP theory are all legislative development requirements, applicable for implementation in the local sphere of government. The piece of legislation is responsible for the overarching framework for spatial, planning, land use management, rural & informal settlements, and policy development in South Africa. is known as the Spatial Planning and Land Use Management Act, of 2013. It further provides a framework for the development of spatial plans which are linked to municipal land use and planning systems (Nel 2015).

Regulations governing the licensing, planning, design, and rollout of telecommunications sites are often complex. Therefore, the IDP plays a limited role in guiding the actual planning and development of telecommunications sites, for towers and small sites earmarked for 5G (Pickering, et, al. 2020).

The strategic role of telecommunications development lies with the National Department of Communications while the network construction role comes as a collaborative effort between the private and public sectors. Municipalities are thus expected to manage the approval processes for Land Use applications within the parameters of the IDP.

c) Responsibility Metrics

According to the Department of Infrastructure and public works (2022), The National digital communications strategy forms the bases of building a digitally transformed South Africa to enable competitiveness in the international markets and economies. In 2021, the National Development Plan's (NDP) goals of intensifying telecommunications development couldn't be met, however, the National Department of Infrastructure's plans have shifted the goal target to 2030 where several telecommunications delivery objectives remain, and these are, to deliver high-speed broadband services, enable public-private partnerships for digital expansion and to also enable smart cities delivery on the provision of government services and delivery.

The National Department of Communications and Digital Technologies on the other hand is responsible for ensuring that infrastructure and communications goals as set out in the NDP are achieved. It is further responsible for implementing digital transformation policies, developing communication strategies, increasing access to Digital infrastructure, and overseeing the work done by the various digital independent authorities in the country, (Department of Communications & Digital Technologies, 2021)

Municipalities have the authority to oversee and administer all local government matters, including land use activities through the IDP, and in compliance with various pieces of the legislation (Van Wyk 2012).

According to Nel (2015), the SPLUMA was created with the sole purpose of creating a single spatial planning and land use management system that addresses challenges associated with access, sustainability, and inefficiencies identified through the IDP.

d) Permitting for Telecommunications Sites

MNOs that intend to undertake processes of erecting telecommunications infrastructure or facilities, of any type are expected to notify the municipality within the area of jurisdiction at least 90 days before the installation of such equipment (Swartland, 2019).

The development of telecommunications sites falls under three categories, ones that require land use applications to be submitted to municipalities for approvals, one's which require Council's approval, and sites that are exempted from Municipal approvals (Strout n.d).

Sites that require municipal and other stakeholder approvals are usually towers, lamp poles, and rooftop developments, while those that require only the property owner's consent are macro products installed indoors, in various buildings. The IDP, therefore, compels municipalities to develop policies that are specific to the different areas of functionality, such as the telecommunications policy.

According to Swartland (2019), several factors are considered by municipalities before granting permit approval for telecommunications applications, and they include the physical space required for the equipment, Compliance with environmental affairs regulations, consideration of heritage laws, and a full public participation process with a successful outcome from all participants. These requirements should be outlined in the telecommunications policy and by-laws as prescribed through the IDP.

The site acquisition process should typically take six to eight months to complete. Factors that influence the approval process during permitting include the type of site being applied for, the location of the site, restrictive conditions on the site, the psychology of the involved parties, and the level of decisiveness by the applicant Braun (2013)

According to ABS-CBN (2018), the Construction of telecommunication sites remains a global challenge due to the lengthy permitting processes and uncooperative stakeholders. For example, up to 25 permits often need to be submitted to various authorities just to build one tower. However, facts around similar information cannot be ascertained within the South African context, due to a lack of data on development initiatives on telecommunications development, as is not integrated into the municipal planning processes.

3.3 Mergers and Acquisitions

Many barriers in the telecommunications industries must be removed before realizing the high benefits of competition, provision of quality networks, and innovation. Once these barriers are removed, most companies will find it more desirable to enter the market through merging, acquisitions, and alliance partnerships, with firms that are well established (Rosenberg 1997)

According to Lee (1999), one of the main reasons why telecommunications companies oversee strategic alliances is that it is often cheaper to access the required technologies and resources than it is with acquisitions and other contractual agreements.

In essence, strategic alliance is meant to reduce the technological gaps between stakeholders by allowing corporations the development of new technologies, enhancing high performance, and realizing continuous growth through the development of new network infrastructure (Hayes, 2021).

3.4 Conclusion

This business proposal outlined full turnkey SAQ services through, facilitation solutions between various stakeholders within the SAQ ecosystem. Furthermore, it is to create a more collaborative approach through PPP where all spheres of government can work together to map out, future telecommunication development initiatives through the IDP.

That will assist in reducing the overall turnaround time for getting applications approved because of several inefficiencies found in the various processes and procedures of getting sites approved. According to Adetokunboh (2014), telecommunications companies have faced various challenges during the acquisitions of new sites for network development. The challenges are common across the globe, however, differ according to the role player's requirements, standards, and the regulatory requirements.

The most common challenges are, dealing with bad attitudes from government departments and entities responsible for the approval of telecommunications site acquisitions. According to Adetokunboh, (2014), these processes get prolonged by authorities, in certain instances, with intentional efforts of frustrating acquisition personnel. The second challenge is associated with competition on site acquisitions where, competitors with greater connections in government or with highly qualified acquisition experts might end up getting sites earmarked by smaller operators and permitted quickly.

The third challenge is on lack of suitable infrastructure required to roll out the planned network. The last challenge is that of corruption and bribes required by government officials.

Therefore, the current experience that business management carries in town planning, project management, real estate, facilities management, and stakeholders' management plays an integral part in ensuring success in the expected service by telecommunication companies and further curbing all the three challenges outlined above. The municipal space is the most crucial in the entire value chain and must be mastered and understood to realize efficiencies in SA.

Furthermore. property owners are generally open to committing to getting into long-term business with reputable individuals and companies, provided there is proof to substantiate knowledge and experience on the subject matter. It is believed that, revealing the expertise of the business venture, in terms of where the executive has successfully dealt with the government to resolve complex SAQ challenges in South Africa.

It is for these reasons that, this business proposal offers solutions to MNOs by providing proactive measures which seek to ensure the segmentation of the various stakeholders who need to be consulted throughout the SAQ value chain, their expected contribution, and the overall timelines of the process are defined. This is one of the effective ways of resolving some of the long-standing bottlenecks in the SAQ process.

3 Section 3: Methodology

3.1 Introduction

This section outlines the overall approach of the research methodology applied, to uncover the need to have a third-party company that provides a pool of sites proactively, and the overall management of the SAQ process. The research problems investigated orientates around whether there is a need to proactively acquire sites, with potential property owners to close the inefficiencies within the value chain,

3.2 Research Structure

Both quantitative and qualitative research methodologies were used for this business venture proposal. Data collected through integrated cloud services from the industry will be relied on, throughout this research. According to QuestionPro (n.d), A qualitative research method is more descriptive and provides easy interference through the obtained data.

Furthermore, a correlation methodology was also applied, under the quantitative research design. This method focuses on the existing relationship between variables (WSSU, n.d). An attempt was also made to determine the relationship between telecommunication's SAQ targets, goals, and planning mechanisms using statistical data.

Interactive engagements in a form of interviews took place with stakeholders critical to the SAQ value chain, telecommunication companies' employees, and government officials. Existing online data and statistics were used to determine the need for SAQ services and to further compare the progress made to rollout sites in

major cities by various MNOs, despite challenges faced by the industry on permitting and SAQ.

3.3 Research participation

3.3.1 Participants and research methodology

Both the primary and secondary data were used to complement the research topic for this business venture proposal. The primary data was collected from one-on-one interviews with industry experts, from both the private and public sectors. These experts are directly or indirectly involved, in telecommunication SAQ matters across South Africa, ranging from applicant to approver roles.

Furthermore, these experts all have more than five years of working experience, which is enough to give one exposure to various permitting challenges and property development risks, and exposure to how such areas could be improved through planning mechanisms.

Secondary data was used, particularly about customer segmentation on how different types of customers in various locations have been receiving the issue of acquisitions of telecommunications sites. In the quantitative research, data released by Statistics South Africa (Stats SA) and other related online data reports were applied to unpack the status of network coverage as well as estimated future growth in major metropolitan municipalities.

Issues regarding immigration, urbanization, and geographical context (urban/rural areas) are likely to contribute towards the demands of 5G infrastructure requirements and were explored as part of the secondary data collection, to unpack contributing factors on network development initiatives and sustainability effects thereof. Online statistics tools were also used to gather integrated data on the performance of telecommunications infrastructure rollouts and methods.

Interviews were conducted with the Executive Director of Planning and Development from the Midvaal Municipality, a Site Acquisition expert from Huawei Technologies (and former MTN employee), and Town Planning Manager from JB Marks Municipality, to mention a few.

Output was applied in conjunction with findings from the literature review to determine the need for public-private partnerships to achieve efficient delivery of sites, and the need for a company to facilitate the provision of SAQ services on

behalf of MNOs. Different methods were applied to conduct interviews, and that included physical interviews, virtual interviews as well as telephonic interviews. Employers were requested for consent to interview employees where necessary, and the sessions were recorded.

3.3.2 Hypothesis for quantitative data

Multinational technology companies such as Huawei Technologies provide site acquisition services to mobile network companies, as part of the long-term network management agreements. The scope of work covers a full turkey management service of the SAQ.

Below table outlines the SAQ scope of work tackled by Huawei within the Southern African region to serve various MNO's such as MTN, Gyro and Netone.

No.	Module	Description	Huawei	Subcon	MNO
1	Work Breakdown Structure	Project Assigned and confirmed by Management			
2		PO Issuance			
3		Internal resource responsibilities (Huawei field team, IM & PM).			
4		Subcon resource qualification			
5		Work regulation compliance and update according to governmental and customer requirements			
6		Violation avoidance process (Corruption, Building violation, Land violation)			
7		Supported Documents and Letter from Customer to be available with Team			
8	Customer Requirements	Confirm Work Process			
9		Define responsibilities (Huawei and Agreed Responsibility Matrix).			
10		Nominal coordinates			
11		Power Connectivity (e.g prepaid)			
12		Radius search area			
13		Site types and height where applicable			
14	Site Acquisition	ISS, Drawing and Site proposal			
15		Preparation of Drawings			
16		Lease Negotiations with LL			
17		Power application			
19		Overseeing the management of SAQ application process			
20	Standard Legal requirement	Submissiopn of BP pack applications			
21		LUM submission (Consent use, Removal of ristrictions, rezoning)			
22		Environmental Impact assesment and application where applicable			
23		Civil Aviation Authority application			

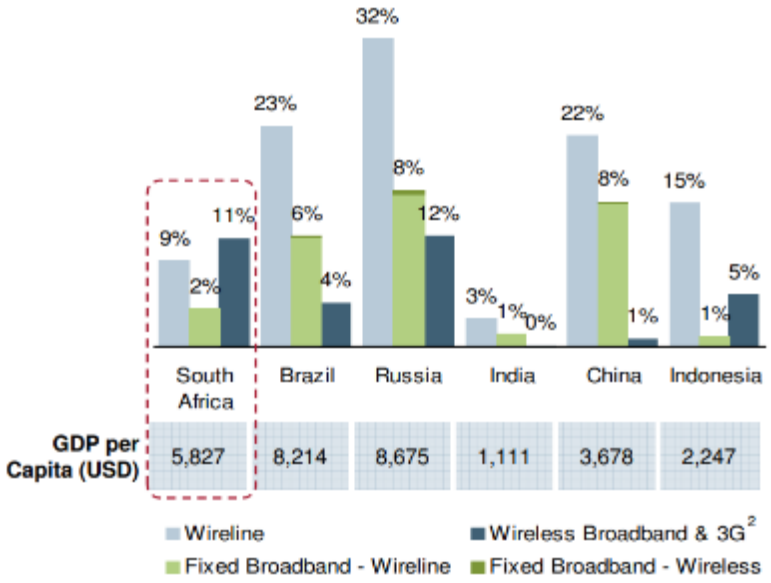
Table 2: SAQ Responsibility matrix for Huawei SAQ Scope of work.

Furthermore, IHS Holdings, has just recently acquired more than 5000 towers from MTN. These towers will now be in the ownership of HIS, and SAQ forms part of the operational functions, required to sustain the business through access arrangements to sites for maintenance, real estate management and municipal compliance on bylaw and any other land use application requirements (HIS Towers, 2021).

3.3.3 Data Analytics

Electromagnetic Spectrum ranging from 1HZ to approximately 3000 GHz (3THz) emanates from the Radio Spectrum regulated by the independent regulatory body in South Africa, known as ICASA. Electromagnetics monitoring is used in conjunction with technology from telecommunications, to transmit the network required for mobile and internet (U.S Department of Transportation n.d).

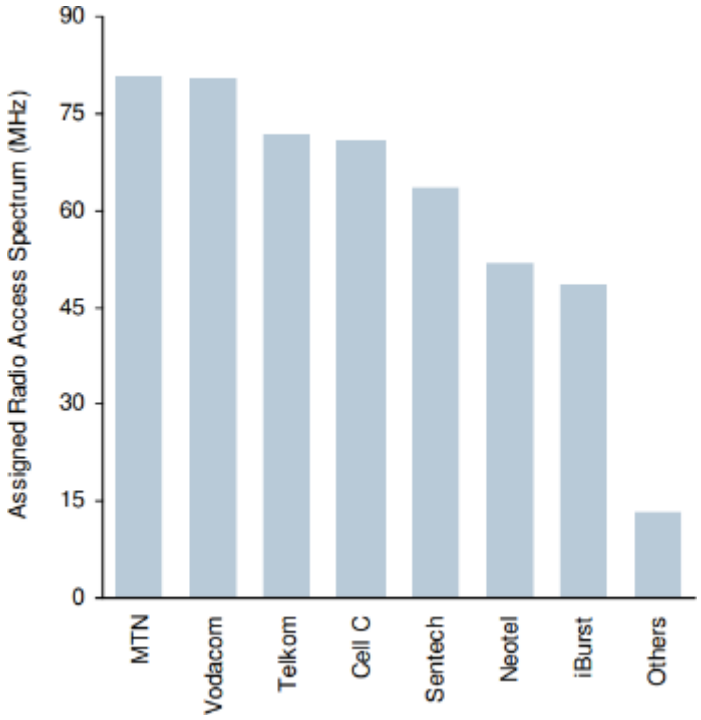
According to Analysis Mason (2010), There is a significantly lower level of higher penetration of telecommunications wireless infrastructure, in comparison to other countries. This is due to a high amount of income discrepancies, struggles in acquiring sites on time, and red tape in government regulations on permitting and land use approval processes.



Source: Analysis mason (2010)

Figure 3: Broadband and wireless penetration by infrastructure

ICASA has made spectrum available to the market for accessibility by licensed mobile network operators. However, this has not been easy to rollout in the various areas within South Africa, particularly in the disadvantaged cities.



Source: Analysis mason (2010)

Figure 4: Radio Access Spectrum assigned to Telecommunications Companies in South Africa (MHz)

The above graph demonstrates the frequency allocation according to different spectrum uses, as acquired by mobile operators from ICASA. A conclusion can be reached that MTN, Vodacom, and Telkom are the leading companies in the country when it comes to the rollout of telecommunication sites.

According to Tomas (2021), South Africa has a target of reaching 11 million subscribers and customers by the year 2025 to fulfill the 5G requirements. This means that 43% percent of the total population in South Africa is expected to have access to the 5G infrastructure network being rolled out in their areas of residence, entertainment, or work.



Source: Vodacom, McLeod (2020)

Figure 5: Vodacom 5G coverage Map, Gauteng and Western Cape Provinces

The above map shows the Vodacom 5G footprint in Gauteng and Western Cape Provinces. Only 20 high sites in a form of towers or roof top buildings where launched. 18 of these sites are in Gauteng province while 2 are in the Western Cape (McLeod 2020).



Source: Labuschagne (2020)

Figure 6: MTN 5G coverage Map

The first mobile network operator to introduce 5G coverage in South Africa was Rain. This was later followed by MTN and Vodacom. From the year 2019, MTN has managed to acquire 100 5G sites to date, in Johannesburg, Bloemfontein as well as in Cape Town as projected in the map above (Labuschagne, 2020)

According to Khumalo (2021), Telkom has managed to deploy 10 5G sites in South Africa and continue negotiations with property owners across the country, to acquire more sites. However, this has been slow due to SAQ challenges outlined thorough the research.

The data coverage maps attached in the annexures outlines the pace taken by South Africa in rolling out the different network infrastructure according to generations. It is clear from the statistics that South Africa is moving slowly when it comes to the acquisition and construction of sites to meet the 2025 targets set for 5G, in conjunction with the NDP goals.

3.3.4 Research Findings

The three biggest Mobile operators in South Africa, MTN, Vodacom, and Telkom are working towards closing network gap coverages for 3G and 4G. 5G deployment on the other end requires sites to be constructed near each other. The network development methodology further requires sites that are high (more than 15m high).

There is a need for government to support the industry by improving land use policies and by-laws, which allow for 5G infrastructures to be built, in closer proximity to each other.

3.3.5 Summary

Interviews with industry experts revealed the need for Municipalities to establish policies that will allow public-private collaborations on telecommunication SAQ issues. Planning is also key, where telecommunications companies can communicate with municipalities in advance on the earmarked areas for future telecommunications development purposes. Generally, municipalities in South Africa operate within strict legislative parameters, where development initiatives affecting the use of land, property, and infrastructure within the jurisdiction of a municipality must comply with the National Building Regulations and Building

Standards Act 103 of 1977, and Spatial Land Use Management Act 16 of 2013. These pieces of legislation might not always contain all the necessary information needed by Municipalities in dealing with rooftop antennas that are higher than 3m in height, placements of telecommunications containers, base stations, and masts.

Furthermore, details on how municipalities can get into collaborations with third parties on-site sharing are separate from these legislations. As such, the interviews with industry experts revealed the need for Municipalities to allow for alliance partnerships with private companies operating within the industry. This will provide an opportunity to put proactive measures in place which will enable innovative ways of generating revenue and creating employment, through the use of government infrastructure while enjoying the benefits of telecommunications investments.

The issue of terminologies on how telecommunications infrastructure is defined needs to be aligned. This will assist municipalities to evolve and continue, learning about trends taking place in the industry, while capturing that in the municipal plans.

Through planning, municipalities such as the Midvaal and Jb Marks will be able to accommodate areas earmarked for telecommunications developments in the township establishment processes, which will result in municipalities recognizing the sites whenever Mobile operators submit applications for Council's approval.
It was further confirmed by Esti from the mobile network operator's space that there is a need for consulting firms to proactively acquire sites and get approvals from potential property owners. The implementation of such a system in rural areas would benefit MNOs in such a way that there will be full cooperation from members of the community in rural areas, who are known to be consistent in creating hostile environments for contractors working on telecommunications infrastructure.

Acquisition of power is less complex compared to the permitting process of getting land use applications approved, however, the process could be shortened. The biggest challenge faced by MNOs in the acquisition value chain is getting willing property owners to agree in signing the lease agreement. The interview with Andiswa Lobelo confirmed the eagerness of property developers to collaborate with telecom companies for the expansion of telecommunications infrastructure rollout. Backup power will no longer be a concern to MNOs since property managers

increasingly invest in uninterrupted power suppliers as well as generators to enable continuity during load-shedding.

3.4 Business Venture Proposal

3.4.1 Company Overview

This business proposal will be implemented through a company called Jarobex (Pty) Ltd. The company has been in existence since e year 2020 and provides different types of services including town planning services, real estate, as well as supply chain related services.

3.4.1.1 Mission Statement

Our Mission is to provide full site acquisition services to Mobile Network Operators within South Africa, in an efficient manner.

3.4.1.2 Vision Statement

Our Vision is to provide reliable, effective and proactive site acquisition services for 4G and 5G sites across south Africa

3.4.2 Business Venture Details

The business venture proposal focusses on three main areas as follows:

3.4.2.1 Site Acquisition

Mobile Network Operators require willing property owners, to construct the planned infrastructure in earmarked areas. The site acquisition aspect of the business will focus on identifying potential property owners proactively, to lease a portion of their properties to interested MNOs, through long-term or bulk lease agreements. Potential property owners will be approached by the business, both in rural areas as well as in urban areas to get into agreements for representation through a Memorandum of Understanding (MOU). In return, their properties will be marketed to MNOs for telecommunications infrastructure development purposes.

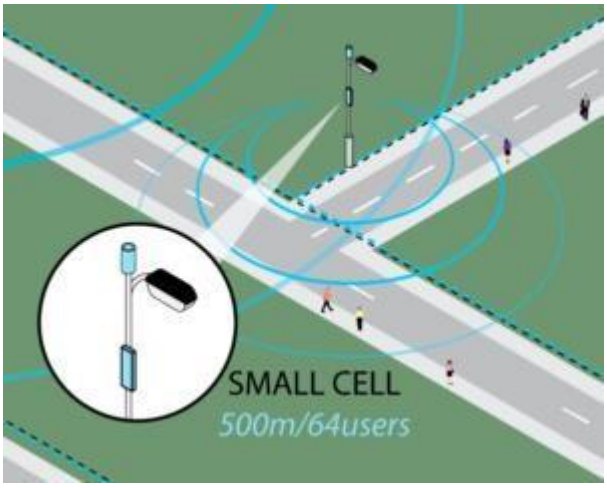
SAQ is made up of different activities which are interrelated, as well as various role players including government.

a. Required Sites

The sites earmarked for future developments are

- **Lamp posts (15m high)**

Lamp posts with a height of 15m are needed for small cell development. These sites are also ideal for 5G development, as they are built close to each other (less than 2km), and their network design usually covers a larger area.



Source: Steelintheair (n.d)



Source: Rodewald (2016)

Figure 7: Examples of lamp posts sites with 5G antenna

Space for Greenfield and Brownfield cell developments

Ground space is required to build telecommunications infrastructure and supporting equipment. In the case greenfield developments, a total area of 10x10 sqm is sufficient for tower purposes.

Source: Steelinair (n.d)



Figure 8: Site for Greenfield **Towers**



Monopole Tower



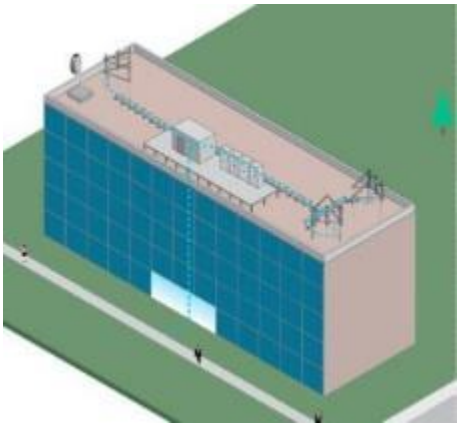
Lattice Tower

For brownfield developments, buildings with a flat roof structure are required for constructing telecommunications infrastructure, and equipment.

- **Rooftop Sites**



Source; Lincoln (n.d)

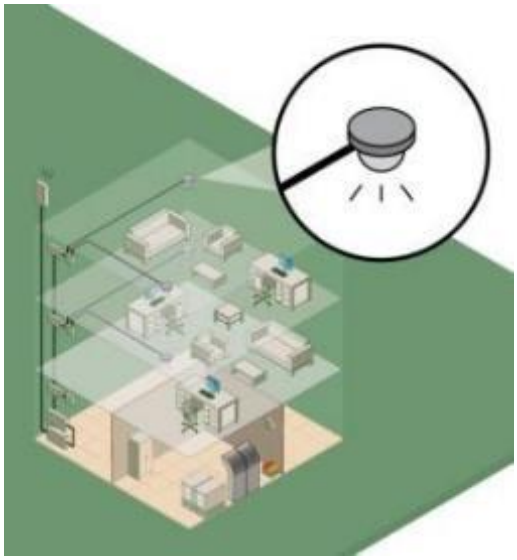


Source: Steelintheair (n.d)

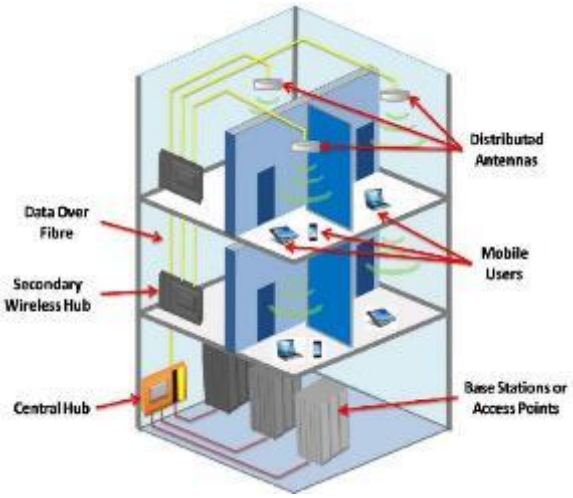
Figure 9: Rooftop/ Brownfields sites examples

According to Lincoln (n.d) the high demand in developing 5G sites across the globe are not progressing at the expected rate, particularly in developing countries. Therefore, rooftop sites will remain critical and relevant towards the development of 4G infrastructure for many decades to come. Landlords need to capitalize on this opportunity by making their building available, to attract revenue benefits.

- **Retail or business facilities (malls, casinos, airports) for indoors solutions.**



Source: Steelintheair (n.d)



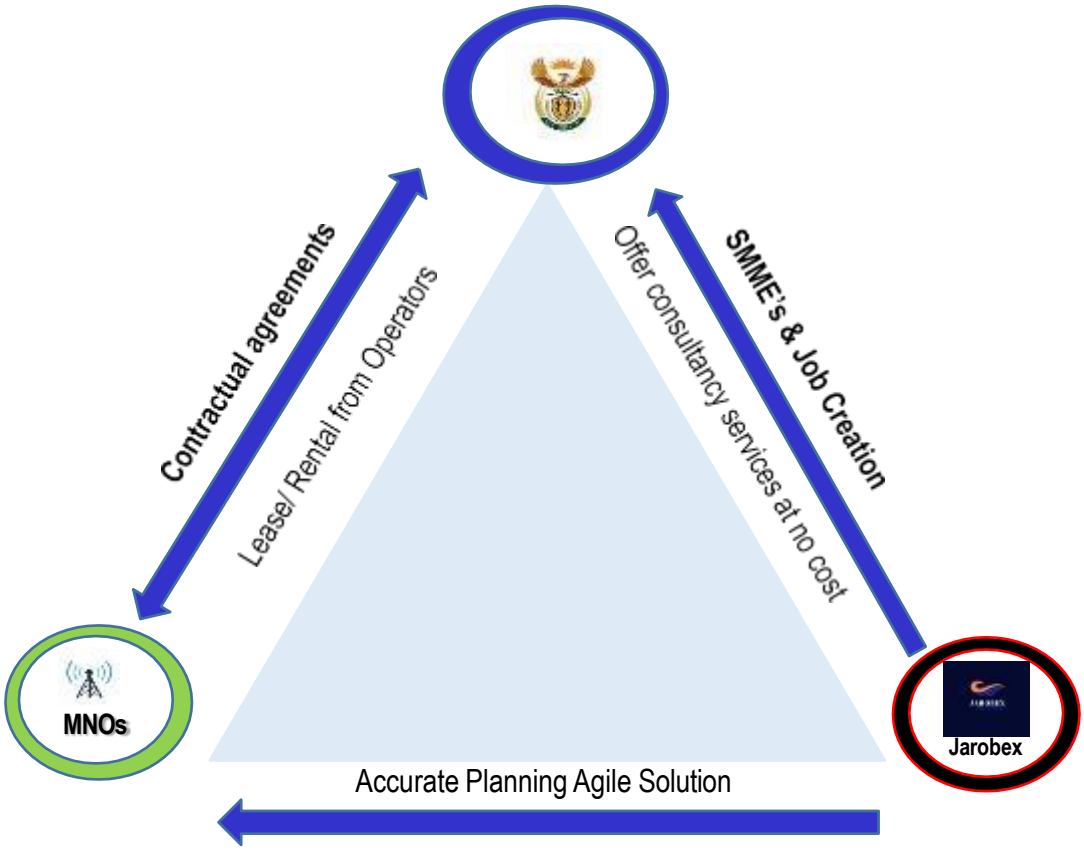
Source: Li, T. (2015)

Figure 10: Examples of indoors solutions

The indoors wireless solution is like the outdoors solution; however, its components are for an indoor usage. Antennas are installed on the ceiling of building that are bigger than 10 000 sqm, and with high activity movement (Steelintheair, n.d).

b. Rendering of services to customers

- **Customers**



SAQ customer concept by: Huawei Technologies

Figure 11: Key stakeholder's matrix

There are two main customers involved in this business value chain. The first customer is the property owner, the second owners are MNO's who need the sites to fulfil their network coverage targets and gain customer subscriptions.

3.4.2.2 Power Acquisition

Telecommunications sites needs to be connected to commercial power to be able to serve the intended purpose of providing network coverage. This process is part of the site acquisition phase. Jarobex will also offer services of representing different MNOs in the processes of applying for power and following up on progress from the various entities.

3.4.2.3 Real Estate Management

Once a site is constructed on site and starts provided services to the earmarked customers, the property owner is eligible to receiving rental payment on a monthly basis for the duration of the lease agreement. The duration of leases on telecommunications infrastructure ranges from between a period of nine to ten years.

Service fee will be charged by Jarobex on market related rates, and in accordance with the type of infrastructure deployed on each site.

3.4.3 Business Operations

Jarobex intends to appoint employees with expertise in acquisitions of telecommunications sites and extensive experience in liaising with public or private landlords. Short-term goal for human capital includes the appointment of five professionals, i.e., town planner, land surveyor, real estate specialist, project planner and site acquisition specialist. These employees will form part of the core internal business structure. Legal services will be outsourced, while all finance-related work will be handled by the CEO of the company as outlined in the below organogram.

In the long run, the company plans to increase the above staff component, to complement business growth and demand. Labour costs are catered for in Annexure D: cashflow projections.



Figure 12: Company Organogram

3.4.3.1 Process Overview

The entire SAQ scope consists of four main steps.

1. Site search (5 to 6 days)
2. Site evaluation, lease, and power investigations (3-8 days)
3. Legal/ Permit approvals (6-20 weeks)
4. Land Use application and approval (+30 days)

The overall process takes up to 39 weeks from inception to completion, as outlined in the SAQ process flow in Annexure I.

3.4.4 Financial Overview

The financial model of the company is designed in such a way that the company will make profit from the SAQ facilitation services offered to MNO's. This will be particularly on the lease management process where property owners represented by Jarobex will receive rental on a monthly basis. Jarobex will in turn charge an administration as well as agency fee from the total monthly rental payable to property owners under the business portfolio.

3.4.3.1 Market Analysis

As outlined throughout the literature review, South Africa has a target of having 11 million people with access to 5G subscriptions by the year 2025. Therefore, the analysis was built on an assumption that there should be adequate sites built for 5G to reach the 11 million targeted subscribers. To determine the exact number of sites required, details regarding the total number of people per square kilometer must be determined.

As illustrated in Annexure A, the total number of in the major cities sampled for this study is 17 079 000. The cities with the highest number of people are Johannesburg and Cape Town - Johannesburg, with a total of 5 927 000, and Cape Town with 4 710 000 individuals. The city with the lowest population is Bloemfontein with 588 000 (Stats SA, 2021).

Although the total population of Johannesburg is the highest, its total area per square kilometer is much lower as compared to the other cities. Tshwane has the highest area of 4 056,3 followed by the city of Cape Town with an area of 1 574,7, then

eThekwini with a total area of 1 476,2 for 5G installations. These reflect the top three cities that will be prioritized in order the set target.

It should be noted that the coverage range for 5G infrastructure is to have a site, every 500m. This means that a total number of nine sites will be required for each KM. From this analysis, it becomes evident that MNOs need approximately 924 sites to reach the 43% target of subscribers with access to 5G. Seeing that this is a start-up company, the initial market share will be 15%, with a total number of 139 sites being targeted for delivery.

Since 5G requires small cell sites, that are built near each other, collaborations with the government et in such major cities will be intensified to ensure correspondence with the planning framework by MNOs.

3.4.3.2 Breakeven Analysis

The business focus is acquiring greenfield towers, brownfield rooftop lamp posts, and indoor wireless sites from various property owners. This falls under the core and primary function of the business. These sites vary according to network demands, footprint, and rental rates. Estimated market-related rates have been used to project the expected monthly rental amount payable by MNOs. It should be noted that the monthly rate could differ depending on factors such as the high demand of the site, location, and population, in the area.

Rental for greenfield sites is approximately R 25 000, Rooftops R 6 500, Lamp posts R 5 000, indoors solution R 23 000. Jarobex will charge an agent fee of 9% as well as an administration fee of 3%, to be deducted from the monthly rental amount payable to landlords. This arrangement will be discussed upfront with the landlords, during the collaboration phases which will result in the signing of MOUs.

The breakeven analysis attached under annexure 6.5 below, outlines the various estimated costs applicable to the business from inception. These costs are estimated to be applicable on an annual basis. Capital costs for small projects are projected at R 15 000.00, variable costs at R 108 000.00, and fixed costs are estimated at R 777 600.00.

The total revenue of the business is estimated at R 2 650 396.00 according to the number of sites being successfully acquired as per the projections made under the market analysis. The total costs of the business per annum are R 900 600.00. The estimated breakeven analysis from the first year reveals a breakeven point amounting to R 810 632,15.

This business is dependent on the proactive acquisitions of sites by property owners to support MNOs. The main technique required is negotiation skills to convince property owners to be part of the ecosystem. Therefore, there isn't a lot of capital injection required in building the business, despite interpersonal skills from the business.

3.4.3.3 Revenue Projections

This business proposal should bring positive revenue spinoffs to all stakeholders involved. As per the revenue projects on lamp posts, the landlord is guaranteed R 3 660 308 revenue per annum, while Jarobex will make R 187 175 on agency fees and R 62 392 on admin fees.

Overall, a gross profit of 67% will be realized, after accounting for all operational expenses. This included the salaries of four full-time employees who will provide services related to real estate, legal services, and ICT.

Sustainability is guaranteed considering the ever-increasing demand due to South Africa's adoption of technology, urbanization, and the slow pace which has taken MNOs to meet their 5G targets.

4 Section 4: Reference

1. ABS-CBN, (2018) Retrieved April 30, 2022. Globe says permit delays delay cell site building. https://news.abs-cbn.com/business/11/22/18/globe-says
2. Adams & Adams (2022) AFRICA INSIGHTS: Telecommunications sector to drive economic growth and inclusion. Retrieved April 30. 2022. https://www.adams.africa/insights/african-telecoms-addition-adoption-2025/
3. Adetokunboh,O, Makinde, O. Agbato, S. (2014) Site acquisition for telecom base stations in Nigeria: concerns, challenges & prospects. *The 14th Afres Annual Conference. https://afres.architexturez.net/system/files/afres2014- 140.pdf*
4. Alarcón, et, al. (2018) Telecommunications Network Planning and Maintenance. Retrieved April 30, 2022.https://www.researchgate.net/publication/45179549_Telecommunications_Network_Planning_and_Maintenance
5. Analysis Mason (2010) Assessment of economic impact of Telecommunication sites. Retrieved April 29, 2022. https://www.analysysmason.com/what-we-do/practices/research/networks/telecoms-software-forecasts/
6. BDO (2019) 10 Top tips to make a telecom acquisition work for your tech company. Retrieved April 30, 2022. https://www.bdo.com/insights/industries/technology/10-top-tips-to-make-a-telecom-acquisition-work-for
7. Bennet, J. Ainslie,A. Davis, K. (2012) Contested institutions? Traditional leaders and land access and control in communal areas of Eastern Cape Province. *Elsevier, VOL 32,* 27-38.
8. Braun, D. (2013) How Long Does an Acquisition Take? Retrieved April 30, 2022. https://www.successfulacquisitions.net/how-long-does-an-acquisition-take/*Businesstech.* Retrieved April 27, 2022. https://businesstech.co.za/news/telecommunications/549926/these-are-the- best-and-worst-mobile-networks-in-south-africa-6/
9. Butler-Adam, J. (2018) The Fourth Industrial Revolution and education. *South African Journal of Science*. Vol.114
10. Cell C (n.d) Implementation of cell c roaming agreement with mtn now complete. Retrieved April 30, 2022. https://www.cellc.co.za/cellc/newsroom- detail/Implementation-of-Cell-C-roaming-agreement-with-MTN-now-complete
11. Christensen, J. (2020). 5G and the Small Cell Permitting Challenge: Are Governments

Ready? *Government Technology*. Retrieved May 1, 2022.

12. Cimmino, A et al. (2013) The role of small cell technology in future Smart City applications. *Smart Cities*. https://onlinelibrary.wiley.com/doi/abs/10.1002/ett.2766
13. City of Johannesburg (n.d) Development planning: Land Use Management. Retrieved April 30, 2022. https://www.joburg.org.za/departments_/Pages/City%20directorates%20including%20departmental%20sub-directorates/development%20planning/Land-Use-Management.aspx
14. Conceptdraw (n.d) Telecommunications Network Diagram, Retrieved June 06, 2022. https://www.conceptdraw.com/solution-park/computer-networks-telecommuni cation
15. Connect 44 (n.d) Mobile Network Services. Retrieved April 28, 2022. https://www.connect44.com/site-acquisition-estate-management-services
16. Connectivity Capital (2020) Barriers to investing in last-mile connectivity. Retrieved June 03, 2022. https://www.usaid.gov/sites/default/files/documents/15396/Barriers_to_Investing_in_Last-Mile_Connectivity.pdf
17. Department of Infrastructure and Public Works. (2022) *South Africa's National Infrastructure Plan (NIP) 2050* (Report No. 1874). https://www.gov.za/sites/default/files/gcis_document/202203/46033gon1874.p df
18. Department of Statistics South Africa (Stats SA). (2019) Four facts about our provincial economies. https://www.statssa.gov.za/?p=12056&gclid=EAIaIQobChMIjriL1fix9wIVVeztCh2dnA0HEAAYAiAAEgKL7_D_BwE
19. Dillahunt, P. (2012) Telecommunications and Networks. Retrieved June 6, 2022. https://www.slideserve.com/page/telecommunications-and-networks
20. Dlamini, B and Reddy, P. (2018) Theory and Practice of Integrated Development Planning: A case study of Umtshezi Local Municipality in the KwaZulu Natal Province of South Africa. *African Journal of Public Affairs*, Volume 10.
21. Duy, T. (2006) The Search-Matching Theory of Unemployment: In Defense of Hayek. Retrieved June 06, 2022. https://economistsview.typepad.com/economistsview/2006/10
22. Edmunson, K. (2020) Broadband and data regulations in South Africa. Retrieved April 28, 2022. https://www.golegal.co.za/broadband-data-regulations/
23. Falck, O. (2020) Digitalization of the economy, info institute, Retrieved June 11, 2022. https://www.info./de/en/topics/digitalization
24. Hayes, A, and James, M. (2021) Guide to merges and Acquisition. Retrieved May1.2022.https://www.investopedia.com/terms/m/mergersandacquisitions.asp

25. Hi-Online (2021) 5 things you need to know about 5g in South Africa. Retrieved April 27, 2022. https://blog.hi-online.co.za/5-things-you-need-to-know-about-5g-in-south-africa/
26. HIS Towers (2021) IHS Towers Signs Telecom Tower Acquisition Sale and Lease Back Agreement with MTN in South Africa. Accessed May 1, 2022. https://www.businesswire.com/news/home/20211116006498/en/IHS
27. Huawei (2021) Huawei WLAN Aps Antenna Datasheet, https://e.huawei.com/za/products/enterprisenetworking/wlan/accessories/anten na
28. Imocha (n.d) Telecommunications Management Network Model Test. Retrieved June 05, 2022. https://www.imocha.io/tests/telecom-management-network- model-
29. Infosim (2021) Infosim® and MTN Group formalize partnership to ensure network quality and availability with StableNet, Retrieved May 1, 2022. https://www.infosim.net/news/2021/05/infosim-and-mtn-group-formalize-partnership/
30. J. Backhouse and M. Manda (2018) Inclusive digital transformation in South Africa: an institutional perspective, Research gate. Retrieved May 30, 2022. https://www.researchgate.net/publication/326598661
31. Jordaan, C. Malekian, N. Malekian, R. (2019) internet of things and 5g solutions for development of smart cities and connected systems. *Communications of the CCISA*, Vol 25, No 2. https://cccisa.ccisa.org.tw/article/view/2037
32. Katz,L., and Suter,S. (2009). “Estimating the Economic Impact of the Broadband Stimulus Plan.” Columbia Institute for Tele-Information Working Paper. www.elinoam.com/raulkatz/Dr_Raul_Katz_-_BB_Stimulus_Working_Paper.
33. Kayembe, C. Nel, D. (2019) Challenges and opportunities for education in the Fourth Industrial Revolution. *African Journal of Public Affairs*. Vol. 11, No. 3. https://hdl.handle.net/10520/EJC-19605d342e
34. Khoza, A. (2021) Government ready to expand 5G and fibre to all South Africans, minister says. Retrieved April 30, 2022. https://www.timeslive.co.za/politics/2021-05-18-government-ready-to-expand-5g-and-fibre-to-all-south-africans-minister-says/
35. Khumalo, S. (2021) Location, location: When it comes to 5G network allocation, your address is everything. Retrieved May 16, 2022. https://www.news24.com/fin24/economy/location-location-when-it-comes-to- 5g-network-allocation
36. Labuschagne, H. (2020) South Africa’s 5G prices and coverage – Vodacom vs MTN vs Rain. Retrieved May 16, 2020. https://mybroadband.co.za/news/5g/369289-south-africas-5g-prices-and-coverage-vodacom-vs-mtn-vs-rain.html
37. Labuschagne, H. (2021) What South Africa’s mobile networks are planning for 2022.

Retrieved April 30, 2022. https://mybroadband.co.za/news/telecoms/427124-what-south-africas-mobile-networks-are-planning-for-2022.html

38. Leddo, T. (2015) The Challenge of Forecasting Site Acquisition (And What to Do About It). MD7. Retrieved June 4, 2022. https://www.md7.com/perspectives/the-challenge-of-forecasting-site-acquisition-and-what-to-do-about-it/
39. Lee, H. (1999) Strategic alliances in the telecommunications industry - *The case of Korea telecom* – Retrieved May 1, 2022. https://core.ac.uk/download/pdf/213851895.pdf
40. Li, T. et al. (2015) In-building Digital DAS. Retrieved, June 9, 2022. https://www.researchgate.net/figure/n-building-Digital
41. Lincoln, A. (n.d) Rooftop Cellular Sites. Retrieved June 08, 2022. https://www.cell-phone-towers.com/Rooftop-Cellular-Sites.html
42. Manchak, S.M., et, al. (2014). 'Officer-Offender Relationship Quality Matters: Supervision Process as Evidence-Based Practice', *The Journal of American Probation and Parole Association Perspectives*, 38, Retrieved June 04, 2022. https://www.justiceinspectorates.gov.uk/hmiprobation/research/
43. McLeod, D. (2020) Vodacom coverage map shows where 5G is now available. Retrieved May 16, 2022. https://techcentral.co.za/vodacom-coverage-map- shows-where-5g-is-now-available/175897/
44. MordorIntellegence (2021) Africa telecom towers and allied market - growth, trends, covid-19 impact, and forecasts (2022-2027), Retrieved August 09, 2022. https://www.mordorintelligence.com/industry-reports/africa-telecom-towers- and-allied-markets#:~:text=According%20to%20estimates%20by%20TowerXchange,of%20Africa%27s%20best%2Dcovered%20markets.
45. Mucheru, F. (2012) What is Site Acquisition, *mucherufred.* Retrieved April 28, 2022. https://mucherufred.wordpress.com/2012/03/06/what-is-site-acquisition/
46. Mucheru, F. (2012) What is Site Acquisition, *mucherufred.* Retrieved April 28, 2022. https://mucherufred.wordpress.com/2012/03/06/what-is-site-acquisition/
47. Myggsa (2022) How do telecommunications Companies make money? Retrieved April 28, 2022. https://www.myggsa.co.za/how-to-start-a-telecom- company-in-south-
48. Mzekandaba, S. (2022) South Africa sees uptick in 5G population coverage. Business Technology Media Company. https://www.itweb.co.za/content/lLn14MmjJmpqJ6Aa. Retrieved November 11, 2022.
49. National Government of South Africa (2021) Eskom Holdings: Financial Statements. Retrieved, June 06, 2022. https://nationalgovernment.co.za/units/financial/94/eskom-holdings-soc-ltd

50. Nel, V. (2015) Spluma, Zoning and Effective Land Use Management in South Africa. Urban Forum, Vol 27. https://link.springer.com/article/10.1007/s12132- 015-9265-5
51. Nel, V. (2015) Spluma, Zoning and Effective Land Use Management in South Africa. Urban Forum, Vol 27. https://link.springer.com/article/10.1007/s12132-015-9265-5
52. Ngari, L. and Petrack, S. (2021) Iinternet Infrastructure in Africa. Retrieved April 30, 2022. https://empowerafrica.com/internet-infrastructure-in-africa/
53. Njilo, N. (2021) More than 7,000 state-owned buildings in 'poor or very poor' condition. Retrieved, June 06, 2022.
54. Nperf (2022). Telecommunications network coverage maps. Retrieved May 16, 2022. https://www.nperf.com/en/map/5g
55. Odendaal, N. (2022) MTN SA invests R700m to modernise KwaZulu-Natal's network. Retrieved April 30, 2022. https://www.engineeringnews.co.za/article/mtn-sa-invests-r700m-to-modernise-kwazulu-natals-network-2022-03-16
56. Ovens, W et al. (2013) Issues and Options for Improved Land Sector Governance in South Africa. *Application of the Land Governance Assessment Framework,* Synthesis Report.https://thedocs.worldbank.org/en/doc/a91b90185037e5f11e9f99a989ac11dd-0050062013/related/South-Africa-Synthesis.pdf
57. Ovens, W et al. (2013) Issues and Options for Improved Land Sector Governance in South Africa. *Application of the Land Governance Assessment Framework,* Synthesis Report. https://thedocs.worldbank.org/en/doc/a91b90185037e5f11e9f99a989ac11dd-0050062013/related/South-Africa-Synthesis.pdf
58. Patterson, S. (2021) Vodacom to roll out smart-site kit beyond SA. Retrieved May 1, 2022. https://www.telcotitans.com/vodafonewatch/vodacom-to-roll
59. Patterson, S. (2021) Vodacom to rollout smart site kit, beyond SA. Retrieved, May 1, 2022. https://www.telcotitans.com
60. Pickering, F. et, al. (2020) Land use planning for wireless telecommunications task force. *Western Connecticut Council of Governments*. Retrieved April 30, 2022. https://westcog.org/wp-content/uploads/2020/10/WTTF-Recommendations.pdf
61. QuestionPro (n.d) Qualitative Research: Definition, Types, Methods and Examples. Retrieved May 10, 2022. https://www.questionpro.com/blog/qualitative-research-methods/reform in South Africa. *Elsevier,* Volume 29, Issue 7. 469- 491.
62. Rodewald, A. (2016) Street lights are the new cellphone towers. Retrieved, June 06. 20222. https://www.greenbaypressgazette.com/story/news/local/2016/08/03/street-lights-new-cellphone-towers/87998016/
63. Rosenberg, A. (1997) Telecommunications mergers and acquisitions: key policy issues

and options for state regulators, *The National Regulatory Research Institute*. Retrieved May 1, 2022. https://ipu.msu.edu/wp- content/uploads/2016/12/Rosenberg-Telecom-Mergers-97-20-July-97.pdf

64. ScienceDirect(2022) Telecommunications Management Network. Retrieved June 06, 2022. https://www.sciencedirect.com/topics/computer- science/telecommunication-management-network
65. Scribbr (n.d) How to Write a Research Methodology in Four Steps. Accessed May 10, 2022. https://www.scribbr.com/dissertation/methodology/
66. Skenderoski, I et al. (2018) Top 10 challenges with national broadband network projects, *Salience Whitepaper*. Retrieved April 27, 2022. https://salienceconsulting.ae/wp-content/uploads/2018/09/
67. Statista (2022) 3G/4G LTE/5G population coverage and smartphone penetration in South Africa from 2015 to 2021, *Technology & Telecommunications.* Retrieved April 27, 2022. https://www.statista.com/statistics/1074377/south-africa-mobile-coverage-and-smartphone-penetration/
68. Steel, G. van Noorloos, F. Klaufus, C. (2017) The urban land debate in the global South: new avenues for research. *Geoforum*. VOL 83. 133- 141. https://www.sciencedirect.com/science/article/abs/pii/S0016718516301890
69. Steelinair (n.d) Cellphone tower types and information. Retrieved, June 08, 2022. https://www.steelintheair.com/cell-phone-tower/
70. Strout (n.d) Guidance Note: Telecommunications Development. Retrieved April 30, 2022. https://www.stroud.gov.uk/media/1349761/telecommunications- development-guidance-note-v2.pdf
71. Swartland, (2019) Installation of Telecommunications Infrastructure By-law, *Western Cape Provincial Gazette no. 8156.* Retrieved April 30, 2022. https://openbylaws.org.za/za-wc015/act/by-law/2019/installation-of-telecommunications-infrastructure/eng/resources/eng.pdf
72. The Department of Communications and Digital Technologies (2021) Annual Report 2020/2021. Retrieved April 30, 2022. https://www.gov.za/sites/default/files/gcis_document/202110/communicationsdigitaltechnologies202021.pdf
73. Tnuda Centre (2016) Cellular Communication Network Technologies. *ICS & Comrax*. Retrieved, June 07, 2022. https://www.tnuda.org.il/en/physics-radiation/radio-frequency-rf-radiation/cellular-communication-network-technologies
74. Tomas, J. (2021) South Africa to reach 11 million 5G subscribers by 2025: consultancy.

Retrieved May 16, 2022. https://www.rcrwireless.com/20210223/business/south-africa-reach-11-million-5g-subscribers-2025-consultancy

75. U.S Department of Transportation (n.d) What is Radio Spectrum. Retrieved May 15, 2022. https://www.transportation.gov/pnt/what-radio-spectrum.
76. Van Wyk, J. (2012) Planning in all its (dis)guises: spheres of government, functional areas and authority. Vol.15 n.5. http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S1727-37812012000500009
77. Vanguard. (2011). Multiple Taxation is Affecting GSM Growth in Nigeria. Retrieved April 27, 2022. *The Nigerian Communications Commission:* https://tech.africa/multiple-taxation-is-affecting-gsm-growth-in-nigeria/
78. White, H. (2021) Overcoming telecoms industry challenges, Mobilise. Retrieved May 1, 2022. https://www.mobiliseglobal.com/overcoming-telecoms-industry-challenges/
79. Wikipedia. 2022. Telecommunications in South Africa. 24 April 2022. https://en.wikipedia.org/wiki/Telecommunications_in_South_Africa#:~:text=South%20Africa%20has%20four%20licensed,8ta%2C%20a%20subsidiary%20of%20Telkom.
80. Wilson, A. Ugwunta, D. Eneje, B. (2014) How Telecommunication Development Aids Economic Growth: Evidence from Itu Ict Development Index (IDI) Top Five Countries for African Region. *International Journal of Business, economics and Management, VOL. 1 NO. 2,* PAGES.
81. Wireless broadband in South Africa. Report for GSMA. Retrieved May 16, 2022. https://www.gsma.com/spectrum/wpcontent/uploads/DigitalDividend
82. Writer, S. (2022) The best and worst mobile networks in South Africa, *Businesstech.* Retrieved April 27, 2022. https://businesstech.co.za/news/telecommunications/549926/these-are-the-best-and-worst-mobile-networks-in-south-africa-6/
83. WSSU (n.d) Key Elements of a Research Proposal Quantitative Design. Retrieved June 1, 2022. https://www.wssu.edu/about/offices-and- departments/office-of-sponsored-programs/pre- award/_Files/documents/develop-quantitative.pdf
84. Wyrzykowski, R. (2022) South Africa: Mobile Network Experience Report. February 2022. *Opensignal.* Retrieved April 27, 2022.
85. Yalelawschool (n.d) Procedural Justice Theory. https://law.yale.edu/justice-collaboratory/procedural-justice#:~:text=Procedural. Retrieved June 4, 2022.

5. Section 5: Research Instrument

5.1 Property Owner interview guideline

1. Do you own or manage any property on behalf of the owner?
2. Please describe the different types of properties managed within your portfolio (Property details: Location, zoning, ownership, primary use)?
3. What is situational analysis of the property, amenities, businesses, school?
4. What type of land establishment do you have. Formal or Informal, township or Urban?
5. Is there power available or accessible from property (s)?
6. Is there adequate infrastructure to access various properties in your buildings.?
7. Are there any caretakers' or contact persons with access to reliable phones on your properties?
8. Are you willing to collaborate with the telecommunication's sector to erect equipment on site for revenue growth?
9. Do you have internal structure to manage and interpret long term lease agreements?
10. Are you willing to involve a third party for purposes of managing lease agreements with Mobile Network Operators?
11. Any Concerns with collaborating with Telecommunications companies?
12. Understanding of the main benefits of partnering with Mobile Network Operators?

5.2 Mobile Operator interview guideline

1. Is there a need to sign agreements promptly?
2. What are the main issues within the Site Acquisition Value Chain?
3. What challenges do you come across with Power Acquisition?
4. Are there any issues in finding willing property owners?

5. Is it ideal to have a company offering integrated site acquisition services ideal?

6. What are your challenges in plotting geographical locations (Rural/Urban)

7. Who is the most difficult stakeholder(s) within the value Chain (Communities', Traditional leader's Municipalities, National Department of Environmental Affairs, Civil Aviation of SA)

8. Is there a need for more new sites or site sharing is the future?

9. Are you interested in participating within a telecommunication ecosystem forum with all key role players (Private and public)

10. How many sites might be required in future according to type (Towers, Rooftops, Lamb poles)

5.3 Government officials interview guideline

1. What is the process of collaborating with third parties on infrastructure owned by the Municipality?

2. What is the procedure of collaborating with third parties?

3. Are you able to give exception on permitting for telecommunications sites possible, depending on zoning scheme and location.

4. Is government open to bulk approvals of telecommunications sites possible through council approval?

5. Would government be interested to sign SLA/MOU with third parties, and have the third party manage revenue on its behalf?

6. How long does a typical Land Use application take? And can it be reduced?

7. Any possibilities of amending policies and bylaws to accommodate telecoms site intensification (5G and Smart Cities)

8. Are there adequate resources to handle high pool of land use applications and approval requirements?

9. Will collaborating with telecommunications in exchange for rental collection improve municipal revenue?

5.4 Interview links and transcripts

a) Interview with JB Mark's Wynand

https://witscloud.sharepoint.com/sites/ARPTelecomsBusinessVenture/Shared%20Documents/General/Recordings/Meeting%20in%20_General_-20220517_092641-Meeting%20Recording.mp4?web=1

b) Interview with Esti from Huawei

https://witscloud.sharepoint.com/sites/ARPTelecomsBusinessVenture/Shared%20Documents/General/Recordings/Meeting%20with%20Esti-20220517_100328-Meeting%20Recording.mp4?web=1

c) Interview With David from Midvaal Municipality



Mldvaal recordin
MBA David (3).m4a

d) Transcript for interview With Andiswa from Isibonelo property Services

0:0:-11.-140 --> 0:0:20.230
Kagisho Choenyana
Thank you for taking the time to be here and accepting my invitation. So just to give a bit of a context, the purpose of this meeting is to really interview you on my research. It's a project that I'm busy with for my MBA with the University of Witwatersrand, and I'm working on a project that is titled Site Power acquisition as well as real estate services for telecommunications companies in South Africa
0:0:20.310 --> 0:0:23.340
Kagisho Choenyana
So what that basically means is that I am working on a proposed a business venture.
0:0:24.900 --> 0:0:25.410
Andiswa Lobelo
Umm.
0:0:43.360 --> 0:0:43.860
Andiswa Lobelo
OK.
0:0:48.840 --> 0:0:49.370
Andiswa Lobelo
Yes.
0:0:24.980 --> 0:0:56.670
Kagisho Choenyana
And which will basically look into providing services to different mobile network operators and in that process, it means I'll be liaising quite closely with property developers and agencies that are managing properties on behalf of different owners. And so essentially that's what the business is about. So I'm just going to take you through a few questions that I've prepared and from your end I'll be interviewing you from a perspective of being.
A property owner or property owner representative because you're representing a portfolio of different properties. So I'll just take you through the questions. Then you can just answer whichever way you find fit.
0:1:10.240 --> 0:1:10.690
Andiswa Lobelo

OK.
0:1:10.980 --> 0:1:19.130
Kagisho Choenyana
So the first question is, do you own or manage any property on behalf of an owner at the moment?
0:1:20.130 --> 0:1:22.330
Andiswa Lobelo
Yes, well I manage.
0:1:22.970 --> 0:1:23.400
Kagisho Choenyana
Mm-hmm.
0:1:23.220 --> 0:1:29.340
Andiswa Lobelo
I manage property on behalf of the Isibonelo, which is the company that I work for.
0:1:29.860 --> 0:1:30.320
Kagisho Choenyana
OK.
0:1:30.990 --> 0:1:37.370
Andiswa Lobelo
Yeah. And I'm also involved in the development property, Property Development division.
0:1:39.370 --> 0:1:39.660
Andiswa Lobelo
Yeah.
0:1:38.350 --> 0:1:51.340
Kagisho Choenyana
OK, alright. Perfect. On behalf of the Isibonelo, so you'd have a couple of property developers or property owners that come to you, so you can present them in putting their properties in the market.
0:1:53.130 --> 0:1:53.980
Andiswa Lobelo
Yes.
0:1:53.200 --> 0:1:54.310
Kagisho Choenyana
Is that how it works?
0:1:57.280 --> 0:2:8.870
Andiswa Lobelo
This one because it's a commercial space, really. I don't go through the whole exercise of marketing the property and all of that.
0:2:8.40 --> 0:2:10.330
Kagisho Choenyana
So it's purely the management part of it.
0:2:10.680 --> 0:2:11.350
Andiswa Lobelo
Yes.
0:2:11.660 --> 0:2:33.230
Kagisho Choenyana
OK, that's perfect. So could you just kindly describe the different types of properties managed within your portfolio with regards to, location, what kind of a property you've already mentioned that is commercial, who are the different owners if you are in a position to disclose that and what the primary use of your properties are?
0:2:34.400 --> 0:2:41.360
Andiswa Lobelo
OK, so currently we've got one retail property that is fully operational.
0:2:42.10 --> 0:2:42.340
Kagisho Choenyana
Mm-hmm.
0:2:42.300 --> 0:2:48.860
Andiswa Lobelo
And we've got two well, we've got two properties that are up for development currently and their

locations.
Are the one that we that is fully operational is the one in the Pretoria Mamelodi.
0:2:54.850 --> 0:2:55.210
Kagisho Choenyana
Mm-hmm.
0:2:56.590 --> 0:3:0.200
Andiswa Lobelo
That has got 3 owners, which is isibonelo.
0:3:5.290 --> 0:3:5.710
Kagisho Choenyana
Umm.
0:3:2.650 --> 0:3:7.0
Andiswa Lobelo
And the PIC as well as the city of Swan.
0:3:8.80 --> 0:3:9.840
Kagisho Choenyana
OK. No, that's perfect.
0:3:9.130 --> 0:3:11.540
Andiswa Lobelo
So its a three parts ownership.
0:3:12.790 --> 0:3:13.280
Kagisho Choenyana
OK.
0:3:12.270 --> 0:3:13.500
Andiswa Lobelo
For the mall.
0:3:17.700 --> 0:3:18.30
Andiswa Lobelo
Alright.
0:3:17.320 --> 0:3:18.890
Kagisho Choenyana
But that makes sense.
0:3:19.760 --> 0:3:20.70
Andiswa Lobelo
Yeah.
0:3:20.830 --> 0:3:23.60
Andiswa Lobelo
And then the two that are being developed are.
Both in Malelani
0:3:31.680 --> 0:3:32.160
Kagisho Choenyana
OK.
0:3:25.890 --> 0:3:34.730
Andiswa Lobelo
But one is literally 110, not 10. Sorry. 100KM's outside of Emmanuel and then the other one is at the Oshhook about 5 kilometres from the also border.
0:3:40.480 --> 0:3:42.990
Kagisho Choenyana
Are they all retail with the two as well?
0:3:42.480 --> 0:3:49.800
Andiswa Lobelo
But yeah, yeah, all retail. So the two that I've just mentioned are under development right now.
0:3:55.370 --> 0:4:12.380
Kagisho Choenyana
OK, alright. So which then would bring me to the next question. The next question which is then the type of land establishment that you have and based on the context that you've just given, it appears that you are basically established in you more formal type of Developments.

So more in your urban areas.
0:4:20.710 --> 0:4:22.410
Andiswa Lobelo
That's semi urban.
0:4:23.170 --> 0:4:28.320
Andiswa Lobelo
Yeah, I'd say it's semi urban. However, the border is more towards traditional land.
0:4:40.220 --> 0:5:12.170
Kagisho Choenyana
Traditionally, leaders and stuff on the development side of things alright, which is perfectly fine. So you've got a mix of Township establishments, the urban space and the others within the rural space more or less OK. No, that's perfect. And with regards to accessibility to power its because we all know that demands for power on development are quite high, how are you navigating around the edge, you have availability or access to power on your properties?
0:5:13.120 --> 0:5:18.320
Andiswa Lobelo
We do so with any new development, obviously. So with the current development, we do have power.
0:5:18.920 --> 0:5:19.400
Kagisho Choenyana
Mm-hmm.
0:5:19.190 --> 0:5:19.680
Andiswa Lobelo
Umm.
0:5:20.850 --> 0:5:26.840
Andiswa Lobelo
All round throughout, even in seasons of load shedding. So we are quite stable in that regard.
0:5:27.840 --> 0:5:38.90
Andiswa Lobelo
And then with the new developments, you know it is so because we still need establish the Township and all of that, it is going through.
0:5:38.910 --> 0:5:51.300
Andiswa Lobelo
We are just securing those bulk services, but in terms of it being accessible, it's something that yes, we do. It is accessible to us. It's just a matter of us laying the lines for the power.
0:5:59.220 --> 0:5:59.690
Andiswa Lobelo
Yes.
0:5:51.970 --> 0:6:1.400
Kagisho Choenyana
Alright, OK. And then with regards to the backup power, are you also looking into that as and when you run your operations?
0:6:2.0 --> 0:6:9.620
Andiswa Lobelo
Yeah, I think it would be suicidal not to have backup power really. Within the South African economy right now.
0:6:9.340 --> 0:6:10.410
Kagisho Choenyana
Yeah, yeah.
0:6:10.690 --> 0:6:20.650
Andiswa Lobelo
Without it, your business literally shuts down. So and we're not sure when exactly the sole power thing is going to stabilize.
0:6:21.460 --> 0:6:22.780
Kagisho Choenyana
Yes, definitely.
0:6:24.500 --> 0:6:24.940
Kagisho Choenyana

OK.
0:6:30.800 --> 0:6:31.260
Kagisho Choenyana
Mm-hmm.
0:6:23.100 --> 0:6:35.610
Andiswa Lobelo
Yeah. So yes, we are definitely looking at getting a generator for the two new sites with the current one. We've got a fully occupied, fully operational generator.
0:6:36.330 --> 0:6:41.20
Kagisho Choenyana
Perfect. And that generator, does it accommodate your tenants that are operating within your space?
0:6:41.520 --> 0:6:45.490
Andiswa Lobelo
Yes,
0:6:47.160 --> 0:6:47.520
Andiswa Lobelo
Umm.
0:6:46.40 --> 0:6:47.790
Kagisho Choenyana
OK. No, that's perfect.
0:6:48.650 --> 0:7:4.100
Kagisho Choenyana
And then UM, with regards to infrastructure, accessibility to all these different uh, you know, properties that you managing, is there adequate infrastructure with regards to established roads and so forth? Is it easily accessible?
0:7:5.250 --> 0:7:27.630
Andiswa Lobelo
The one that we, that's our. I'm gonna speak about that more, that is currently operating. It isn't accessible and it's sitting in a very strategic position really because it's right at the entrance of Mamelodi. So we've got various entrances.
0:7:27.710 --> 0:7:31.580
Andiswa Lobelo
Into the model, so it's quite easy, accessible, and reachable as well.
0:7:32.420 --> 0:7:34.810
Kagisho Choenyana
What is the footprint of that centre again?
0:7:36.740 --> 0:7:37.690
Kagisho Choenyana
In terms of size.
0:7:38.60 --> 0:7:40.950
Andiswa Lobelo
The size it's a 54,000 square.
0:7:43.450 --> 0:7:43.780
Andiswa Lobelo
Yeah.
0:7:41.260 --> 0:7:52.520
Kagisho Choenyana
That's huge. OK. Alright. And then on site, do you guys have care takers or contact personnel that we can communicate with?
0:7:53.860 --> 0:7:54.380
Andiswa Lobelo
Yes.
0:7:54.210 --> 0:7:58.440
Kagisho Choenyana
As in when we need to come and do an assessment on the side on the property.
0:7:59.240 --> 0:8:2.850
Andiswa Lobelo

Yeah. So we've got a, a full time site manager who's based at the mall.
0:8:4.110 --> 0:8:16.160
Andiswa Lobelo
His officers are at the mall, but in the absence of the center manager, there are various members of staff that are on site that are available as well.
0:8:17.890 --> 0:8:18.250
Andiswa Lobelo
Yeah.
0:8:16.920 --> 0:8:27.650
Kagisho Choenyana
OK. No, that's perfect. And then now going into the gist of the actual study itself. So would you be willing to collaborate with telecommunications sector?
0:8:39.340 --> 0:8:39.890
Andiswa Lobelo
Yes.
0:8:28.210 --> 0:8:57.80
Kagisho Choenyana
UM, from a perspective of them, erecting equipment in a form of antennas in your property for revenue growth for you, for your entire portfolio. So if you were to be approached by a middle man or even the mobile network operator themselves to say we are bringing in an antenna because we have, identified the gap of network coverage for a specific mobile network operators, would you be able to accommodate them or would you be willing to collaborate with them?
0:8:58.270 --> 0:9:1.240
Andiswa Lobelo
Yes. So I've already got one.
0:9:2.260 --> 0:9:2.600
Kagisho Choenyana
Yes.
0:9:8.230 --> 0:9:8.790
Kagisho Choenyana
Nice.
0:9:3.300 --> 0:9:9.160
Andiswa Lobelo
Mobile network operator. That's got a base station at my side.
0:9:10.560 --> 0:9:17.370
Andiswa Lobelo
It's been a long standard standing practice within the property management space to have antennas and all of that.
0:9:25.750 --> 0:9:26.160
Kagisho Choenyana
OK.
0:9:18.750 --> 0:9:28.570
Andiswa Lobelo
So yeah, we do have space for that. However, what we don't have space for is a tower. We can only accommodate the smaller stuff like your aerials.
0:9:29.80 --> 0:9:29.610
Kagisho Choenyana
Yes.
0:9:33.510 --> 0:9:50.350
Kagisho Choenyana
OK, so antennas that are mounted on the ceiling or in in on the walls, those that are not really visible from a distance which would somehow be fused into the design of the building internally you would be willing to have discussions around that, OK.
0:9:50.500 --> 0:9:50.810
Andiswa Lobelo
Yeah.
0:9:51.520 --> 0:10:7.810

Kagisho Choenyana
And at the moment maybe out of interest, do you guys have network and coverage issues or you are quite sorted within different sections of the mall including your text spaces? Because I I've seen that you you're quite brought in terms of the different communities that you have on site.
0:10:9.750 --> 0:10:15.640
Andiswa Lobelo
In all honesty, we are not really covered or we don't have very good signal strength.
0:10:16.270 --> 0:10:16.640
Kagisho Choenyana
OK.
0:10:16.610 --> 0:10:18.900
Andiswa Lobelo
We do have areas with shortage..
0:10:19.430 --> 0:10:19.960
Kagisho Choenyana
Yes.
0:10:23.200 --> 0:10:23.590
Kagisho Choenyana
Hmm.
0:10:19.860 --> 0:10:23.880
Andiswa Lobelo
And also it depends on the network that you're on, you know what I mean.
0:10:24.860 --> 0:10:27.80
Andiswa Lobelo
I've got a Vodacom is.
0:10:33.390 --> 0:10:33.900
Kagisho Choenyana
Yes.
0:10:28.720 --> 0:10:34.220
Andiswa Lobelo
It's got a very good signal, and that's only because I've got a base station on site.
0:10:34.730 --> 0:10:35.70
Kagisho Choenyana
Umm.
0:10:35.520 --> 0:10:38.90
Andiswa Lobelo
But for others I don't and it's a problem so.
0:10:43.620 --> 0:10:44.210
Kagisho Choenyana
Perfect.
0:10:39.310 --> 0:10:49.600
Andiswa Lobelo
It's something that I'll definitely look into getting to have other signals, like other network signals getting better because I've got customers that are complaining.
0:10:50.340 --> 0:10:51.450
Kagisho Choenyana
No, that's perfect.
0:10:53.80 --> 0:10:53.560
Andiswa Lobelo
Hmm.
0:10:53.360 --> 0:11:13.690
Kagisho Choenyana
And so would you say that you have internal structures in place which would be able to assist you in interpreting a long term lease agreements with the various customers in a form of agents or the mobile network operators like Vodacom that is already in place. Do you have structures in place to support with that?
0:11:14.790 --> 0:11:15.200

Andiswa Lobelo
Yeah.
0:11:16.140 --> 0:11:16.570
Kagisho Choenyana
OK.
0:11:16.150 --> 0:11:16.790
Andiswa Lobelo
We do.
0:11:17.970 --> 0:11:18.760
Andiswa Lobelo
Umm.
0:11:22.460 --> 0:11:50.110
Kagisho Choenyana
OK, OK. Structure in place would basically be for you to have the necessary resources. It could be a real estate, you know personnel that will be able to administratively facilitate the processing of the lease agreement check as to whether the mobile network operator fulfills the promise in terms of paying the lease in time renew. I mean rental in time renewing the lease agreement is required.
0:12:23.530 --> 0:12:36.100
Kagisho Choenyana
No, the problem maybe just to wrap up because you've answered a whole lot of these questions really when we're going through the rest of the questions in the beginning and the last one from my end would be do you have by any chance any concerns?
0:12:36.660 --> 0:12:42.600
Kagisho Choenyana
Uh Umm, with regards to collaborating with telecommunications companies, for antennas in your buildings, would you be willing?.
0:12:44.740 --> 0:12:45.680
Andiswa Lobelo
Right now.
0:12:48.510 --> 0:12:52.530
Kagisho Choenyana
Is that would come from customize or any general consensus really? Do you have anything?
0:12:53.960 --> 0:12:58.760
Andiswa Lobelo
Concerns regarding not having a collaboration.
0:12:57.740 --> 0:13:0.610
Kagisho Choenyana
No concerns of collaborating with us.
0:13:0.660 --> 0:13:1.60
Andiswa Lobelo
No.
0:13:1.740 --> 0:13:3.980
Andiswa Lobelo
No concerns at all.
0:13:1.610 --> 0:13:4.370
Kagisho Choenyana
Having a network within your buildings.
0:13:6.200 --> 0:13:6.630
Kagisho Choenyana
OK.
0:13:4.830 --> 0:13:8.740
Andiswa Lobelo
No, none whatsoever. I think it would strengthen actually.
The operations of the mall because we rely heavily on people being able to access, you know, their phones and the Internet. So it would be quite advantageous to us.
0:13:25.300 --> 0:13:33.740
Kagisho Choenyana

Perfect. No, that makes perfect sense. And this and that brings us to the end of our session. Thank you so much for availing yourself, ma'am.
0:13:34.420 --> 0:13:35.460
Andiswa Lobelo
It's not a problem.
0:13:34.820 --> 0:13:45.760
Kagisho Choenyana
I really appreciate your time. I will be assessing this interview and capturing some of the valuable information that you've shared for my dissertation. Thank you so much.
0:13:45.730 --> 0:13:48.130
Andiswa Lobelo
Thank you. Thank you. I'm glad I could help.
0:13:52.30 --> 0:13:55.260
Andiswa Lobelo
Alright then. You too. Thanks. Bye bye.
0:13:55.80 --> 0:13:55.700
Kagisho Choenyana
Thanks, bye.

6. Section 6: Annexures

6.1 Annexure A: Market Analysis

	Population (Number of people)	Area (KM square)	Population / km square	% of total city dwellers	Target audience total	KM for 5G istallations	Total sites	Market share (# sites)
Johannesburg	5 927 000	1 645	3 603	35%	3 817 378	1 059,5	117,7	17,7
Cape Town	4 710 000	2 445	1 926	28%	3 033 550	1 574,7	175,0	26,2
Bloemfontein	588 000	236	2 489	3%	378 711	152,1	16,9	2,5
Tshwane	2 655 000	6 298	422	16%	1 709 995	4 056,3	450,7	67,6
Ethekwini	3 199 000	2 292	1 396	19%	2 060 367	1 476,2	164,0	24,6
Total	**17 079 000**				**11 000 000**			**139**
As at 2021								
Smartphone users	11 000 000,0	Target reach by 2025						
Sites per KM square	9	5G site installation every 500 meters (based on the coverage range)						
Market share average	15%							
Greenfield Towers	5%							
Brownfield Rooftops	5%							
Lamp posts	50%							
Indoor Wireless Solutions	40%							

6.2 Annexure B: Business Inputs

	Greenfield Towers	Brownfield Rooftops	Lamp posts	Indoor Wireless Solutions
Monthly rental	25 000	6 500	5 000	23 000
Annual escalation	6%	6%	6%	6%
Agency Fee	9%	9%	9%	9%
Admin Fee	3%	3%	3%	3%
Number of site / month	7	7	69	55

6.3 Annexure C: Revenue Projections

Income	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Rent	1 830 154	1 939 963	2 056 361	2 179 743	2 310 528	2 449 159	2 596 109	2 751 875	2 916 988	3 092 007
Agency Fee	187 175	198 405	210 310	222 928	236 304	250 482	265 511	281 442	298 328	316 228
Admin Fee	62 392	66 135	70 103	74 309	78 768	83 494	88 504	93 814	99 443	105 409
		-								
Rent	475 840	504 391	534 654	566 733	600 737	636 781	674 988	715 488	758 417	803 922
Agency Fee	48 665	51 585	54 681	57 961	61 439	65 125	69 033	73 175	77 565	82 219
Admin Fee	16 222	17 195	18 227	19 320	20 480	21 708	23 011	24 392	25 855	27 406
Rent	3 660 308	3 879 927	4 112 723	4 359 486	4 621 055	4 898 318	5 192 217	5 503 751	5 833 976	6 184 014
Agency Fee	374 350	396 811	420 619	445 857	472 608	500 964	531 022	562 884	596 657	632 456
Admin Fee	124 783	132 270	140 206	148 619	157 536	166 988	177 007	187 628	198 886	210 819
Rent	13 469 935	14 278 131	15 134 819	16 042 908	17 005 483	18 025 812	19 107 360	20 253 802	21 469 030	22 757 172
Agency Fee	1 377 607	1 460 263	1 547 879	1 640 752	1 739 197	1 843 549	1 954 162	2 071 412	2 195 696	2 327 438
Admin Fee	459 202	486 754	515 960	546 917	579 732	614 516	651 387	690 471	731 899	775 813
Rent	**19 436 238**	**20 602 412**	**21 838 557**	**23 148 870**	**24 537 802**	**26 010 071**	**27 570 675**	**29 224 915**	**30 978 410**	**32 837 115**
Agency Fee	**1 987 797**	**2 107 065**	**2 233 489**	**2 367 498**	**2 509 548**	**2 660 121**	**2 819 728**	**2 988 912**	**3 168 247**	**3 358 341**
Admin Fee	**662 599**	**702 355**	**744 496**	**789 166**	**836 516**	**886 707**	**939 909**	**996 304**	**1 056 082**	**1 119 447**

6.4 Annexure D: Cash Flow Projections

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Revenue	Agency Fee	1 987 797	2 107 065	2 233 489	2 367 498	2 509 548	2 660 121	2 819 728	2 988 912	3 168 247	3 358 341
	Admin Fee	662 599	702 355	744 496	789 166	836 516	886 707	939 909	996 304	1 056 082	1 119 447
Total Revenue		**2 650 396**	**2 809 420**	**2 977 985**	**3 156 664**	**3 346 064**	**3 546 828**	**3 759 637**	**3 985 216**	**4 224 329**	**4 477 788**
Costs	Labour	768 000	814 080	862 925	914 700	969 582	1 027 757	1 089 423	1 154 788	1 224 075	1 297 520
	Office supplies	24 000	25 440	26 966	28 584	30 299	32 117	34 044	36 087	38 252	40 547
	Transport	36 000	38 160	40 450	42 877	45 449	48 176	51 067	54 131	57 379	60 821
	Other operational costs	48 000	50 880	53 933	57 169	60 599	64 235	68 089	72 174	76 505	81 095
Total costs		**876 000**	**928 560**	**984 274**	**1 043 330**	**1 105 930**	**1 172 286**	**1 242 623**	**1 317 180**	**1 396 211**	**1 479 984**
Gross Profit		1 774 396	1 880 860	1 993 711	2 113 334	2 240 134	2 374 542	2 517 015	2 668 036	2 828 118	2 997 805
Gross Profit Margin		67%	67%	67%	67%	67%	67%	67%	67%	67%	67%

6.5 Break Even Analysis

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		2023	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Revenue	Agency Fee	1 987 797	2 107 065	2 233 489	2 367 498	2 509 548	2 660 121	2 819 728	2 988 912	3 168 247	3 358 341
	Admin Fee	662 599	702 355	744 496	789 166	836 516	886 707	939 909	996 304	1 056 082	1 119 447
Total Revenue		**2 650 396**	**2 809 420**	**2 977 985**	**3 156 664**	**3 346 064**	**3 546 828**	**3 759 637**	**3 985 216**	**4 224 329**	**4 477 788**
Costs		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
Capital	Office furniture	15000						5000			
	Office setup costs										
Total Capital		**15000**	**0**	**0**	**0**	**0**	**0**	**5000**	**0**	**0**	**0**
Fixed	Rental (80 sqm @120/sqm)	9600	9600	9600	9600	9600	9600	9600	9600	9600	9600
	Labour	768 000	814 080	862 925	914 700	969 582	1 027 757	1 089 423	1 154 788	1 224 075	1 297 520
	IT software costs										
Total Fixed		777600	823680	872524,8	924300,288	979182,3053	1037357,244	1099022,678	1164388,039	1233675,321	1307119,841
Variable											
	Office supplies	24 000	25 440	26 966	28 584	30 299	32 117	34 044	36 087	38 252	40 547
	Transport	36 000	38 160	40 450	42 877	45 449	48 176	51 067	54 131	57 379	60 821
	Office maintenance and cleaning										
	Other operational costs	48000	50880	53932,8	57168,768	60598,89408	64234,82772	68088,91739	72174,25243	76504,70758	81094,99003
Total Variable		108000	114480	121348,8	128629,728	136347,5117	144528,3624	153200,0641	162392,068	172135,592	182463,7276
Total costs		**900 600**	**938 160**	**993 874**	**1 052 930**	**1 115 530**	**1 181 886**	**1 257 223**	**1 326 780**	**1 405 811**	**1 489 584**
Contribution Margin		0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96
Break Even Point		**810 632,15**	**858 669,61**	**909 589,32**	**963 564,21**	**1 020 777,59**	**1 081 423,78**	**1 145 708,74**	**1 213 850,79**	**1 286 081,37**	**1 362 645,78**

6.6 Annexure E: 5G development across the globe

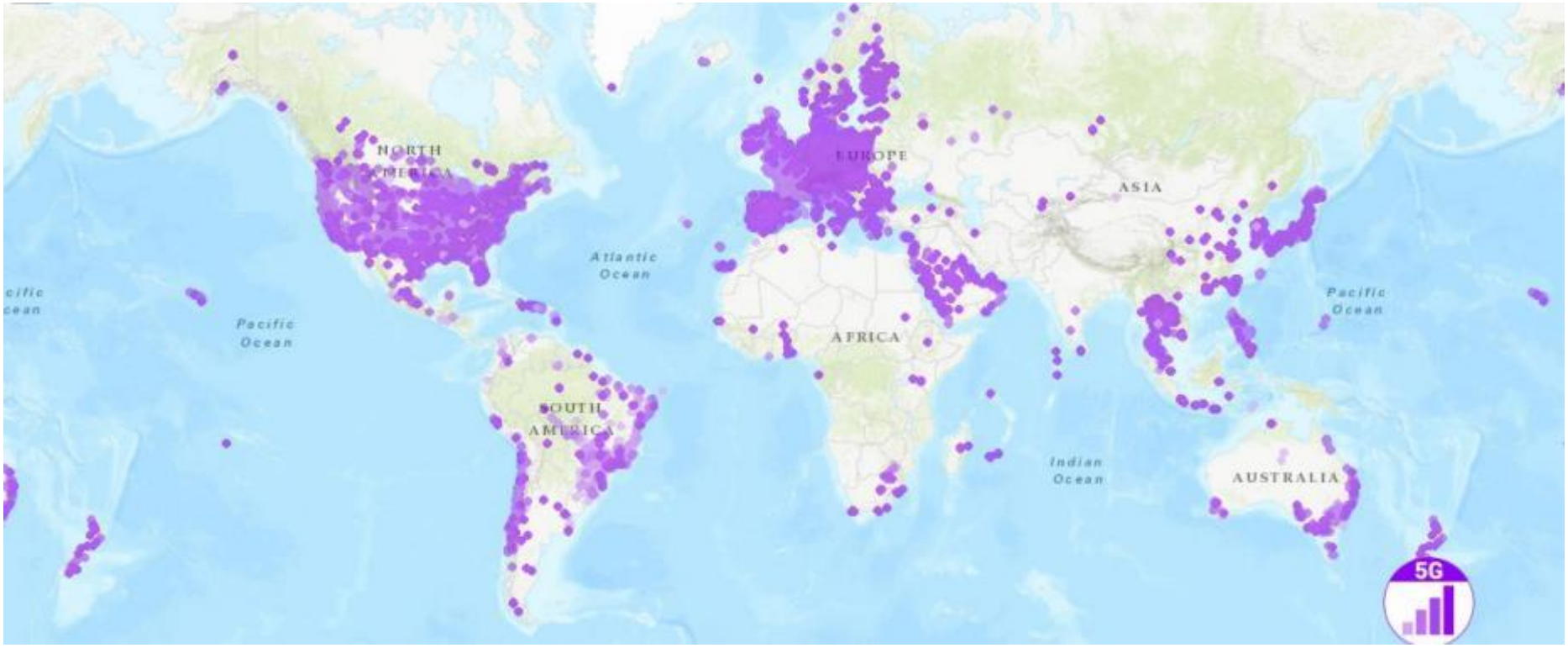


Image by : Patterson (2021)

6.7 Annexure F: MTN network coverage by generation in South Africa.

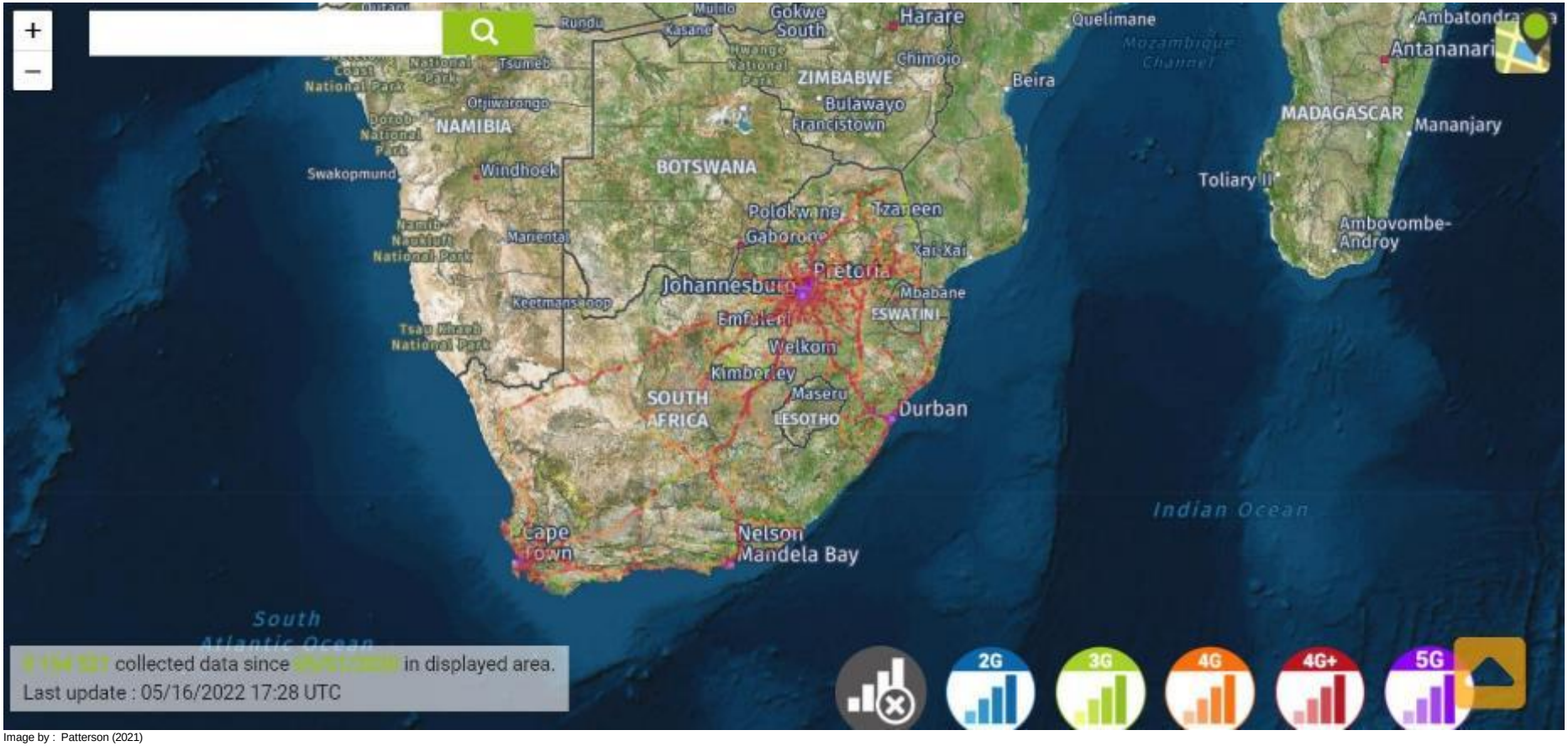
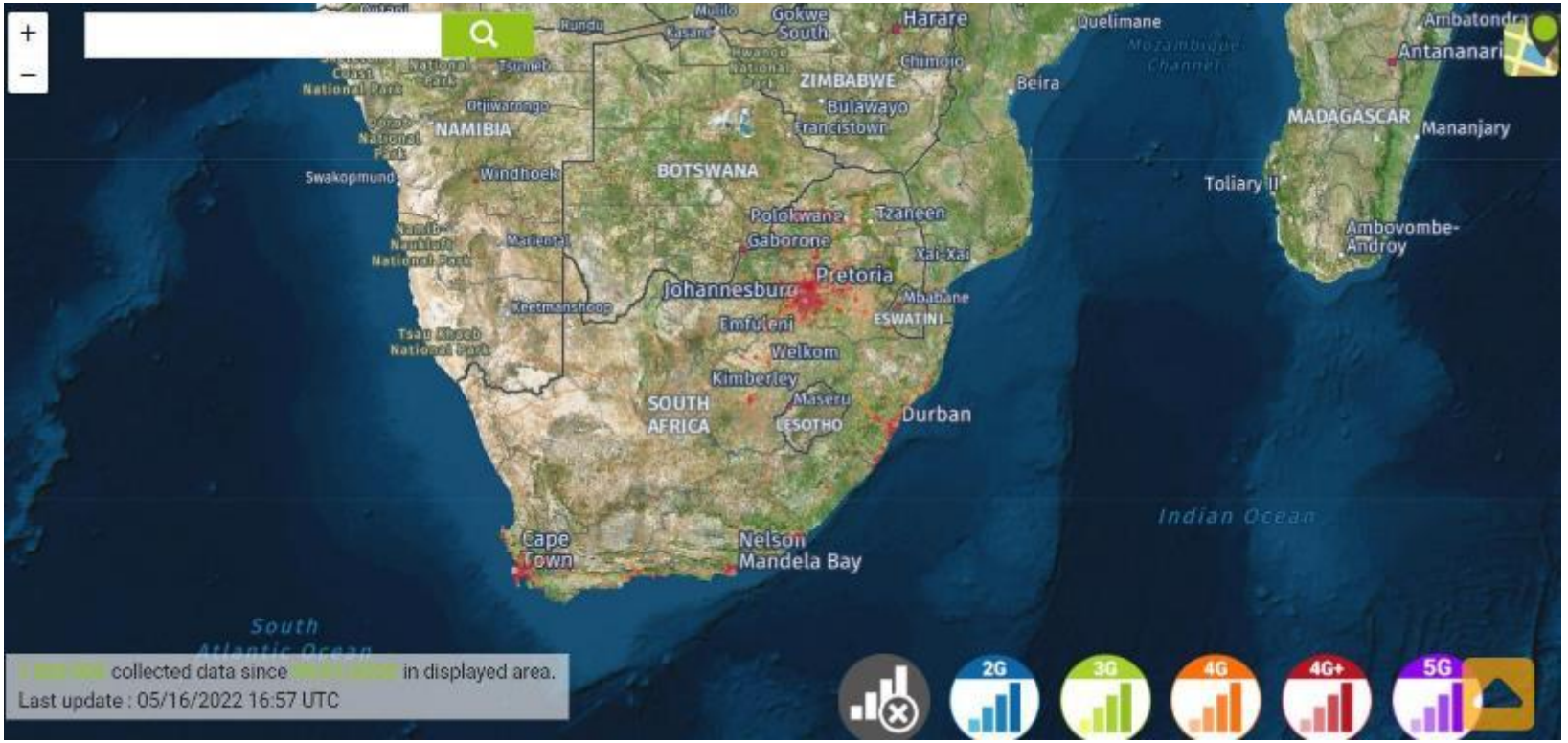


Image by : Patterson (2021)

6.8 Annexure G: Telkom network coverage by generation in South Africa.



6.9 Annexure H: Vodacom network coverage by generation in South Africa.

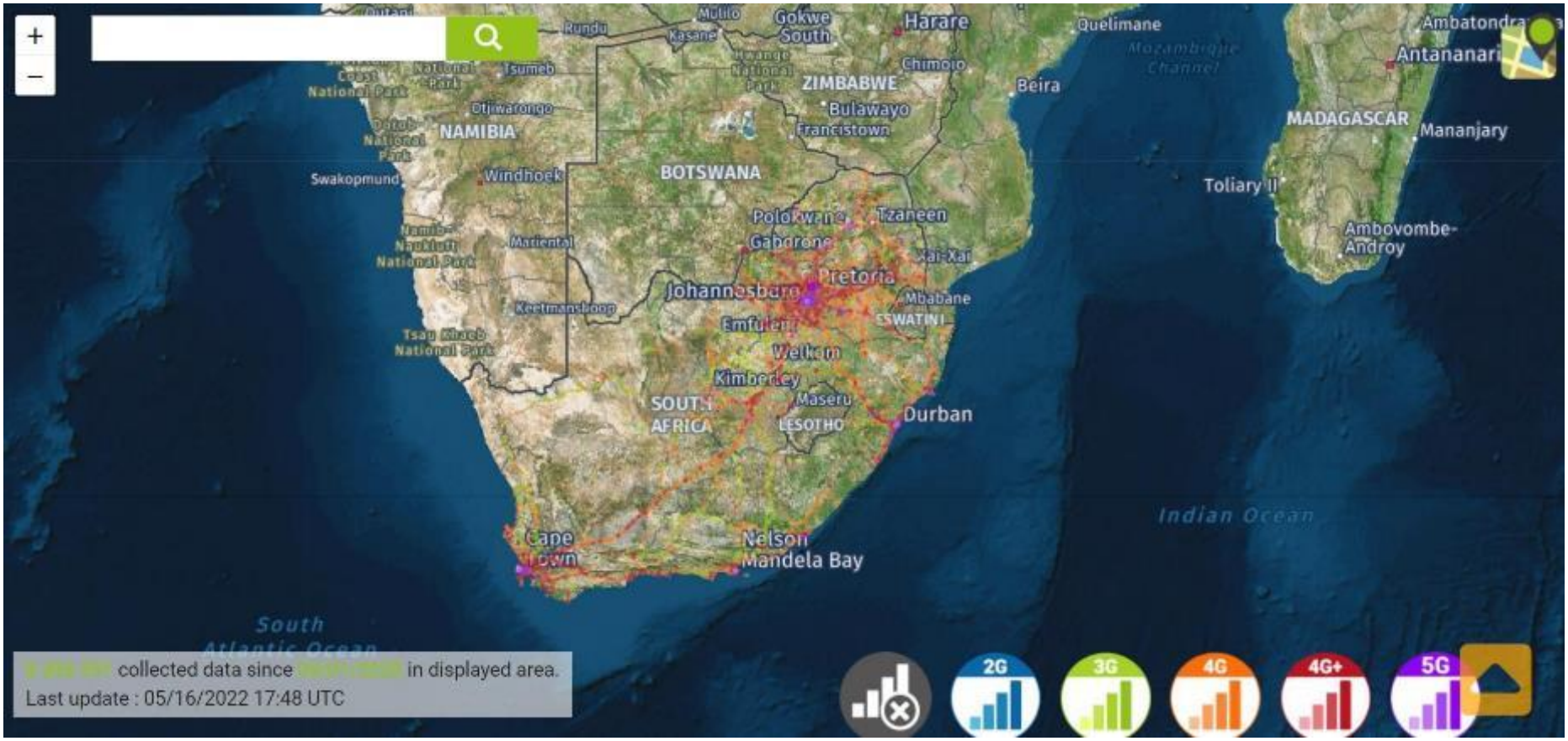
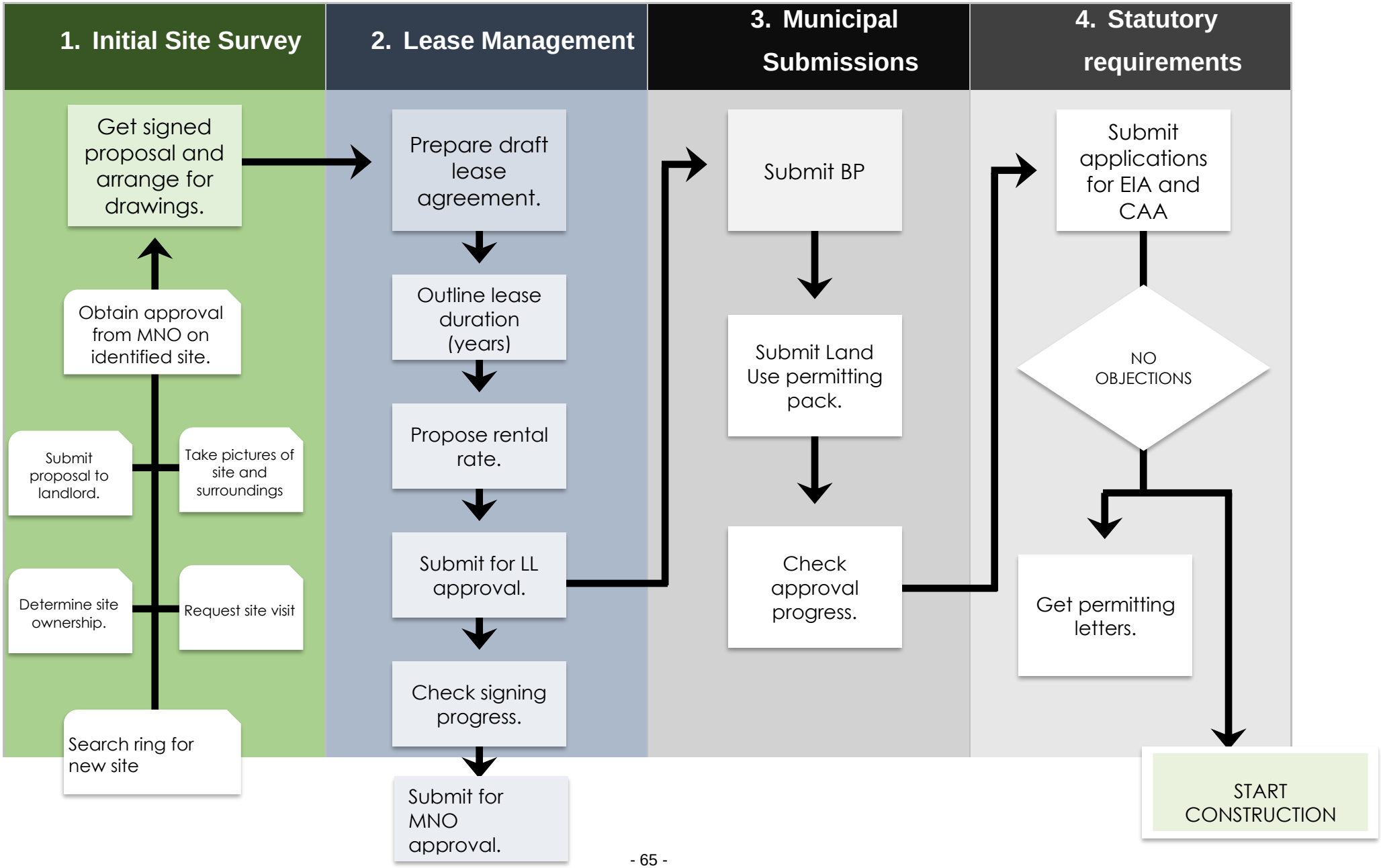


Image by : Patterson (2021)

6.10 Annexure I: Site Acquisition Process Flow


1. Initial Site Survey
2. Lease Management
3. Municipal Submissions
4. Statutory requirements
Get signed proposal and arrange for drawings.
Obtain approval from MNO on identified site.
Submit proposal to landlord.
Take pictures of site and surroundings
Determine site ownership.
Request site visit
Search ring for new site
Prepare draft lease agreement.
Outline lease duration (years)
Propose rental rate.
Submit for LL approval.
Check signing progress.
Submit for MNO approval.
Submit BP
Submit Land Use permitting pack.
Check approval progress.
Submit applications for EIA and CAA
NO OBJECTIONS
Get permitting letters.
START CONSTRUCTION