



TANZANIA TELECOMMUNICATION COMPANY LIMITED (TTCL) AS A MOBILE SERVICE PROVIDER

Edna Ndyamukama

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TAMPEREEN AMMATTIKORKEAKOULU
Tampere University of Applied Sciences

ABSTRACT

Tampereen ammattikorkeakoulu
Tampere University of Applied Sciences
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NDYAMUKAMA, EDNA:

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This bachelor's thesis was researched and written under the consent and authority of **Tanzania Telecommunication Company Limited (TTCL)**, with the purpose to find out ways of improving sales and profits of its mobile service department. The mobile service department of TTCL is performing poorly as compared to its competitors despite being managed by a strategically positioned and experienced company in telecommunication services. It was also meant to find out the positive contribution of competition in the mobile phone sector to the National income and economy.

The problem the company faces in running the mobile service business was identified by studying the company set-up and organization and interviewing the customers who use their services. Mobile service users of TTCL's rival companies were also interviewed, as well as the managers and senior officers managing the mobile service department. A number of reasons which hindered the performance of the mobile service department of TTCL include:

- Technology being used by TTCL being unique and unpopular to customers.
- Lack of room for expansion of the company due to organization set up and management (Ownership).
- Lack of enough capital investment from shareholders (Poor financial base).

Keywords: TTCL, technology, ownership, mobile services.

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ABBREVIATIONS AND TERMS USED

TTCL	Tanzania Telecommunication Company Limited
TCRA	Tanzania Communication Regulatory Authority
GSM	Global System for Mobile Communication
CDMA	Code Division Multiple Access
NICTBB	National ICT Broadband Backbone
ICT	Information and Communication Technologies
ISO	International Organization for Standardization
TBS	Tanzania Bureau of Standards
HSDPA	High Speed Downlink Packet Access

1 INTRODUCTION

Tanzania possesses a natural variety. The scenic beauty of the country is astonishing right from highest standing mountain on earth i.e. the snow-capped majesty of Kilimanjaro, to the forested shores of Lake Tanganyika, the world's longest, and least-polluted freshwater body.(Mysterious world of adventure, Tanzania.eu).

The United Republic of Tanzania is a union of Tanganyika (Tanzania-Mainland) and Zanzibar (Zanzibar Islands).Tanzania has a surface area of 945,087 sq. km and a population of about 45 million people as per National census of 2012.

Administratively, Tanzania has 30 regions (25 in Tanzania mainland and 5 in Zanzibar).

Tanzania has different means of communication including roads, railways, airways, phones and mobile phones. This paper will however address only one means of communication that is telephone communication services.

To date Tanzania has 5 telephone companies which were established between the years 1993 and 2005 operating wireless and fixed network businesses. They are all licensed by the same authority and targeting the same market for providing voice, data communication, and money transfer services.

According to research findings, Fin scope Tanzania 2013 report of June 2014 for money sector, 12 million people use mobile phone services to transfer money. A report by TCRA (Tanzania Communication Regulatory Authority) dated 12th December, 2012 shows that there are a total of 28,024,611 users of mobile and wired networks in Tanzania. The market share for each individual company as of April to June 2012 is as shown below.

TABLE 1. Market share for each mobile service operator

NAME OF OPERATOR	SUBSCRIBERS	PERCENTAGE
Vodacom Tanzania	12,313,029	44
Airtel Tanzania	7,504,511	27
Mic Tanzania Ltd/ Tigo	5,613,330	20
Zantel Tanzania Ltd	2,356,457	8.4
TTCL	232,424	0.82
Sasatel	4,810	0.18
Benson	1,050	0.0037

The above table shows Tanzania apart from being a huge country in terms of size and population also has a potential market for the mobile phone business. Almost 29 million people are subscribed as customers, indicating that more than 50% of the population use mobile phones for different purposes such as calling, recording information and making videos (Tanzania: Interesting Statistics on mobile phone users blog).

Share market performance indicator for individual service provider show cut throat competition mainly among three companies namely Vodacom Tanzania, Airtel Tanzania and Tigo. The rest of the companies are poor performers with a market share of 9 % altogether.

This paper will address competition as an economic factor accelerating social-economic changes in Tanzania. It will also show the background of this competition, factors favouring growth and how it has affected other sectors. It's positive contribution to the national development and its relevance to the national economy.

The strength of competition in a country aspiring to build the market economy like Tanzania is characterized by competing producers and service providers to control the consumer markets. The strength of the market economy depends on producers' competitive capacity to sustain in the market i.e. the ability to produce the right products and services and sell them to consumers at competitive prices or the ability of producers and service providers to contain market competition.

2 BACKGROUND

2.1 Purpose of the thesis and research questions

The purpose of the thesis is to find out the positive contribution of competition in the mobile phone sector to the National income and economy with particular emphasis to Tanzania Telecommunication Company Limited (TTCL). It has been a concern of many people to know why TTCL, the oldest company in Tanzania, operating fixed telephone business since independence is currently doing poorly in a competitive environment for mobile phone service providers.

Questions regarding this matter have been addressed for example is it due to liberalized business policy or clients preference to services provided by other providers? A question of why TTCL mobile phone network failed to capture the market despite the established administrative network, qualified personnel and other infrastructure throughout the country was also addressed.

This subject has been discussed in many quarters by different individuals, some blaming the government for failing to bail out the company and others proposing the preference treatment for the company.

The fundamental questions for this research are as follows:

- I. Is there fair competition in the market?
- II. Is there fair treatment of service providers by the regulator?
- III. Was the scenario of growth of service providers shown above deliberately planned?
- IV. What is the strategic position of TTCL for national development and the positive contribution of competition in the mobile phone sector to the National income and economy?

2.2 Objectives and research findings

The research findings show TTCL as a poor mobile phone service provider compared to other providers. However, as per the interview and confirmation by the TTCL communication experts and engineers, TTCL is said to be a strategic communication solution provider.

The main objective of the research is to find out why TTCL is a poor mobile service provider despite of its broad infrastructural base as compared to other mobile service providers who are completely new to the business and have a narrow infrastructural base as compared to the TTCL.

The aim of this research is to come up with the possible solutions and suggestions that could improve the mobile service sector in TTCL and how TTCL can revive their competitive impact in the mobile service market. The research aims to attract and increase customers of the mobile service of TTCL. By utilising and implementing such data, the company is in position to improve and succeed in the market as a mobile service provider.

The goal of this research is come up with a variety of suggestions of how to help my chosen company to be successful in the mobile service sector in the future. In order to achieve this goal; some questions need to be answered:

- What measures can TTCL adopt to help them revive their mobile business?
- What are they doing different from their competitors and to what extent are they beneficial or detriment to the company?
- How can they become successful in the mobile service sector in respect of their large infrastructural base?

2.3 Methodology

My main questions in this research being why, what and how. The research will fully use the qualitative method as the main research method. This type of method includes interviews and analysis of the focused areas. Interviews of the research are carried out and mainly focused on the few customers who are still using the mobile service, the

employees of the company and customers who are using services of other mobile service providers.

Qualitative research is to explore and understand people`s attitudes, perceptions, motivations and behaviors by constructing and analyzing the data which are largely collected in nature (Kent, 2014) Qualitative research provides information and knowledge that the business needs.

I carried out an interview in this research with one of the TTCL`s engineers (Lemunge,E.2014) who provided me with information linking to the company`s failure and problems they are facing in trying to make their business a success.

Questionnaires were also used in this research to carry out a survey for customer satisfaction inquiry and analysis of customer use of the mobile service. The customers were meant to answer questions regarding their satisfaction and the proper use of the service.

Brochures were also used in this research i.e. Engineer Parito handed me some brochures regarding the National ICT broadband information where I discovered that TTCL is an agent of the National ICT Broadband backbone making it a strategic communication solution. (Rwakajugaba (nd) National Broadband Brochure).

2.4 Brief introduction of the company and main discussed areas

As far as TTCL is concerned, it controls and operates on mainly two areas that is: Mobile services and is an agent for the National ICT Broadband Backbone (NICTBB). The NICTBB is responsible for data and voice transfers therefore TTCL being the only agent for the National Broadband in Tanzania puts it as a strategic communication solution provider as no communication can be made effectively by any other communication company without using the broadband facilities which are run and controlled by TTCL.

Like it is mentioned earlier that the main purpose of my research is to find out why TTCL given its large infrastructural base in Tanzania, is a poor mobile phone service provider as compared to the other mobile service providers. The relevance of my research as per study findings is TTCL as a strategic communication solution provider.

My research has been narrowed down to a discussion of few areas. These areas include the mobile phone market in general, how the market is regulated in respect to mobile phone services in Tanzania, roles played by each party in the business sector and why the case company TTCL in its two areas of business is succeeding in one but not the other.

The areas discussed include:

- Mobile phones market in Tanzania.
- Factors favouring growth of mobile phones in Tanzania to date.
- The role of the Regulatory authority (TCRA - Tanzania Communication Regulatory Authority) in respect to mobile phone services business and challenges.
- Role of the government in promoting the communication sector in Tanzania.
- Strategic position of TTCL as a mobile and communication solution service provider.
- Strength and weaknesses of the sub sector.
- Development values of the sub sector.
- Lessons from the study.
- Conclusions and recommendation.

3 MOBILE PHONES MARKET IN TANZANIA

The market for mobile cellular phones in Tanzania to date is characterized by 3 main features: competition, regulation and segmentation.

3.1 Competition

The environment for the competitive market was deliberately formed by creating conditions such as:

- Allowing and formation of new cellphone companies to operate business.
- Restructuring existing companies i.e. Privatization of TTCL.
- Licensing many companies to operate.
- Allowing companies to compete among themselves for customers.

The market period which started after liberalization of the telephone service sector in Tanzania included changing governing laws and allowing private companies to be formed and begin operating in Tanzania. The period started after 1993, when the first private company MIC Tanzania (Mobitel) was formed and operated the first wireless network which ushered the liberalization of the Telecommunication sector.

Ownership of this new company was a joint venture between Millicom international cellular phone based in Luxemburg with 72.3 % of shares and Ultimate Communications Ltd of Tanzania and Tanzania Posts and Telecommunication Company (TPTC) with 27.7 % of shares.

From this period on wards, other companies were established and licensed to operate wireless networks. The companies included Vodacom Tanzania, Celtel Tanzania and Tanzania Telecommunication Company Limited (TTCL) established in August 2000, November 2001 and in April 2003 respectively. The period and process for establishing a competitive market started and still goes on today.

The objective of this competitive environment is to promote private sector growth in telephone services sector to create an efficient and reliable telephone services to cater for emerging economic activities national wide and across borders.

The private sector growth emerged and resulted from economic and political reforms carried out by the government since 1985. Other reforms which prompted the growth include:

- Economic liberalization measures.
- Removal of foreign exchange controls.
- Financial Sector reforms.
- Political stability since independence which created favorable conditions for investors in various business activities to emerge.

3.2 Regulation

The entry into the market in the country of more wireless network operators forced the government to put in place efficient control and regulations for telephone services as recognized by international standards (ETSI) European Telecommunications Standard Institute to protect both the interests of the consumers and the service providers.

The existing regulatory Authority, formerly known as Tanzania Communication Commission (TCC) needed to be improvised to undertake the new wide and challenging duties. In this respect the new regulatory authority namely Tanzania Communication Regulatory Authority (TCRA) was established by the law of Tanzania, Act No 12 of 2003 to regulate and control communications and broadcasting sectors in Tanzania.

By formation of TCRA the market was automatically regulated. The objective of regulation was and is to safeguard the interest of consumers as well as the service providers.

Areas of competition which need be regulated include:

- Voice i.e. airtime bundles and connectivity.
- Money transfers i.e. receiving and sending money, sending and withdrawing money from banks through cell phones.
- Data i.e. Internet services, receiving and sending pictures.
- Retaining customers through customer care service centres.
- Wide connectivity in rural and urban areas.

All the above are being done through creativity, promotional and flexible tariffs.

In addition, some service providers like Vodacom Tanzania, Zantel and Airtel Tanzania have competitive advantages over other operators due to their ability to make roaming agreements with Regional International Gate away services company. Vodacom Tanza-

nia is a subsidiary of Vodacom Group, based in South Africa, who owns 65 % of shares while Vodacom Tanzania owns 35 % of shares. Vodacom Tanzania has roaming agreements with many network operators in the world a few being T-Mobile USA, Vodafone Limited in the UK and BPL Cellular (now Vodafone in Kerala, India).

Airtel Tanzania is part of Celtel international, the Pan - African mobile network and the largest mobile service provider in Africa outside South Africa. Zantel is a joint venture between Emirates Telecommunications Corporations (Etisalat) with 65 % of shares. The government of Zanzibar owns 18 % of shares and Meeco International of Zanzibar owns 17 % of shares. Etisalat group is the largest operator, the 2nd most valued brand and 3rd largest corporate in the Middle East.

Etisalat operates in 16 countries across Middle East, Africa and Asia with 53,000 employees worldwide. The above three companies have vast experience in operations of telecommunications, infrastructure, accumulated leadership position of innovations and quality service delivery among regional and international operations.

3.3 Segmentation

The segmented market refers to some service providers who are based in Zanzibar and in Tanzania Mainland. Zantel is based in Zanzibar and Pemba but with a roaming agreement with Vodacom Tanzania ltd in the mainland. Tanzania has a total area equivalent to 945,087sq km inclusive of 2.654 sq. km total surface area of Zanzibar (Ungula and Pemba islands).

4 FACTORS FAVOURING GROWTH OF MOBILE PHONES IN TANZANIA

4.1 Creativity and Competition

One of the main factors favouring growth of mobile phone services market is technology development. The market responsive to technological changes is taking place worldwide. Technological development worldwide forced the operators to adopt new technology for better performance, efficiency and accepted global standards as per ETSI. Technological changes aimed at improving sending and receiving voiced data i.e. Capacity and speed.

TABLE 2. Vodacom

NET WORK	ESTABLISHED	OWNERSHIP	TECHNOLOGY	FIXXED LINE	PRODUCTS	COMPANY	DEVELOPMENTS
OPERATOR			DEPLOYED	CABLE		STRATEGY	
VODACOM	Founded 1999.	JOINT VENTURE btn- Vodacom Group –South Africa and Tanzania n Shareholders.	GSM Communication Services. GSM 900/1800	NO	Wireless : 3G HSDPA data card.:3G HSDPA USB modem, Booster cards, vouchers,Voda shops, Corporate talk.Voda faster, Voda choices.	Basic voice services: data transfers. Wi-Max technology for 3.5GHz capacity targeted data transfer for corporate sector-major cities	-Year 2001 Vodacom Tanzania became the largest mobile operator in the country. The 3G (HSDPA) gives the major competitive advantage to customers.
TANZANIA LTD	Started commercial operations,15 th august,2000.3 rd operator to be licensed after Tigo &Tritel	Share structure :Vodacom Group 65%: Tanzanians 35%	-Early 2007 switched on 3G(HSDPA) – high speed down link packet access. –Plans WiMAX technology		The Company distributes its products and services through a number of super dealers and Voda Shops.	The company has active roaming agreements with many network operators in the world, I.T-Mobile USA, Inc. in USA, Vodafone ltd – UK, BPL Cellular in Kerala, India.	-As of May 2010, Vodacom Tanzania had 8mill.customers.and became the largest telecommunication network in Tanzania. As of June, 2012, Vodacom had 12,312,029 mobile subscribers, than any other telecommunication company in Tanzania.

TABLE 5. Zantel

NETWORK	ESTABLISHED	OWNERSHIP	TECHNOLOGY	FIXED LINE	PRODUCTS	COMPANY	DEVELOPMENTS
OPERATOR			DEPLOYED	CABLES		STRATEGY	
ZAN-TEL TANZANIA	Established in Zanzibar 1990	Joint Venture b/n Govt of Zanzibar 18% shares, Meeco International of Tz 17%: ETISALAT Group 65%. (Emirates Telecommunications)	GSM 900/1800	YES	The only integrated Telecommunication service provider in Tz, offering international Gateway services, Fixed, Mobile and data services, thro' CDMA, GSM, 3G network. -3G HSPA+ network enabled Zanzibar to enjoy super-fast broadband services for both personal and business needs.	Voice: Access to international Gateway.	On May 5 th , 2012, launched its 3G HSPA+ network in Zanzibar. Zantel is the only operator in Tz to offer two technologies for wireless broadband services (HSPA and CDMA)
(Zanzibar Telecom Limited)	-May 5 th , 2005 started in Mainland TZ	Roaming Agreement with Vodacom Tanzania on mainland.	After May 5 th , 2005 3G HSPA network.		-3 types of Modem used a) USB stick b) MiFi c) Wi-Fi. They provide instant connectivity to the internet.		
	Coverage- D, Salaam, Zanzibar, Pemba				By 2012 Zantel was the fastest growing mobile operator. Known for Best Fastest wireless internet service provider in Tanzania.		As of June 12, 2012, Zan-Tel Tz had 2,357,000 subscribers as per TCRA report of Dec 12, 2012.

The schedules above show all technological changes made by individual service operators. They also show corresponding products and services being put in the market by the different service providers. Changes of company ownership structures which took place during the period 1993-2012 i.e. Joint venture management system are also illustrated in the table above. The argument in favour of the private sector being advanced during the period 1993-2012 is that it proved to be efficient and dynamic as compared to public sector which is costly and slow.

Technological changes started with MIC Tanzania changing from Analogue to GSM 900/1800 in 2001 and then to 3G system in 2006 (GSM stands for Global System for Mobile communication which is Digital) or 3rd Generation. Vodacom Tanzania started with GSM 900/1800 technology with small capacity in August 2001 and then moved to 3G early in 2007 and started building communication antennas to enhance signal strength throughout the country.

Celtel (now known as Airtel) Tanzania similarly started with GSM technology GSM 900/800/400 and later changed to enhance GSM evolution through GPRS/EDGE. Celtel was the first telecommunication company to launch general packet radio service and enhanced data rates for GSM Evolution in Tanzania market on 3rd April 2006.

The GSM standard was developed as a replacement for first generation (1G) Analogue Cellular networks and originally described as digital.

GSM -It is a standard developed by European Telecommunications standards institute to:

- Describe protocols for second generation digital cellular networks used by mobile phones.
- Become a global standard for mobile communications with over 80 % of market share.

Zantel deployed GSM 900/1800 Technology and made roaming agreements with Vodacom Tanzania. In May 2012, Zantel launched 3 GHSPA network in Tanzania and also being a member of Etisalat group linked satellite services which uses CDMA technology. Zantel is the only operator in Tanzania to offer two technologies for wires broadband service(HSPA AND CDMA).Each of the two technologies has its own strength and weaknesses; thus by having these technologies Zantel offers the best technology to suit many needs. On the Mainland, TTCL alone deployed CDMA technology. The native TTCL network operates on CDMA 2001 ix technology with operating frequency of 800 MHz. A CDMA 2000 technology also qualifies as 3G.

CDMA (Code Division Multiple Access) is a channel access method used by various radio communications technology. The CDMA 2000 ix network was planned to be a long term strategic infrastructure development project, It was undertaken by HUAWEI technologies company limited contractor, engaged by TTCL as per contract of April 2003.The contract involved supply and fixing technology (CDMA 2000 networks for the company within the country with base stations controllers in Dar Es Salaam, Dodoma, Arusha, Moshi, Tanga and Zanzibar etc.

The first phase of the network was installed in D' salaam and commercially opened in Sept 2006.There was however no further development in respect to technology deployment due to lack of funds experienced by TTCL, following the business separation of celtel (Airtel) Tanzania from TTCL in August 2005.

During the privatization of TTCL, Celtel International was in partnership with Detecon of Germany. The two companies invested an initial \$ 65 million in TTCL in February 2001 for 35 % of shareholding. TTCL shareholding structure remained unchanged with the government of Tanzania holding 65 % of shares and Celtel Tanzania 35 % of shares. The separation of Celtel Tanzania from TTCL is responsible for TTCL's technological failure which explains why TTCL as a service provider is a poor performer.

Products and services offered along the above technological changes were mainly voice and later data transfers in various forms. Promotional campaigns through media and mobile phone handsets competitions targeted to create awareness of new products and services in the market and motivated for change and sales. Massive campaigns are always accompanied with sale of phone handsets, lines and registration of subscriber.

4.2 Additional factors

Other factors also favored the growth of mobile phones in Tanzania and some of these factors include:

I. Period of reforms

This period after 1985 in Tanzania is referred to as a period of policy reforms from centralized economy to market economy. This period involved a number of changes some of which included:

- Deliberate policy changes to promote the private sector participation in the economy were created.
- Major changes occurred i.e. economic liberalization where public companies were being privatized.
- Removal of foreign exchange controls.
- Introduction of financial sector reform programs i.e. banking.

All these changes aimed at creating a dynamic society responsive to market forces thus favoring the growth of mobile phones.

II. The responsive client market also favored the growth of mobile phones in the following ways:

- Individuals were eager to buy telephone handsets.
- Individuals were able to buy more than one telephone lines.

- Trade opportunities i.e. sale of handsets became a business without price controls.
- Fixed line telephone services became poor and inefficient and were also limited to urban areas thus increasing the market of mobile phones that were already spreading in the rural areas.
- Promotional campaigns offered employment opportunity increasing the popularity of the business.
- Creative and innovative service providers from world class society market offered competitive products and services to meet customer needs.
- Service providers introduced technology to suit market requirements.

III. Capital

- Availability of financial capital to finance companies i.e. the service provider that has the highest market share in terms of subscribers was subsidized.
- Availability of financial capital to finance communication infrastructure corresponded with the highest number of subscribers.
- There is evidence to show that companies with sound financial capital i.e. ability to erect communication towers countrywide i.e. Vodacom Tanzania recorded the highest number of subscribers.

IV. Political instability: stability, since independence 1961 convinced investors to choose Tanzania as an investment destination compared to other countries with unstable political atmosphere.

V. Negotiation skills-there were a roaming agreements made with a number of East African carriers that facilitated the growth of mobile phones.

VI. Fair terms regulations: The Tanzania Communication Regulatory Authority (TCRA) regulations were accepted because they were according to international standards. TCRA was established by the law of Tanzania Act No 12 of 2003 to regulate and control communications and broadcasting sectors in Tanzania as well as protect the interests of both the customers and service providers in the mobile phone market.

All the above efforts resulted in building the clientele base, which shows phone users in Tanzania as per TCRA report of 12.DEC.2012 for mobile and wired networks distributed to individual service providers (TCRA report 2008, ISO 9001).

5 THE ROLE OF TANZANIA COMMUNICATION REGULATORY AUTHORITY (TCRA)

In respect to mobile phone services business and challenges, Regulation of telephone services in Tanzania is entrusted to TCRA-Tanzania Communication Regulatory Authority. TCRA was established by the laws of Tanzania Act No12. Of 2003 to regulate and control communications and broadcasting sectors in Tanzania (TCRA report.2008, ISO 9001).

Policy guidelines require TCRA to enhance the welfare of Tanzanians through provision of effective and efficient regulatory services that ensure universal access to communication services through quality management system in all processes of jurisdiction. They are to continuously improve and review quality objectives, regulate and communicate the policy within the operators.

As per the Act of Parliament No 12 of 2003 which established the Authority, the corporate duties include the following:

- Promoting effective competition and economic efficiency among the service providers. Competition often pushes the producers to perform beyond their expectations and provide better quality services to the customers.
- Protecting the interest of consumers and service providers.
- Protecting the financial viability of regulated services to all consumers including low income earners and disadvantaged consumers.
- Enhancing public knowledge, awareness and understanding of the regulated sectors including taking into account the need to protect and preserve the environment.

5.1 TCRA operations mechanism and methodology

To ensure TCRA fulfills the above four stated duties, the Authority employs the following:

A: Issues licenses of different categories to service providers such as:

Converged Licenses

The converged licenses are characterized in mainly four categories as below:

I. Network Facility(NF)

A licensee under NF is authorized to mainly install, control and provide access to electronic communications facilities, like satellite station, fixed links, radio communications transmitters, submarine cable, fiber copper cable, towers, switches etc. to other licensed operators on commercial bases. These facilities are to be established mainly for the purpose of self-support (private usage) or sharing with other providers to provide Applications Services.

II. Network Services(NS)

Under this category, a licensee is allowed to operate and maintain public electronic communication networks with various technologies (like Code Division Multiple Access(CDMA) and Global system for Mobile communications(GSM) that consist of intelligent network platform signaling control, traffic distribution switching translation and quality of services control. Examples of such network services include mobile service, fixed lines services, and broadcasting distribution services.

III. Application Services(AS)

In this particular category, a licensee is responsible for the provision of electronic communications services to end users. Access to these services can be obtained through establishment and operations of private facility and network or procurement and reselling of services from licensed facility and network service providers. Examples of these services include Internet services providers, virtual mobile provider, payphone services etc.

IV. Content Services(CS)

This particular category is quite similar to Application Service licensee with an exception that the licensee is responsible for provision of content services such as satellite broadcasting, subscription TV and other broadcasting services

B. Other Licenses implemented include:

Carrier Service License

This license is a must have for whoever owns a network unit that supplies carriage services such as internet. Such type of licenses are required to be in line with certain obligations usually stated by the Authority in this case, TCRA is responsible for enforcing certain obligations that a carrier licensee is bound to follow.

Regulations according to (TCRA report 2008, ISO 9001) are guidelines issued by TCRA to service providers to guide operations etc. The following are a few regulations issued:

Telecommunication Traffic monitoring system regulation 2013

This mainly involves the observation and keeping records of telecommunication signaling for the use of facilitating regulatory activities.

Quality Service regulations 2011

These regulations were implemented to create fair conditions and environment for customer satisfaction by informing the service providers of the quality of the service they are required to provide to the expectation of the customers.

Digital and other Broadcasting Networks Regulations 2011

These regulations are meant to determine standards for broadcasting networks plan and assign frequencies in line with the market segment and service area.

Competition Regulation 2011(Electronic and postal communications)

The competition regulation was formed to ensure and supervise fair competition in the communication sector that is all communication service providers were to follow the

competition rules and stern measure were taken for those that did not comply with the rules.

Tariffs Regulations 2011

The formation of tariffs under this regulation was to enable a licensees to maintain their financial stability as well as increase capital, the tariffs are to create more capital for the licensees and promote fair competition in the supply and demand for communication services.

Mobile number portability regulation 2011

This tariff is responsible for the management of all porting procedures between operators, verification of all completed requests, tracking request status and history system which consists of porting all mobile numbers.

Consumer's protection regulation 2022

This covers the quality of licensed services offered, delivery of services to consumers by the service providers. It mainly aims at protecting the interests of the consumers and in this license, a means of agreement known as the **contract of services** is usually signed by both parties i.e. the customer and the licensee.

TCRA however faces challenges to date due to use of sophisticated technological equipment by service providers, increase of phone users and products in the market. TCRA undertakes research in areas of science technology in collaboration with COS-TECH (Commission for Science and Technology) in matters of telecommunication to research problem areas for solutions.

The government through Ministry of Science and Technology is advised to solve communication bottlenecks through provision of finance, human resources and legal forms, technology etc. In this aspect, the government has announced to take the following measures to support TCRA's efforts through budget support for 2014 to solve challenges in the areas.

The government also promised to promote communication in remote areas by building communication towers, the government promised that all remote areas especially those near the country's borders which lack communication services by network towers for security purposes.

These are areas where service providers (Companies regard as not viable for investment in mobile telecommunication).

- Open 24hrs customer service center at TCRA to attend consumer complaints and provide solutions.
- Introduce Anti-fraud system that is machinery to check telephone fraud.
- Introduce central equipment Identification system which is machinery that identifies the type of handsets and illegal connections.
- Introduce move your money transaction System (machinery to trace money transferred fraudulently to other areas).
- Introduce mobile number portable facility machinery to facilitate customer change from service providers to others without changing caller's number.

Mobile money transactions systems enable TCRA to trace all money transacted by all operators. Regulations on line contents enable TCRA to control dirty literature on line.

5.2 TCRA support services

TCRA works in collaboration with other institutions like Tanzania Bureau of Standards (TBS) in matters of standardized services. It also works with Fair Competition Commission in resolving disputes arising out of competition by operators. TCRA is also guided by fair competition Act of Tanzania and as a regulator is empowered to enforce rules of fair competition relating to prohibiting;

- Anti-competitive agreements, arrangement for decisions of concerted practices.
- Abuse of dominant positions.
- Anti-competitive mergers, acquisitions and consolidations.

In other words, TCRA has the power to review agreements, intervene etc.

5.3 TCRA ISO standard certificate

In recognition of good standard services, recently TCRA has been awarded the certificate for good services by ISO (International Organization for Standardization). ISO is an independent governmental organization made up of members from the national standard bodies of about 162 countries around the world and the central secretariat of this organization is based in Geneva.

For matter of standards TCRA works with Tanzania Bureau of Standards (TBS). ISO international standards are safe, reliable and of good quality and the ISO certificate is a test of accepted services of Tanzania Communication Regulatory Authority (TCRA).

6 CHANGES AFTER PRIVATIZATION

TTCL allowed joint venture ownership management in February 23, 2001. Celtel international bought 35 % of shares of TTCL. The above being preference for the public private partnership engagement system, the government does not have direct involvement in operations of service providers except through regulations and policy through Ministry of Telecommunication and Regulatory body.

Budget support to facilitate research and capital investment through machinery equipment, construction of communication towers in remote areas through Ministry of Communication. There was also establishment of the National ICT infrastructure backbone, usage of ICT for equitable and sustainable socio-economic and cultural development of Tanzania project managed by TTCL.

7 CASE COMPANY: TTCL

7.1 Introduction of the case company

TTCL provides both voice and data transfer services, to over 300,000 business and customers in Tanzania. TTCL's aim is to remain the leading Fixed Network Operator in Tanzania. In order to achieve this aim, focus has been placed on satisfying its customers by providing high quality and affordable services to its customers. They plan on doing this by providing communication service to its customers, through continuous technical and customer care improvements with qualified and motivated employees and contribute to the national income and development (TTCL website).

Following its privatization, the company's structure was reviewed to allow TTCL to be more responsive to the telecommunications business and competitive environment in which it now operates (TTCL website).

The Board of Directors provides policy and general guidelines on the company's activities are provided. The present structure of TTCL consists of three Chiefs under the CEO. These are Chief Marketing and Sales Officer, Chief Financial Officer and Chief Technical Officer. Below chiefs level are 12 Heads of Departments and five Heads of Business Units located in five zones in Tanzania. All chiefs and four Heads plus the Public Relations Manager report directly to the CEO while the remaining Heads report directly to the three Chiefs as shown on the below organization structure and biographies (TTCL website).

TTCL is the owner and operator of public switched telephone networks in Mainland Tanzania and in Zanzibar licensed for mainly fixed basic telephone services in Tanzania mainland and Zanzibar governed by the Tanzania telecommunications Act of 1993. TTCL being the only telephone operator in Tanzania enjoyed the benefits of being the only service operator i.e. monopoly benefits until 1994, when other mobile operators emerged (TTCL website).

The company provides a variety of services but mainly:

- Leased lines to cellular and ISPs
- Private leased lines
- Internet services
- Customer premise equipment
- IP Virtual Private Network (IPVPN)
- TTCL Broadband

The company's number one goal is to remain the leading fixed network operator and, In order for them to succeed in maintaining that position, TTCL has decided to solely focus on satisfying the customers' needs as they play an important role in the market. With an aim of satisfying their customers, TTCL focuses to provide high quality and affordable services to the customers.

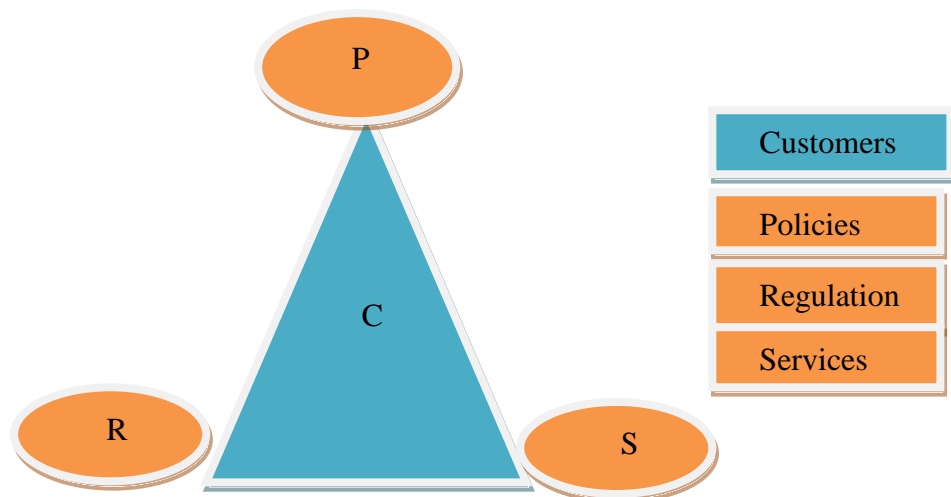


FIGURE 6. Communication sector

The above figure illustrates the communication sector implemented by TTCL in order to achieve the above mentioned goal. All the three pillars i.e. are focused on the customer who is the main pillar of the three. TTCL who is regulated by TCRA implemented policies that protect the interest of the consumers has also contributed to their satisfaction. TTCL also aims at providing high quality affordable services to all the consumers irrespective of the status i.e. all income earners are in position to purchase the service.

7.2 Strategic position of TTCL as a mobile and communication solution provider

TTCL provides both voice and data transfer services, to over 300,000 business and residential customers in Tanzania. TTCL's aim is to remain the leading Fixed Network Operator in Tanzania. In order to achieve this aim, focus has been placed on satisfying its customers by providing high quality and affordable services to its customers. They plan on doing this by providing communication service to its customers, through continuous technical and customer care improvements with qualified and motivated employees and contribute to the national income and development (TTCL website).

As far as TTCL is concerned, it mainly operates on two areas as a:

- I. Mobile service provider, where it is currently doing poor.
- II. Strategic communication solution provider.

7.2.1 TTCL as a mobile service provider

TTCL Company formerly known as Tanzania Posts and Telecommunications Corporation in 1993 was wholly owned by the Government of Tanzania until the partial privatization of the company on February 23, 2001. The company being the largest fixed line is a licensee for fixed basic telephone services in Tanzania mainland and Zanzibar and hence it owns and operates the public switched telephone network in mainland Tanzania and on Zanzibar.

The company has been not doing well in this sector due to its financial instability. For example in 2001, Zain, at that time Dutch MSI, which has its headquarters in Amsterdam, Netherlands and Detecon took over the Board and Management control of TTCL, Due to this partial privatization, the government of Tanzania sold 35 % of its shares to the strategic investors leading to a financial breakdown that negatively affected the company's welfare.

In 2005, TTCL pulled out from joint management with the consortium which was followed again in February 2007 where the company fell in the management of the Canadian firm SaskTel due to the same reason. In the present situation, TTCL is doing very poor in the mobile service despite its infrastructural base. This also brings back my

main purpose of the research which many have been wondering why TTCL is not all that popular like the other mobile services which practically came after TTCL.

7.2.2 TTCL as a strategic communication solutions provider

TTCL is regarded as a strategic communication solution because it is the only accepted and recognized agent of the United Republic of Tanzania of the National **ICT Broadband Backbone infrastructure**. No communication can be made effectively by any other communication company in Tanzania without using the National Broadband facilities which are managed and controlled by TTCL. TTCL is entrusted to manage ICT infrastructure backbone on behalf of the government to ensure Tanzania achieves its vision of making the country a hub of ICT infrastructure and ICT solutions therefore transforming Tanzania into knowledge based society.

ICT infrastructure is a fiber communication infrastructure unique in the sense that:

- It transfers different types of communication i.e. internet, photographs, video and voice.
- It has high speed transfer of above products to reach long distance at once.
- It uses fiber communication instead of wire, thus increasing the capacity to transfer communication on light very long distance.
- Fiber communication is best of all communication devices because it doesn't interfere with any other communication system, e.g. radio waves.
- Ring network architecture to ensure reliability of network i.e. restore when cut.

7.3 Benefits of the National Broadband

According to the (National ICT Broadband Backbone (NICTBB) website) The NICTBB has benefits that have contributed to the national and income development of Tanzania especially in the communication sector and some of these benefits include:

- Increases the usage of ICT for equitable and sustainable socio economic and cultural development of the country.
- It makes ICT related services particularly internet affordable and readily available to common Tanzanians.
- It creates a knowledge based society that facilitates the implementation of e - government, e- health, e- commercial and education initiative.

- It provides high quality communication services.

7.4 TTCL's challenges

Ownership being one of the main reasons why TTCL is doing poor in the mobile sector in the present situation, TTCL's main challenge is therefore; To get rid of dormant non performing shareholders Airtel Tanzania (formerly known as Celtel Tanzania) who holds 35 % of shares of TTCL's mobile business.

From the records, on 23 February 2001, the government of Tanzania sold shares of TTCL to Celtel and Detecon of Germany. They paid US dollars 60 million to TTCL and the consortium took over the Board and management of TTCL. On August 5. 2005, the government of Tanzania and Celtel signed an agreement whereby shareholders agreed to restructure the two companies and thereafter TTCL and Celtel became legally financially and operationally separated companies. Despite the above separation, the share structure (ownership) of TTCL remained unchanged.

7.5 Constraints

The operational constraints arising out of the above ownership structure are:

1. The two companies TTCL and Airtel are competitors in the market. Airtel Tanzania started, with a license as a mobile service operator zonal license within coastal area, Dar Es Salaam and Zanzibar, changed its zonal license to international in 1998. Currently; Airtel Tanzania dominates 27 % of market share of the business in the country.
2. Financial instability: TTCL cannot mobilize funds to finance capital investment, due to ownership structure. Following TTCL's separation with strategic partners Airtel International in August 2005, TTCL failed to implement the mobile project launched on April 2003 due to lack of funds.

7.6 Reasons for poor performance of TTCL in the mobile sector

7.6.1 Technology used by TTCL

Tanzania Telecommunications Company Ltd (TTCL) operates on CDMA. According to TTCL's Communications Manager Issa Sementawa, Introduction of the CDMA technology will help expand his firm's customer base. He added on to say that new technology will bring about better quality services. The projects in the use of CDMA have been a success in Tanzania in mainly Dar es Salaam, Arusha, Mwanza and Zanzibar. (Telecoms, internet and broadcast in Africa website).

CDMA according (Telecoms, internet and broadcast in Tanzania website) would be used in the fixed line, data and Internet services.

TABLE 7. Technology deployed by the various mobile service providers.

Mobile service providers	Technology deployed
TTCL	CDMA 2000(3G)
Vodacom	GSM 900/1800
Airtel	GSM 900/1800
Tigo	GSM 900/1800

The above table shows the network deployed by TTCL and its major competitor. Based on my findings through the consumer survey carried out in Tanzania, It was discovered that many Tanzanians have not accepted the network deployed by TTCL because it is fixed and not suitable for most of the customers. Most of Tanzania handset holders prefer to use more than one sim card and network but with TTCL sim cards this is not possible i.e. you can only use the sim card with TTCL mobile handset only, unlike GSM network which is deployed by the other mobile service providers. This has hindered TTCL mobile service because most customers do not own TTCL phones and hence they see no need to buy the TTCL sim card as TTCL mobile line (RUIM card also called sim card) do not work in GSM phones. The other service providers use GSM technology and their sim cards are changeable.

7.6.2 Ownership

The ownership structure of the mobile service department also contributed to its failure. TTCL as a company owned 65 % of shares and the government sold the remaining 35 % of shares to Airtel(A separate mobile company) and this negatively had an impact on TTCL because Airtel (Celtel) being a separate mobile service company became more of a competitor than a business partner to TTCL and therefore not willing to invest in the company. TTCL therefore lacked funds to facilitate the mobile services since it had no competitive impact in the market.

7.6.3 Poor financial base

There was no further development of this project due to lack of funds to facilitate technology deployment and the separation incapacitated TTCL'S overall development plans due lack of money and serious engagement plans. Because of this ownership structure, the shareholders being competitive of one another became so reluctant to invest in the business which at the end of the day lacked capital investment that led to its failure.

7.7 SWOT analysis of TTCL

The table below shows the evaluation of the strengths, weaknesses, opportunities and threats involved in the mobile business department of TTCL.

TABLE 8. SWOT analysis

STRENGTHS	WEAKNESSES
Communication is vital to all irrespective of age,sex,income group, education etc. so market is guaranteed i.e. all income earners are potential customers both individuals and corporate customers.	Promotional costs are inevitable
Business sponsors have wide experience of business and have market linkage i.e. ability to roaming agreements with international service providers.	Tariffs and structures are changing all the time hence service charges to creativity keep increasing.

Service providers are quite many so the customer has variety of options to choose from and from a preferred service provider.	
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7.8 SWOT analysis of TTCL and its competitors

The table below shows the evaluation of the strengths, weaknesses, opportunities and threats of TTCL and its competitors in the mobile business.

TABLE 9. SWOT analysis of TTCL and its various competitors

ELEMENT	TTCL	KEY COMPETITORS
Strengths	As an agent of the government in managing the National ICT broadband backbone, TTCL becomes a strategic solution provider.	They command more than 90 % of the mobile phone market due to choice of technology GSM phones.
	ICT transfers different types of communication such as internet, photographs, video, and voice to long distances.	Financial ability to finance their plans. There are subsidiaries of international companies with sound financial base
	The NICTBB offers whole sale high speed capacity transmission services.	
	NICTBB is connecting TTCL to any national operators licensed by the TCRA.	
	Operators outside Tanzania are connected through business partnership with national operators.	

	Corporate and individual customers in Tanzania are connected through the national licensed operators who offer small capacities as retail sale.	
Opportunities	<p>NICTBB competitive advantages are unique and these are;</p> <p>NICTBB has national wide coverage that has reached all regional headquarters.</p> <p>NICTBB has nine cross border points of presence for regional connectivity.</p> <p>Rwanda: Rusumo, Kenya: 3 border points; Sirari, Namanga and Horohoro. Burudi: 2 border points; Kabanga and Manyovu. Uganda: Mutukula.</p>	Opportunities of being connected to international companies i.e. economies of scale in terms of technology, human capital etc.
Weaknesses	Ownership structure.	Airtel Tanzania owns 35 % shares of TTCL. Principally TTCL and Airtel are competitors.
	Lack of financial capital	
	Poor services as a mobile service provider due to the technology used: CDMA.	
Threats	Government failure to solve ownership structure, TTCL will therefore not be able to solve the financial problem thus TTCL as a mobile service provider won't solve the problem.	

7.9 PESTEL analysis of TTCL

Pestel analysis in this case analyses the political, economic, legal, technological, environmental and social impact regarding TTCL as a company of Tanzania. (The marketing environment website.2014). Below are some evaluations of each sector:

Political factors

Regarding TTCL Case study, this factor has no sign of creating political instability.

Economic factors

These are economic opportunities associated with the benefits of the National ICT Broadband and these are:

- I. Increases the usage of ICT for equitable and sustainable social, economic and cultural development.NICTBB is the strategic vehicle of facilitating implementation of e-government,e-health,e-commerce and e-learning initiatives with the view of reducing poverty and accelerating social-economic development in the country and across the region.
- II. Economic challenge of TTCL-the government to get rid of dormant shareholders i.e. Airtel Tanzania, holder of 35% Shares of TTCL`s business who are a threat to the company.
- III. TTCL or the government to increase financial capital that will enable TTCL to finance the operations including financing TTCL mobile cellular network. Failure of the government to make a positive intervention as pointed above; TTCL will never compete as a mobile service provider.

Legal factors

The legal aspect is the ownership structure, which constraints the operations of TTCL as a company. Legally, TTCL and Airtel are not separated, until the shares of Airtel are resolved by the government.

Technological factors

The competitive advantages which TTCL competitors have in the market are technological advantages, which are possible on account of financial instability. Competitors have moved from analogue to digital. From 1st generation to 4th generation. Competitors have invested heavily in production and distribution of services.

Environmental factors

There are no immediate environmental hazards associated with this business that have been pronounced. i.e communication towers are built in residential and commercial areas. However cellphone users are warned to make use of handsets which are safe.

Social factors are not very much pronounced.

7.10 Development values of TTCL

The sub sector has the following economic values:

- It has contributed revenue to government through various taxes.
- Creation of employment to the citizens because TTCL has over 1000 employees.
- It has brought foreign exchange earnings to the country.
- It has increased access to information i.e. knowledge based society because it the only selected agent of NICTBB, public and private commercial for development matters.
- Use of internet as a powerful development tool.
- Cost effective way of sending and receiving information because it acts as the only agent of the National ICT Broadband which is responsible for effective, cheap and reliable communication throughout Tanzania

8 LESSONS FROM THE RESEARCH

Competitive environment must be institutionalized in the service delivery sector to:

- Promote sectoral competition.
- Abolish monopoly which is inefficient.

Regulated competition promotes efficiency in the service delivery sector of the mobile service. A competitive spirit along with a competitive environment forces employees are to work harder than usual so as to improve and provide better services to their customers. This type of dedication by the service providers also leads to increase in production. In this case, TTCL has lost its power in competition because of the various mentioned reasons above thus not satisfying their customers with their services leading to its failure.

Finding the appropriate technology facilitates innovation because technology provides businesses with new tools to improve efficiency and innovation and also in this case, even the network used could have an impact in the business. For example CDMA used by TTCL is not desired by many due to its limitations hence customers have resorted to GSM, a network used by the rest of the mobile service providers in Tanzania because of its flexibility. Creative thinking and target to find appropriate technology that will solve solution and increase productivity should be adopted by mobile service providers.

9 CONCLUSIONS AND RECOMMENDATIONS

The study shows that the sub sector is economically a potential business with 50 % of the population of Tanzania i.e. 29 million people out of the 45 million use mobile phones.

Due to this large market base, constraints and challenges facing the growth of the sector should be solved. For example, the TTCL challenge should be resolved to empower the strategic communication solution service provider to operate optimally both as a mobile phone service provider and a communication service provider.

The central bank should monitor closely the money transfer transaction to banks service providers to prevent and minimize fraud and promote credibility of the business. I would also recommend that TTCL should change their technology to GSM like the other mobile service providers as it's widely used and accepted by the mobile phone customers.

TTCL should also consider making use of their infrastructural base which is idle and under-utilized to market themselves and obtain more customers especially in rural areas where most mobile service providers have not been able to reach due to low infrastructural base.

The government should solve the ownership structure and regain the shares that it sold to Airtel. They should do so because Airtel is a dormant shareholder and a threat to TTCL's mobile service business due to the fact that they are more of a competitors than business partners.

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