

The Regulatory Design Problem Revisited: Tanzania's Pioneering Position in Africa

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Abstract

While inefficient regulatory regimes in many developing countries have been blamed for impeding ICT market development, a remarkable exception constitutes the East African country of Tanzania. Among its accomplishments stands the noteworthy implementation of a fully converged, technology and service neutral, licensing framework in 2005 as the first country in sub-Saharan Africa. While the full effects still remain to be seen, barriers to entry have already decreased and four new network operators have been licensed. This remarkable situation asks for greater insight into the underlying factors that drove these developments. To this extent, this paper analyzes: 1. how Tanzania's regulation has impacted Tanzania's market development; and 2. the organizational and contextual factors that have led to the Tanzania Communications Regulatory Authority's (TCRA) effective regulatory activities. Findings indicate that TCRA's strong focus on capacity building, for example through internal training and workshops, and participation in bilateral exchange programs, underlies regulatory governance. These achievements were due in part to TCRA's high level of independence through independent funding mechanisms and lack of capacity of the Ministry, which pressed the regulator to compensate for lack of policy.

1. Introduction

African regulators have been struggling to find ways to fully liberalize their information and communications technologies (ICT) sectors, so as to increase ICT connectivity. In many developing countries, and particularly in Africa, inefficient regulatory regimes have frequently been blamed for impeding ICT sector growth, as regulators are frequently being held back by governments that continue to have stakes in the communications sector.

The East African country of Tanzania constitutes a remarkable exception on the African continent. Even though it ranks only 162nd out of 177 on the UN Human Development Index¹, and has an average GDP per capita of only USD \$800², Tanzania has recently made great strides forward in its telecommunications and ICT deployment. Even though teledensity in Tanzania has been traditionally low even according to African standards, over the last few years Tanzania has seen its teledensity grow exponentially from a meager 0.4 in 1998 to over 17%³ in 2006, and even

¹ See <http://hdr.undp.org/hdr2006/pdfs/report/HDR06-complete.pdf> (p. 286)

² See CIA World Factbook <https://www.cia.gov/cia/publications/factbook/geos/tz.html>

³ 2006 shows a total of 6,398,070 mobile and fixed line telephony users (see <http://www.tcra.go.tz/Market%20info/statsTelecom.htm>), over a total population of 37.4 million (see <https://www.cia.gov/cia/publications/factbook/geos/tz.html>)

managing to nearly double it from the year 2005 to 2006. Further, regulators and operators throughout the Southern African region frequently refer to Tanzania as a pioneer on the sub-Saharan continent⁴, particularly because of its implementation of a fully converged, technology and service neutral licensing framework already in 2005. It is therefore no surprise that the Tanzanian Communications Regulatory Authority (TCRA) has been declared best African ICT regulator during the ICT Africa Investment Summit in 2006.

This remarkable situation asks for greater insight into the underlying factors that drove these developments, and to delineate lessons learnt that other developing countries and regions may take advantage of. Through market analysis and interviews with regulators, policy makers, and industry players in Tanzania, this paper analyzes: 1. how Tanzania's regulation has impacted Tanzania's market development; and 2. the organizational and contextual factors that have led to TCRA's effective regulatory activities. Furthermore, as many have referred to Tanzania's regulatory model as "worth emulation", this paper identifies potential means for international transfer of these regulatory best practices.

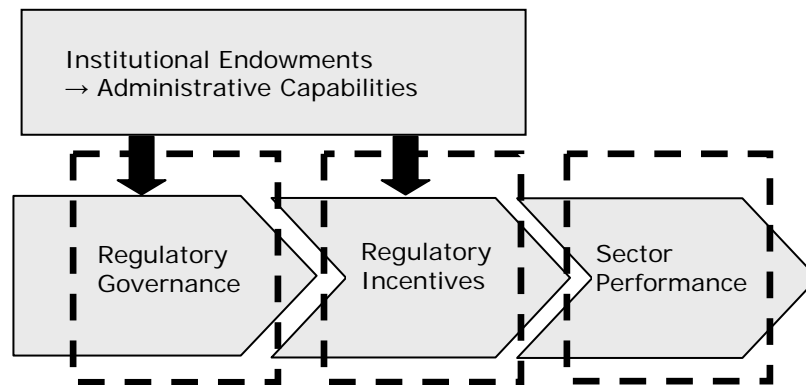
2. Institutional Endowment, Regulatory Governance & Regulatory Incentives

That regulation has an impact on market performance is widely known. However, the extent to which any type of regulation affects market performance remains topic of debate. This, at its core, constitutes the regulatory design problem. Traditionally, the regulatory design problem has been interpreted as the problem of finding an optimal rule (regulatory incentive) that, given some constraints, will provide for satisfactory sector performance and facilitate private investment. To this extent, a vast body of literature discusses the varying aspects of regulatory incentives and their effects. These regulatory incentives may include price setting, interconnection requirements, etc. Nevertheless, it has also been found that actually more than one set of regulatory incentives may generate satisfactory sector performance, which has been argued to depend on the regulatory governance mechanism in place (Levy & Spiller, 1994). To this extent, an increasing body of literature has devoted attention to this other component of regulatory design – i.e. regulatory governance (e.g. Bauer, 2005; Cherry & Wildman, 1999; e.g. Levy & Spiller, 1994). Regulatory governance refers to the "mechanisms that societies use to constraint regulatory discretion and to resolve conflicts that arise in relation to these constraints" (Levy & Spiller, 1994). This governance structure underlies regulatory incentives, as it defines regulatory commitment. Moreover, depending on a specific governance mechanism in place in a society, particular regulatory incentives will be appropriate while others are not, thereby explaining failures in transplanting 'successful' policies across nations (Levy & Spiller, 1994).

Digging a little further, it has been found that both regulatory governance and incentives are driven, or constrained, by a nation's 'institutional endowment', which is comprised of five elements: 1. a nation's legislative and executive institutions; 2. its judicial institutions, 3. the customs and informal and widely accepted norms that constrain action, 4. the character of contending social interests and the balance between them, including ideology, and 5. its administrative capabilities (Cherry & Wildman, 1999; Levy & Spiller, 1994). These five elements determine the choices open to regulators. Thus, while regulatory incentives directly affect sector performance, their impact is determined through the effectiveness of regulatory governance (Levy & Spiller, 1994). See also Figure 1.

⁴ This has been indicated in numerous interviews held in Botswana and South Africa from May – December 2006.

While research on institutional endowments has predominantly focused on the formal endowments such as legislative, executive, and judicial institutions (see e.g. (Cherry & Wildman, 1999)), the role of administrative capabilities has gained less attention. Capabilities of both the regulator and the ministry responsible for communications influence regulatory governance, but nevertheless, this has received little attention to date. A few exemptions focusing on capacity building within regulators include Goulden (2005a, 2005b) and Schware (2003). This is particularly remarkable, as in developing countries capacity building in any kind of sector is known to be one of the key challenges to development. To this extent, in this study, we analyze how in Tanzania administrative capabilities have influenced regulatory governance and regulatory incentives, and in turn how this has impacted Tanzania's sector performance.



(Source: Levy & Spiller (1994))

Figure 1: Theoretical Basis - The Regulatory Design Problem

As Tanzania's introduction of its Converged Licensing Framework in 2005 constitutes part of its the communications sector liberalization strategy, in the next sector we will provide a background of Tanzania's telecommunications market growth, as well as the major liberalizations strategies and regulations pursued throughout the years. Section 4 then continues with a discussion of Tanzania's administrative capabilities. We finish the paper with a discussion and conclusions.

3. Tanzania's Market Liberalization Strategy and Market Development

The United Republic of Tanzania was born in 1964 shortly after then Tanganyika gained independence from Britain and merged with the also newly independent nation of Zanzibar. Zanzibar, an island nation just off the coast of Tanzania, still has a semi-autonomous status. Located in East Africa, bordering the Indian Ocean on the east, Kenya and Uganda on the north, Rwanda, Burundi and the Democratic Republic of Congo (DRC) on the west, and Zambia and Mozambique on the south (see Figure 2), the country of Tanzania with its population of over 39 million has a history of colonial rule and extreme poverty. After Tanzania's independence in 1964, the charismatic President Julius Nyerere introduced socialist principles to the predominantly agricultural economy. Mismanagement however led to a harsh economic downturn with severe consequences for the Tanzanian people. After President Nyerere's resignation in 1985, the new President slowly introduced capitalist principles. Macro-economic reform programs were established that slowly started to strengthen Tanzania's economy (Marandu, 2004).

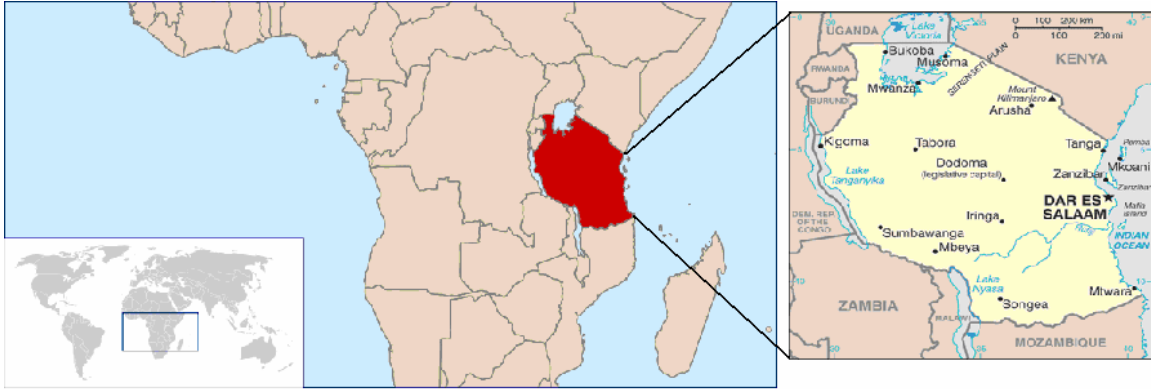


Figure 2: Location of Tanzania in East Africa

3.1. The Early Telecommunications Market: From PTT to Commercial Operator and Autonomous Regulator

Historically, Tanzania's telecommunications development is strongly tied to its membership of the East African Community. Tanzania's history of cooperation in the East African Community with Uganda and Kenya dates back to 1927, when Tanzania joined the Customs Union between Kenya and Uganda. Increased cooperation led to the establishment of the East African High Commission from 1948-1961, followed by the foundation of the East African Common Services Organisation (1961-1967), and finally the foundation of the East African Community (EAC) in 1967. In 1977 East African cooperation came to a halt, due to diverging political trends in the three member countries (socialism in Tanzania, capitalism in Kenya, and a dictatorship in Uganda). As a consequence of the ending of the EAC, each of the three East African countries had to establish nation wide industries that were formerly provided at the Community level. The telecommunications industry is one of these industries.

Tanzania's oldest fixed line telecommunications service provider is TTCL, the Tanzania Telecommunications Company Ltd, and comes forth from an East African telecommunications provider. The East African Posts and Telegraph Company in 1933 incorporated the Tanganyikan, Kenyan, and Ugandan PTTs (Postal, Telegraph and Telephone providers). Then, in 1951, the East African Posts and Telecommunication Act enabled the establishment of the East African Posts and Telecommunications Administration. When in 1967 the East African Community (EAC) was established, which replaced the East African Common Service Organization, the East African Post and Telecommunications Corporation (EAP&TC) was established, which in turn replaced the East African Posts and Telecommunications Administration. From then on, the organization was based on commercial premises. Nevertheless, in 1977 the EAC broke up and all three former EAC member countries had to again establish their own national PTT businesses. In 1978 in Tanzania a parastatal was established under the name Tanzania Posts and Telecommunications Corporation (TPTC).

In 1993 Tanzania started its telecommunications sector liberalization process. To this extent, the TPTC was split into three separate entities, namely the Tanzania Posts Corporation, the Tanzania Telecommunications Company Limited (TTCL), and the Tanzania Communication Commission (TCC). Thus, a regulator was established (TCC) and two operators, one responsible for postal, the other responsible for telecommunications services (TTCL). The establishment of TCC was based on The Communications Act of 1993, and the establishment of TTCL was based on a

Parliamentary Act, “The Tanzania Telecommunication Company Incorporation Act of 1993”⁵. TTCL officially started operations on January 1, 1994.

Tanzania’s establishment of a regulator in 1993 was for Africa, and even worldwide, an early endeavor at regulating the telecommunications market, and separating operation, policy making, and regulation. A former Director General of TCC mentions that TCC was actually among the first 30 regulators in the world. TCC focused purely on telecommunications regulation. Broadcasting was not yet included. However, a new Act in 2003 led to TCC’s merger into the newly established TCRA, the Tanzania Communication Regulatory Authority, together with the broadcasting and postal regulator. The establishment of TCC happened at a time of economic restructuring when reform programs were introduced across many sectors in the Tanzanian economy. It was felt that restructuring of the telecommunications market was needed as well, and hence the minister called for the establishment of a regulator.

3.2. The Upcoming of Mobile Telephony

After the establishment of TTCL – whose rollout stagnated and was facing escalating maintenance costs of its network that dates back to the 1960s - competition was slowly introduced in the market by the entry of mobile operators. Shortly before TTCL was operational TCC introduced a licensing framework for mobile operators. The country was divided into four zones, where each zone could be licensed to two mobile operators (Moshiro, 2005). To this extent, as of 1994, the first operator to start business on the mainland were Mobitel (which at the time was partially state owned, and is currently known as MIC Tanzania-Tigo), and was shortly followed by and TriTel. Meanwhile, in Zanzibar ZanTel entered the market (Moshiro, 2005).⁶

However, as the numbers of subscribers remained low (i.e. a total of 37,940 in 1998), and operators concentrated on a few zones only (i.e. the coastal area near former Capital city Dar es Salaam and Zanzibar), TCC decided to change its zonal licenses into national licenses in 1998 (Moshiro, 2005). Thereafter, in September of 2000 MIC Vodacom Tanzania started operating, followed by CelTel Tanzania’s market entry in November 2001. CelTel International has shares not only in CelTel Tanzania but also in the incumbent TTCL. As a result, since 2000 the number of telephony users has grown exponentially. See also figure 3.

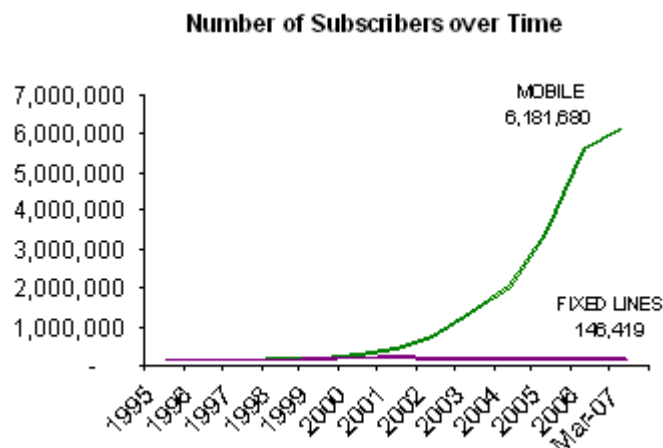


Figure 3: Number of Fixed and Mobile Users over Time

⁵ See http://www.ttcl.co.tz/about_history.asp Last accessed August 6, 2007

⁶ See also http://www.uneca.org/aisi/NICI/country_profiles/tanzania/tanzinfra.htm Last accessed August 15, 2007.

Source: TCRA website - <http://www.tcra.go.tz/publications/telecom.html> . Retrieved August 6, 2007

Meanwhile, Internet Service Providers (ISPs) also entered the market. While often as independent ISPs, TTCL as the only network provider also entered this market. However, TTCL, much to its dislike, was only allowed to provide Internet access services through subsidiaries, as license restrictions prohibited provision of value added services.

3.3. Market Liberalization Strategy: 2001-Present

While the market entry of mobile operators significantly enhanced ICT connectivity in Tanzania, and that of ISPs as well but perhaps to a lesser extent, other measures for further liberalization of the market were introduced to further stimulate market entry and a greater diversity of service offerings. To this extent, an end was called to the licensing structure that separated licenses for basic services versus value added service offerings, and between fixed, mobile and wireless access provision.

One of the first steps towards full liberalization of the market was the partial privatization of TTCL on February 23, 2001. CelTel International, at that time MSI, which has its headquarters in Amsterdam the Netherlands, together with Detecon from Germany, obtained 35% shares from the Government of Tanzania. The consortium took over Board and Management control of TTCL, and thus made it essentially an autonomous company. Other shareholders are: local financial institutions 14%; international financial institutions, 10%; and TTCL employees, 5%. The government kept 36% of the shares⁷. However, due to problems in understanding the management control, also with regard to TTCL's subsidiaries, new negotiations started. The management control has gone back to government meanwhile. While official numbers are not available, managers from CelTel and TTCL indicate that currently CelTel has 60% of the shares, while the government has 40%.

Along with the privatization of TTCL it was decided that TTCL was to have a four year period of exclusivity for providing fixed line telephony services, from 2001-2005. After the ending of this exclusivity period other service providers would become allowed to start providing fixed line services as well. To this extent, in February 2005 the market became fully liberalized. A range of new regulations was introduced, of which a new fully converged, technology and service neutral licensing framework was the most famous one, that arguably provided another boost to Tanzania's ICT growth.

In further pursuance of the National Telecommunications Policy (1997), and the National ICT Policy (2003), the regulations were introduced in 2005 pertaining the following:

- Broadband Services
- Consumer Protection
- Content
- Licensing
- Importation and Distribution
- Installations and Maintenance
- Interconnection
- Numbering and Electronic Address
- Postal
- Radio Communications and Frequency Spectrum
- Tariffs
- Type Approval of Electronic Communications Equipments

⁷ See http://www.ttcl.co.tz/about_history.asp Last accessed August 6, 2007

- Access and Facilities

The new licensing framework entails a horizontal approach to licensing in that it is technology and service neutral, and allows any license holder to provide any service via any technology. Currently only four major licensing types for telecommunications service provision are available, which stands in sharp contrast with the old licensing framework that had seven categories, namely: 1. basic telephone operators, 2. mobile operators, 3. public data operators, 4. internet service providers, 5. private dedicated data communications, 6. broadcasting stations, and 7. postal and courier operators. This old licensing framework for example prohibited a fixed line provider to provide mobile telephony and vice versa, and lengthy application procedures would have to be endured to get such licenses. The new licensing framework takes away this burden.

The converged licenses currently available are:

- Network Facility License: “Network facilities” means any element, or combination of elements, of physical infrastructure used principally for, or in connection with, the provision of one or more network services, but not including customer premise equipment”. A “network facilities license” means an electronic communications license entitling the holder to construct, maintain, own and make available one or more network facilities”
- Network Service: “network service license” means an electronic communications license entitling the holder to provide one or more network services”. In turn, “network service” means a service for the carrying of information in the form of speech or other sound, data, text or images, by means of guided or unguided electromagnetic energy but does not include services provided solely on the customer side of the network boundary”
- Application Service License: the holder of an applications service licenses. “applications service” means a service provided by means of one or more network services but does not include such a service provided solely on the customer side of the network boundary”.
- Content Applications Service License: An “electronic communications license entitling the holder to provide one or more content applications services”. “content applications service” means an applications service which also supplies content”.

(TheCommunications(Licensing)Regulations, 2005)

Other licenses available, for more specific services, are: Public postal license, courier service license, frequency user license, installation and maintenance license, importation and distribution license, type approval, and number resources⁸. This means for typical telecommunications services provision one or more of the four above stated general license categories is needed, in addition to, in the case of wireless services provision, a frequency user license. All major traditional operators (i.e. TTCL, Vodacom Tanzania, CelTel Tanzania, ZanTel and MIC Tanzania-Tigo) have a network facility license, network service license, and application service license, in some instances complemented with a content services license. Further, since all provide wireless services nowadays, they have frequency user licenses.

The fully converged licensing scheme is neutral with respect to both technology and service, and provides evidence of a very progressive, pro-competition approach to regulation. Further evidence for example can be found in the Access and Facilities Regulation, which constitutes very open approach to third party access to facilities. Any owner of network facilities is enabled to resell use to third parties, be it in a non-discriminatory manner. It has to be noted that a significant number of countries (including South Africa until very recently) restricted third parties

⁸ See http://www.tcra.go.tz/licensing/license_categories.php Last accessed August 11, 2007.

to only use facilities provided by the incumbent telecom operator, which needless to say leads to unfair competition in favor of the incumbent telecom operator. To this extent, the Access and Facilities Regulation for example states: “A facilities provider shall treat each: a) Facilities Acquirer on a basis that is non-discriminatory in its provision of facilities and no less favorable than the treatment which the Facilities Provider affords to its subsidiaries, its affiliates, or other similarly situated telecommunication service providers [...]” (TheCommunications(AccessAndFacilities)Regulations, 2005).

The introduction of this new converged licensing framework has, even though it has been implemented recently, already led to significant changes in the market. As indicated by a manager at TTCL: “The market is being redefined now”. The next section will provide more insights in the recent redefining of the market.

3.4. Recent Market Developments

The new licensing framework has had two types of effects. First, it has led to an increased variety of implemented (wireless) technologies, and second, it has led to new market entry.

3.4.1. Expansion of the Wireless Access Technology Base

During 2006 most service providers obtained their new licenses. As of then, a significant expansion of the deployment of (wireless) access technologies took place. For example, TTCL received its new license on December 30, 2006, and as of then could compete with any type of technology or service. To that extent, it started offering mobile services at a. Furthermore, at the time that ZanTel was established it was only granted a license for mobile telephony provision in Zanzibar. After TTCL’s exclusivity period ended and the licensing framework was changed, Zantel could also go to the mainland. In addition, Zantel received a license for operating the international gateway, which before used to be a monopoly by TTCL.

As Table 1 shows, the major service providers in Tanzania now provide a great variety of services. Furthermore, all of the service providers focus on the wireless market as of now. Even though TTCL has faced problems with fixed line rollout, and has only recently been allowed to start offering mobile and wireless services, which has led to a market share of only 3% currently, TTCL staff indicate that they perceive the Tanzanian market as wide open, and do not see a major problem with competition.

While traditionally mobile operators in Tanzania opted for GSM technology, new mobile service provision has extended to include CDMA as well (due to scarcity of GSM frequency bands). Furthermore, mobile networks are being upgraded to include third generation mobile (both UMTS and CDMA), as well as WiMax rollout, which is globally still in its infancy. Table 1 provides an overview of the various access technologies deployed by Tanzania’s major service providers, namely Vodacom Tanzania, CelTel Tanzania, ZanTel, MIC Tanzania-Tigo, and TTCL. Tanzania’s sixth network operator, Six Telecom, currently has an international and national network facility license, an international and national network service license, and a purely international applications services license. It has been incorporated in December 2004, as the first communications company fully owned by Tanzanians⁹. Six Telecom acts predominantly as a carrier of carriers, and provides international voice transport, signaling services, as well as value added services to GSM providers and international telecommunications carriers. Given its business focus, it is not included in the table.

⁹ See http://africa.rights.apc.org/index.shtml?apc=21870ne_1&x=3567527 Last accessed August 13, 2007.

Name Service Provider	Fixed line service	Mobile/Wireless Local Loop	Plans for Wimax?	Other strategies
TTCL	Incumbent (copper; leased lines); basic POTS; ADSL; SDSL	Mobile & Fixed Wireless: CDMA (3G) Coverage area: first major cities, plan to cover the whole country	Yes	Major strategy: voice access and backbone provision. National and international calling; Internet access, International gateway license; video on demand in the future?
CelTel Tanzania	No	GSM 900/1800/400; GPRS, EDGE	Not indicated	Mainly voice; carrier of carriers
MIC Tanzania-Tigo	No	GSM 900/1800, plans for 3G	Yes, currently doing groundwork – no frequency application yet	Mainly voice
Vodacom Tanzania	No	GSM 900/1800, plans for 3G rollout by 2007 (frequency allocated)	Yes – spectrum guaranteed by regulator for 3.5GHz. Targeting data transfer for corporate sector - major cities	Basic voice services; data transfer
ZanTel	No	GSM 900/1800 – planning for 3G CDMA – Dar Es Salaam, Zanzibar, Pemba National roaming agreement with Vodacom on the mainland	Yes	Voice; access to the international gateway

Table 1: Service Strategies and Technology Use by Major Service Providers

The extent to which Tanzania's population is covered remains unclear. While for example TTCL has 100% regional and district coverage in terms of Points of Presence, this does not indicate how deep they go from there to different villages. Managers at mobile operators indicate signal coverage ranging around 75 and 80% for CelTel and MIC Tanzania-Tigo. ZanTel has its own network in Zanzibar, and has made an agreement with Vodacom Tanzania to use the latter's facilities on the mainland, and thus, essentially to provide national roaming with Vodacom by acting as a mobile virtual network operator (MVNO) on the mainland.

3.4.2. Recent Market Entry

The variety of access technologies deployed is further increasing with the entry of new service providers in the market. In particular, after the introduction of the new Converged Licensing Framework, by May 2006 already four new service providers were licensed that are rolling out wireless/mobile services, in addition to Benson Informatics that is starting to provide wireless broadband internet access services in the 450 MHz band. The 4 new service providers are Broadpoint, MyCell, Dovetel and Betafone. MyCell is rolling out 3G services with CDMA2000 technology. DoveTell have also been assigned frequency for CDMA according to a TCRA staff member.

Reflecting on these developments, the acting Director General of TCRA commented in May 2006 the following: “This is the benefit of reforms (after) the introduction of full liberalization of the market in February 2005”. He furthermore adds: “Over the same period, radio broadcasting stations increased from 14 to 32 and internet service providers from eleven to 23”¹⁰.

By August 2007 the market shares are as follows: 1. Vodacom with 3.2 million users (51% marketshare); 2. CelTel with about 1.7 million users (26% marketshare); 3. MIC Tanzania-Tigo with little over 800.000 users (13% marketshare); 4. Zantel with about 414.000 users (7% market share); and 5. TTCL with almost 150.000 (fixed line) users (3% market share). See also figure 4.

In addition, today, Tanzania has about 20 ISPs, even though not all of them are operational. The majority (about 10) of these operational ISPs are located in Dar Es Salaam. There are likely about 25.000 Internet users in Dar Es Salaam. Tanzania has an ISP association – TISPA: Tanzanian Internet Service Providers Association - with about 14-20 members. Most operational ISPs are members. TISPA coordinates and protects the interests of ISPs. The major constraint to ISPs currently is bandwidth, and they often need to use expensive satellite. At least one of the ISPs has already started deploying a broadband wireless access network¹¹. ISPs are currently starting to compete with mobile service providers as well, that these are entering the internet access market through enhanced data services provision.

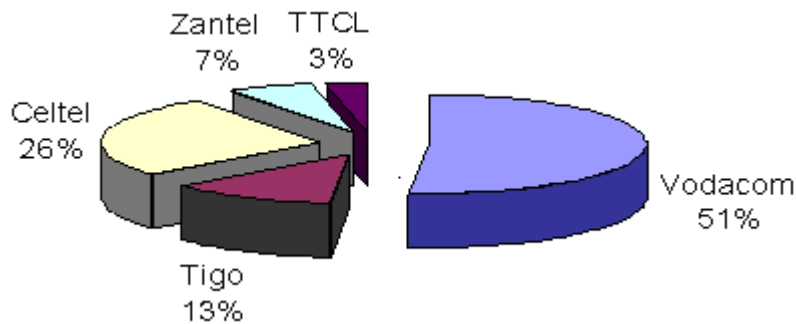


Figure 4: Market Shares of the Major Telephony Providers in Tanzania

Source: TCRA website - <http://www.tcra.go.tz/publications/telecom.html>. Retrieved August 6, 2007

3.4.3. CelTel Local Calling Throughout the East African Community

Another interesting development, yet not necessarily the result of the introduction of the Converged Licensing Framework, is CelTel’s introduction in September 2006 of local calling instead of expensive international roaming throughout the East African Community. Further, while many mobile operators in the African continent do not provide international roaming at all to prepaid customers, CelTel’s borderless mobile network, called One Network, automatically enables local calling to all CelTel users, including prepaid mobile phone users. CelTel is the first company in the world to provide such a service, and therefore has gained a lot of attention in the press throughout the world.

¹⁰ Quote taken from East African Business Week, “TZ Okays More Cellular Firms”, 22 May 2006. See http://www.busiweek.com/index.php?option=com_content&task=view&id=1582&Itemid=39 Last accessed August 11, 2007.

¹¹ ISP Catsnet Tanzania deploys a broadband wireless access network. See http://www.wimax.com/commentary/spotlight/wimaxspotlight2005_06_15_part1 Last accessed August 11, 2007.

This move required CelTel to synchronize billing, interconnection, and interoperability of all three platforms. CelTel upgraded its entire network so that it would be able to provide enhanced multimedia services and would be able to facilitate increased use of the network for an expanded customer base¹². Furthermore, CelTel's move does not only provide evidence of effective coordination among the semi-autonomous mobile operators of CelTel throughout the East African Community, but also is an indicator of effective coordination between regulators among the East African countries of Uganda, Kenya, and Tanzania. CelTel's move forced the regulators to implement changes, such as for example harmonizing phone numbers for voicemail retrieval, recharge, customer care, and access to the call center.

Meanwhile, other mobile telephony providers in the East African region do not want to stay behind. Within four months of the launch of One Network, Safaricom of Kenya, MTN Uganda and Vodacom Tanzania announce their plans to also launch a single regional mobile telephone network, which went live as of February 2007¹³. Yet, CelTel seems to remain a step ahead of its competition. Currently CelTel is further increasing its One Network in the African continent. Only nine months after the establishment of the One Network in East Africa, CelTel announced its plans for further expansion in Africa. One Network now includes the Democratic Republic of Congo (DRC), Gabon, and the Republic of Congo as well¹⁴.

These actions are pushing for regional integration. As President H.E. Mwai Kibaki of Kenya stated: "Lack of adequate communication has been the weakest point in Africa's regional integration. The communication network being provided by CelTel covering East and Central Africa is therefore a major contribution towards improvement of communication in Africa. This is vital for economic, social and cultural co-operation in the wider region"¹⁵. A manager at Vodacom furthermore sees the implementation of regional networks as 'a push for a common market'.

3.5. Current Regulatory Challenges

The newly introduced regulations, along with the new communications landscape that they have created, seemingly is well appreciated by all kinds of service and network providers. Currently, none of the service providers expresses any regulatory challenges at the end of 2006. They all indicate that they feel strong competition, but they perceive this as fair. The major challenges they faced before the introduction seem to have been solved with the coming of the Converged Licensing Framework. For example, a few managers at TTCL mentioned that they felt treated unfair as they had to have their tariffs approved whereas mobile operators were free to adjust them tariffs they liked, but this does not seem an issue anymore. Of course there the market still faces continuous issues like interference, but this is not perceived as a major challenge as these are usually sorted out in a cooperative manner with other service providers and regulator.

Since the implementation of the Converged Licensing Framework and other regulations the regulator has been working on monitoring the effects on the market and fine tuning rules. By the

¹² See See East African Business Week, "Safaricom, MTN, Vodacom in single network this week". http://www.busiweek.com/index.php?option=com_content&task=view&id=2759&Itemid=9 Last accessed August 13, 2007.

¹³ See East African Business Week, "Safaricom, MTN, Vodacom in single network this week". http://www.busiweek.com/index.php?option=com_content&task=view&id=2759&Itemid=9 Last accessed August 13, 2007.

¹⁴ See <http://allafrica.com/stories/200706070001.html> Last accessed August 13, 2007.

¹⁵ Quote taken from allAfrica.com, "World's First Borderless Mobile Network Expands Into Central Africa", June 6, 2007. See <http://allafrica.com/stories/200706070001.html> Last accessed August 13, 2007.

end of 2006, managers at TCRA indicate that no major challenges have come up. However, while the new licensing framework does not set a limit for the number of licenses that can be awarded, at the moment (2007) scarcity of frequency spectrum is becoming a constraint. The increased market entry has led to a significant increase in spectrum frequency demand, that cannot all be fulfilled. To this extent, TCRA released a press statement that says the following:

An increase in the number of prospective operators has tremendously increased the amount of spectrum usage. Considering that spectrum is a scarce resource, TCRA is conducting a spectrum audit vis-à-vis allocation of bandwidth with the objective of determining the optimum amount of spectrum required by each service.

In order to conduct the said audit, TCRA wishes to inform prospective applicants and the public in general that new applications requiring the following frequency resources: **450 – 470 MHz, 824 – 890 MHz, 890 –960 MHz, 1710 – 1880 MHz, 1920 – 1980 MHz, 2110 – 2170 MHz, 2560 – 2790 MHz and 3400 – 3700 MHz** shall not be considered with effect from 10th May 2007 until further notice.

TCRA Press Statement, from <http://www.tcra.go.tz/headlines/publicNoticeFrequency.pdf> Date of publication: unknown. Retrieved August 13, 2007.

As can be observed, these frequency bands are the common bands for GSM, CDMA, and WiMax provision. Thus, the band plan is currently being reviewed.

4. Administrative Capabilities: TCRA and the Ministry of Infrastructure Development

Given the developments in the market, a question remains as to what the role of the regulator has been in stimulating the former. While clearly the regulator has had a role in implementing regulation, it remains unclear what factors have driven the regulator to act as progressive as it did: Tanzania is perceived a progressive regulator not only by Tanzanians, but also by regulators and operators outside Tanzania, who have referred to Tanzania’s regulation in terms like “worth emulation”. Tanzania was the first country in sub-Saharan Africa to introduce a fully converged licensing framework. As one manager at TCRA puts it: “We are kind of pioneers in Africa. I think we have taken quite a bold step. Last year we were voted as best regulator in Africa. We have a vision. We want to modernize the country.” A manager at a service provider mentions “our regulator is one of the stronger regulators in Africa.”

This section will shed further light on the factors that enabled TCRA to implement such progressive regulation. To this extent, the administrative capabilities of the regulator itself, in terms of internal skills building, as well as the regulator’s relation to the communications policy maker, MoID, are discussed.

4.1. Relation Ministry of Infrastructure Development – TCRA

While TCRA implements regulation, the Tanzanian Ministry of Infrastructure Development (MoID) is responsible for overarching policy making and initiation of legislation. For TCRA there are guidelines whereby regulations are approved by the minister so that they will become legal documents.

Currently, MoID employs roughly 100 people that are divided over 6 departments, which includes departments like policy and planning, finance, and transport and communications. The (sub-)department responsible for communications employs 10 staff members, and as such is a relatively small department. Communications deals with postal, telecom, and ICT. Telecom and

ICT has 6 staff employed, and postal 4. According to a manager at the communications department, there is an intention to recruit 12 more people, as well as for communication to become a department by itself.

The official roles and responsibilities of the regulator, and therefore also its relation to MoID was originally determined by the Tanzania Communications Act (1993), at the time that TCRA was still TCC, and has been amended by the Tanzania Communications Regulatory Authority Act (2003) at the time that TCRA was established.

While the MoID and its minister have a role in developing policy and approving of regulations, realistically, MoID, due to its small number of employees, does not have a strong influence on ICT and telecommunications policy or regulation. As one interviewee put it, “the regulator is trying to compensate for lack of policy from the Ministry’s side”. Furthermore, this person mentions that the Minister has an overseeing role, but that in practice TCRA is “independent”. Another person says “frankly speaking, the ministry doesn’t have enough staff. They should actually give more input”. This relative lack of involvement of the Ministry in the telecommunications sector might be further reflected in the lack of engagement of operators with MoID, as explained by a regulatory affairs managers at two mobile operators. Nevertheless, a TCRA staff member does mention that he believes that the government has very good policy, and very good legislation. This however might also be due to the regulator often drafting this. As a director at TCRA explains, while the 2005 regulations were issued by the Minister, TCRA had been responsible for drafting them and presenting them to the Minister. After this dialogue took place until all agreed.

The positive result of MoID’s limited involvement in communications is that many people perceive TCRA to be very “independent” of the Ministry, both at operators and regulators. Another reason for this is the fact that TCRA has financial autonomy as licensees pay directly to TCRA directly, and thus TCRA is not dependent on the Ministry for its funding.

Other than its relation to MoID, TCRA has a day to day relationship with all service providers. This includes one on one as well as one to many meetings, where topics like license conditions, frequency management, and market relation issues are discussed.

4.2. Capacity Building within TCRA

While the lack of resources of MoID, and the abundance of resources by TCRA, has led to TCRA being capable of exerting great influence over regulation, it does not yet explain the reason for TCRA’s development of such forward looking, or progressive, regulations. A partial answer to this, we argue, lies in TCRA’s internal human resource policies with a strong focus on capacity building. Organizational development and performance is strongly tied to human resource development (see e.g. Lawler III, 2005; Torraco, 2005), and as such, major tools for human resource development like training and education, will influence regulators’ performances and thus administrative capabilities, as well.

TCRA is characterized by a remarkably active Human Resources sub-department. This is observed in three ways. First, as one of TCRA’s HR managers explains, a number of regulators in sub-Saharan Africa does not even have an HR department. Second, TCRA dedicates a relatively large budget to human resource development, and employs a variety of HR activities. For example, TCRA’s HR department has been working on an intra-organizational policy to push its employees to pursue advanced graduate degrees at the master’s and Ph.D. levels. Furthermore, for the year 2006 TCRA, which counted roughly 97 employees at the end of 2006, according to an HR manager, had a budget of about USD \$400.000 set aside for workshops, on topics such as

Quality of Service, accounting principles, and radio frequency management. For comparative purposes, in the year 2006 the South African regulator ICASA, with about 300 staff, spent ZAR 2,724,379 (Rand) on training and conferences (ICASA Annual Report, 2006) which is equal to about USD \$382,101, and Botswana regulator BTA, with about 70 staff members, spend about P1,988,838 (Pula) (BTA Annual Report, 2006) which is equal to about USD \$323,709¹⁶. These numbers show that TCRA has a relatively large budget dedicated to Human Resource Development.

Furthermore, other regulators in the region refer to TCRA as having a strong human resources department. To this extent, the director is referred to by a variety of consultants and regulatory officers outside Tanzania as having been pivotal in driving regulatory capacity building efforts in southern Africa. Through its role as convenor in the Human Resource Development committee in the Communications Regulatory Association of Southern Africa (CRASA), which is a regional communications regulatory body of the Southern African Development Community (SADC) and involves regulators from all of its 14 member states, TCRA has been pivotal in driving capacity building in the region. As convenor of the committee, TCRA has been engaged in organizing workshops and training for all regulators of the region. Not only did this enable direct learning about specific regulatory topics, it also enhanced bilateral relations. To this extent, membership of CRASA has provided a basis for peering program where staff members of different regulators in the SADC region visit each other.

Due to TCRA's membership in the HRD committee, TCRA has not only benefited from CRASA, but has also provided value to CRASA. From an HR perspective, TCRA has benefited from taking part in workshops and discussions to further develop its own HR policy. In addition, according to an HR manager, CRASA's HRD committee and TCRA's sharing of its own HR experiences through the committee, has benefited other regulators as some do not yet have HR policy in place, or in some instances do not even have an HR unit yet. As the manager explains, there are certain areas in HR that TRCA does very well in, whereas in others it can still learn from colleagues.

4.3. Summary

As the case analysis shows, the institutional endowments in terms of administrative capabilities have played a significant part in driving regulatory governance and regulatory incentives. The administrative capabilities are furthermore driven by resource constraints. Arguably, TCRA's resource abundance (as it receives licensing fees directly and is not dependent on a budget allocated by the ministry), and at the same time the lack of resources at MoID (i.e. understaffing), has enabled TCRA to do a great deal of work on capacity building within the regulator which through its effect on organizational development arguably influenced the development of progressive regulations.

5. Conclusions

This paper has shown that Tanzania's introduction of a fully converged, technology and service neutral licensing framework has led to a significant increase in market entry. While the full effects still remain to be seen, barriers to entry have already decreased and four new network providers have been licensed, in addition to a number of internet service providers. The increased market entry has furthermore increased the choices of technologies available, ranging from GSM to UMTS and CDMA2000, to Wimax and other wireless broadband technologies.

¹⁶ Exchange rates of August 13, 2007

Tanzania was the first sub-Saharan country to introduce such a fully converged licensing framework. To this extent, people throughout southern Africa have referred to TCRA as a model regulator. TCRA's strong focus on human resource development, which includes a significant budgetary allocation of the human resource department for training and workshops in addition to TCRA's role as convenor in the Human Development Committee of CRASA, provide evidence of the strong focus on capacity building. Furthermore, through this role as convenor TCRA has the potential to disseminate best practices about human resource development and capacity building throughout the southern African regulators. While the focus on capacity building within TCRA has arguably led to TCRA's progressive attitude towards regulation development, TCRA's own relative 'abundance' of resources vs. the Ministry's lack of resources due to understaffing have enabled the regulator to exert a significant influence on regulation as they have taken up part of the responsibilities of the Ministry.

These findings show the importance of administrative capabilities within both regulator and policy maker for positively stimulating regulatory governance and regulatory incentives. Administrative capabilities include capacity building practices as well as roles and responsibilities of the regulator vs. ministry. Finally, we have shown that resources, an under-researched and under-theorized element of regulatory governance, play a significant role in determining the relationship and roles of both regulator and policy maker.

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