A SCOPING STUDY OF THE MOBILE TELECOMMUNICATIONS INDUSTRY IN UGANDA

BY
ISAAC SHINYEKWA

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Any enquiries can be addressed in writing to the Executive Director on the following address:

Economic Policy Research Centre
Plot 51, Pool Road, Makerere University Campus
P.O. Box 7841, Kampala, Uganda
Tel: +256-414-541023/4
Fax: +256-414-541022
Email: eprc@eprc.or.ug
Web: www.eprc.or.ug
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ABSTRACT

The paper aims at mapping out the Mobile Telecommunications Industry in Uganda with a view to identify areas for further research in a systematic and more detailed way. The economic and social upgrading/downgrading conceptual framework to guide the Capturing the Gains research agenda was used in this process. The paper briefly presents the mobile phone domains, emphasising the relevant parts for Uganda, which include; software development, sales and marketing, mobile service provision and end use developmental elements. The paper gives highlights of the growth and explosion of the mobile telecommunications sector in the last two decades underpinning the drivers of this growth, which include deregulation, liberalisation, technology advancement, the growing population and Uganda’s strategic hinterland location. It is demonstrated that Mobile-phone Network Operators (MNOs) in Uganda are owned by companies with strong global value chains, which spread continentally to other African countries, Arab countries and in the case of Orange, France. The MNOs include MTN, UTL, Warid, Airtel and Orange. To provide insights into potential areas for further research on economic and social upgrading, the paper looks at outsourcing, infrastructure and the developmental aspects of mobile phones. The paper outlines areas for further research, which include money transfer, health, agriculture and outsourcing of services by MNOs. Finally, given that outsourcing of some of the services by MNOs is salient, conditions of work in MNOs and the outsourced companies is critical.
1.0 INTRODUCTION

The paper presents highlights of the mobile technology industry in Uganda, particularly situating it in the global perspective, in line with the Capturing the Gains (CtG) research agenda. The aim of the paper is to map out and identify areas for further research in a systematic and detailed way. There are areas briefly covered for readers not familiar with the CtG research agenda, including the conceptual framework for economic and social upgrading/downgrading and the CtG research agenda.

The paper briefly presents the domains, emphasising the relevant parts for Uganda, which include sales and marketing and mobile service provision. Although hardware manufacturing is not carried out in Uganda, the country produces coltan and was involved in the exploitation of the mineral in the Congo during the rebellion. The other domains, like software development and after-use discharge, are totally absent.

The paper sheds light on the growth and explosion of the mobile telecommunications sector in last the two decades. It underpins the drivers of this growth, which include deregulation, liberalisation, technology advancement in mobile phones, the growing population and strategic hinterland location. Brief profiles of the mobile phone operators in a global context are given, indicating the major players. In order to provide insights into potential areas for further research on economic and social upgrading, the paper looks at outsourcing, infrastructure sharing possibilities and the developmental aspects of mobile phones.

Finally, the paper outlines areas for further research, which include money transfer, health, agriculture and outsourcing.

1.1 Insights into Capturing the Gains research

Capturing the Gains (CtG) is an international research network of experts from the North and South. The network aims to develop an applied research methodology to investigate dynamics in private-sector global production networks (GPNs) in the areas of trade; production and employment in developing countries; opportunities and challenges for promoting economic and social upgrading within GPNs, in order to capture more of the gains for poorer producers and workers; and the emerging governance structures which would support the sustainability of this upgrading. The common trend in global production systems exhibits a growing outsourcing of production and services by firms in the North to developing countries. Whether GPNs benefit the South, generate income and jobs, increase risk and vulnerability for poorer producers and workers in the South, are questions addressed by research in the CtG network. The important concepts underlying this work are economic and social upgrading/downgrading, which will be discussed later.
1.2 Conceptual Framework for Capturing the Gains research

The framework for capturing the gains is the Global Production Network (GPNs), or global value chains (GVCs). In the literature, the process of exploring recent dynamics of GPNs applies two concepts: social and economic upgrading/downgrading (Barrientos, Gereffi and Rossi (2010). Gereffi (2005) identifies upgrading as a move to higher-value-added activities in production, to improve technology, knowledge and skills, and to increase the benefits or profits deriving from participation in GPNs. Although earlier work on GVCs (Gereffi 1999; Bair and Gereffi 2001) focused on labour-intensive manufacturing, recent literature on GPNs extends to sectors such as agro-food, and services like call centres, tourism and business-process outsourcing.

Gereffi (2005) defines economic upgrading as ‘the process by which economic actors – firms and workers – move from low-value to relatively high-value activities in global production networks’. He divides it into four categories, each with different implications for skill development and jobs: process upgrading; product upgrading; functional upgrading; and chain upgrading, or shifting to more technologically advanced production chains.

Sen (1999; 2000) defines social upgrading as the process of improving the rights and entitlements of workers as social actors, which involves enhancing the quality of their employment. This may consist of access to better work, which might result from economic upgrading; involve enhancing working conditions, protection and rights. Social upgrading is framed by the International Labour Organization (ILO) decent work framework, which is made of four pillars: employment; standards and rights at work; social protection; and social dialogue. The rationale behind it is promotion of work under conditions of freedom, equity, security and human dignity. It seeks to protect workers’ rights and provision of adequate remuneration and social coverage (ILO 1999).

A key issue that comes up is the relationship between the two concepts in the process of studying the dynamics of GPNs. Does economic upgrading lead to social upgrading? Under what circumstances will economic upgrading lead to social upgrading, if it does at all? These questions arise because the assumption that economic upgrading leads to social upgrading is not necessarily true. The dynamics of these two concepts in studying GPNs is the central issue of CtG.
2.0 REVIEW OF THE DOMAINS

The major domains of the mobile telecom value chain include hardware manufacturing, software development, sales and marketing, mobile phone service provision (operators) mobile phone use and after-use discharge (Lee and Gereffi, 2010). In the Uganda context, there is no hardware manufacturing, or after-use discharge. The review will therefore focus on software development, sales and marketing and mobile phone service provision.

**Software developers:** There are a number of firms and individuals in Uganda that develop software applications for purposes of using mobile phones and related appliances, like Personal Digital Assistants for various uses, including health, mobilisation, education and advertising. Among such software applications developers are: SMSMEDIA; True African; and Digital Solutions, the Faculty of Information Communications Technology (ICT), Makerere University. This is in addition to the mobile phone operators, who employ software developers for their internal purposes, in order to attract and maintain clients.

SMMSMEDIA operates in Uganda, Rwanda, Eastern Congo and Congo-Brazzaville. The company has attained this through innovation and excellence in the development of value added services. The company works individually and collectively with operators to develop subscriber-friendly products, which have become brand names in the telecoms and corporate communities. The company creates SMS content; SMS on request information provides access to information like news, commodity prices, sports, horoscopes and lifestyle information from various databases through a mobile phone. Among the SMS applications developed by companies are: SMS for poll organisers on mobile phones to conduct instantaneous tallies; SMS that allows individuals to bank, make purchases and check balances; SMS to transfer money and payment of bills for utilities.

**Sales and marketing:** Uganda imports all handsets and accessories, as they are not produced locally. Although in the past used handsets were imported into the country, nowadays only new ones are imported. The mobile phone operators (MTN, Airtel, Warid, UTL and Orange) purchase the network equipment directly from manufacturers. There are a number of mobile phone makes on the market, including Nokia, Samsung, Motorola, Sony Ericsson, Huawei, iphone, LG, Techno and G-tide. The distribution of handsets and accessories reaches the public through two main channels. The first is through agents of the operators, who run a network of retail shops all over the country. For example MTN has Simba Telecom, and others include Telecom, Nile com and Mid-com. They sell mobile phones and accessories, air time and sim packs, etc. The second channel is the independent retailers, who sell mainly mobile phones and accessories to customers who have a subscription to mobile network operators. Such retail shops are located in most business centres, such as shopping malls or main streets.
in town centres. There is another group, comprising street vendors, who sell only air time and these are located all over the country, with a concentration in major centres.

2.1 Mapping Uganda’s mobile telecom firms in the global production networks

A number of mobile phone operators in Uganda offer telecom services to end users. These include MTN, UTL, Warid, Airtel and Orange, which are discussed in more detail in the following section. The operators offer a wide range of services. However, in the remainder of the paper we will restrict ourselves to mobile phone telecommunications.

**MTN** Group, launched in 1994 in South Africa, is a multinational telecommunications group, operating in 21 countries in Africa, Asia and the Middle East. MTN Uganda is a subsidiary. By the beginning of 2009, MTN recorded close to 100 million subscribers across its operations in Afghanistan, Benin, Botswana, Cameroon, Cote d’Ivoire, Cyprus, Ghana, Guinea Bissau, Guinea Republic, Iran, Liberia, Nigeria, Republic of Congo (Congo-Brazzaville), Rwanda, South Africa, Sudan, Swaziland, Syria, Uganda, Yemen and Zambia.¹ MTN was launched in Uganda in 1998, and today it is the leading telecommunications company in Uganda, servicing over four million subscribers. It covers over 90 percent of the local population, providing services in over 150 towns and villages and their immediate environments.²

**WARID** Telecom Uganda Limited is fully owned by WARID Telecom International, a subsidiary of the Abu Dhabi Group, a large investment group active in the United Arab Emirates, Pakistan and now numerous other markets on the African continent, including Uganda, Congo and Cote d’Ivoire. The group has sizeable investments in various sectors, including telecommunications, hospitality, property development, oil exploration and supplies, banking and financial services, and automobile industries. The company started operations in Uganda in 2006, when it was awarded its public infrastructure provider and public service provider licences, which cover mobile, fixed, internet, email and international communication services.³

**Orange** Uganda Limited is a telecommunication company created by France Telecom and Hits Telecom Uganda. It provides telecommunication services in Uganda under the Orange brand. Hits Telecom Uganda provided Orange Uganda Limited with its national licence, the transfer of which was approved by the Uganda Communications Commission (UCC). Orange is the key brand of France Telecom, one of the world’s leading telecommunications operators. On 30 September 2010, it had more than 203 million customers in 32 countries. At the end of 2009 France Telecom had sales of 44.8 billion Euros. Orange is one of the main European operators for mobile and broadband internet services and, under the brand Orange Business

¹ [www.mtn.com](http://www.mtn.com).
² [http://www.mtn.co.ug/](http://www.mtn.co.ug/).
³ [http://waridtel.co.ug](http://waridtel.co.ug).
Services, is one of the world leaders in providing telecommunication services to multinational companies.\(^4\)

**Uganda Telecommunications Limited (UTL)** was established in 1998 as a state-owned monopoly provider of telecommunications services, after being unbundled from the Uganda Posts and Telecommunications Corporation (UPTC). UTL was privatised in June 2000 (Econ, 2002). In January 2010, Uganda Telecom became a joint venture between a communications consortium called Ucom, which owns 69 percent of UTL, and the Ugandan Government, which owns the remaining 31 percent. Ucom is a consortium consisting of the following entities of LAP Greencom of Libya and Telecelf International of Switzerland.\(^5\)

**Airtel**: In 2005, Zain entered Africa by purchasing Celtel International at $3.4 billion, which was operating in 13 countries, serving five million customers at that time. By June 2010, Zain had over 40 million customers across the continent, operating in Burkina Faso, Chad, Democratic Republic of the Congo, Gabon, Ghana, Kenya, Madagascar, Malawi, Niger, Nigeria, Sierra Leone, Tanzania, Uganda and Zambia. However, in 2010, Zain accepted an offer for the sale of all its Africa operations by selling its entire stake to Bharti Airtel Limited for $10.7 billion on an enterprise basis.

Airtel is one of the world’s leading providers of telecommunications services, with a presence in all the 22 licensed jurisdictions (also known as Telecom Circles) in India, and operations in Sri Lanka, Bangladesh and Africa. It served an aggregate of 194.8 million customers as of September 30, 2010, of whom 187.7 million subscribe to the GSM services and 3.2 million to the Telemedia Services, either for voice and/or broadband access. It is the largest wireless service provider in India, based on the number of customers in 2010. The company also deploys, owns and manages passive infrastructure pertaining to telecom operations under its subsidiary, Bharti Infratel Limited. Bharti Infratel and Indus Towers are the top two providers of passive infrastructure services in India.\(^6\)

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\(^4\) [http://www.orange.ug](http://www.orange.ug)

\(^5\) [http://www.utl.co.ug](http://www.utl.co.ug)

\(^6\) [http://www.airtel.in/wps as at June 2011](http://www.airtel.in/wps as at June 2011)
3.0 TRENDS AND GROWTH OF MOBILE PHONES USE IN UGANDA

3.1 Drivers of mobile phone expansion in Uganda

3.1.1 Technological advancement

Mobile phone technology has the advantage of voice transmission through air waves, compared to landlines that need the extension of poles before access. Placing a mast on a hill in a given radius is sufficient to connect an area. Therefore, the constituents of the technology used in mobile phone technology partly explain the rapid expansion in the use of the mobile phones. Initially, as Econ One Research (2002) argues, policymakers throughout the industry reform programme anticipated that fixed-line services would be employed to meet a significant portion of the rollout obligations. This did not happen as expected, however, given that the GSM technology ideally suited the demographics of large parts of Uganda, which are predominantly rural and where it is difficult to extend fixed-line technologies like poles and wires. The rural population is in some cases dispersed rather than consistently concentrated in isolated pockets. GSM technology therefore offers the superior value proposition for rapid rural expansion.

3.1.2 Regulation and liberalisation and growth in the sector

The telecommunications sector as a whole, including mobile telecommunications, has undergone an unprecedented and dramatic transformation over the last two decades, following the liberalisation process and privatisation of the state monopoly. During the period between 1977 and 1993, the sector was under the UPTC, a monopoly that provided postal services, telecommunications services, telegraphic money transfers and spectrum management. Later, between 1993 and 2006, a mobile telephony service (Celtel Uganda) and internet service providers (e.g. Infocom) were introduced. The Uganda Communications Act, 1997 was enacted, leading to the split of UPTC and the creation of Uganda Telecom (UTL), Uganda Post Limited (UPL) and Post Bank Uganda Ltd (PBU). During this time the reforms led to the establishment of Uganda Communications Commission (UCC) to regulate the liberalised sector.

The UCC was established by the Uganda Communications Act 1997 (Cap 106 Laws of Uganda), with the mandate to license, monitor, inspect, regulate and ensure general improvement and equitable distribution of communications services. It aims at developing the sector into a modern communications sector and infrastructure. This development has witnessed great positive changes in the sector. The impressive performance of the telecommunications sector is a result of the government policy of liberalisation, which among many other factors attracted foreign direct investment (MTTI, 2010). Following deregulation of the telecommunications services in Uganda in the mid-1990s, a number of mobile telephone service operators joined
the market to provide mobile communication services in Uganda (Uganda Telecommunications Sector Report, 2005). By December 2008, four providers – namely, MTN, UTL, ZAIN (now Airtel) and WARID – provided communication technologies in Uganda. At present, seven mobile telephone service operators (providers) exist, namely, Uganda Telecom Limited (UTL), Mobile Telephone Network (MTN), ZAIN, WARID Telecom, and ORANGE Uganda Limited, SMILE and I-Telecom (UCC, 2009).

Initially, MTN Uganda Limited and Uganda Telecom Limited were granted a five-year duopoly (exclusivity) policy (1996-2005). During this time there was limited competition. The exclusivity/duopoly policy framework focused on the provision of infrastructure under minimum competition. Limited competition was thus a key strategy pillar in attracting private sector investment at a time when the market size was assumed to be small. The duopoly policy ended on July 24, 2005, having registered significant milestones. These included investments worth US$350 million attracted since 2001; a tele-density of 6.5 percent; and 75 percent of geographical area covered by fixed and or mobile telephone. Furthermore, 80 percent of the sub-counties in the country had a point of presence of telecommunications services; 8.7 percent of the population owned a fixed and or mobile phone; and more than 290,000 people were employed in the sector (UCC, 2010).

However, when the policy expired in 2006, Uganda opened the sector up to full competition. Since then, Uganda has adopted a new licensing regime, which is technology neutral. This has witnessed competitive behaviour in the sector, resulting in phenomenal growth, especially with regard to operators, subscription and related services. This period also saw the creation of the Ministry of Information and Communications Technology (ICT) in June 2006. The Ministry of ICT formulated guidelines that give service providers the freedom to decide which technology to use in providing services. This technology-neutral licensing regime is characterised by two main categories of licences: Public Service Provider (PSP) and Public Infrastructure Provider (PIP). The Uganda Communications Commission offers two main types of licences: the Public Infrastructure Provider is the licence required to establish and operate infrastructure facilities in Uganda, used to provide services to the public or for resale to a third party. The Public Service Provider (PSP) is issued to persons that offer voice telephony services (operated like public switched telephony services, whether fixed or mobile) and data services. This includes internet access services or internet service providers. The range of choice and freedom for investors has furthered the development in the sector.

Thus, by December 2010 there were an estimated 12 million fixed and mobile voice telephony customers, compared to the close to two million fixed and mobile customers in March 2006. The contribution of the communications sector has increased significantly over time. In 2009,

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7 There is no empirical study by UCC to establish the correct employment figure. This is a working estimate.
for example, the total turnover in Uganda’s communications sector was US$600 million, while the total investment stood at US$240 million. It should be noted that between 1999 and 2000 the total investment was only US$15m, while it rose to US$180m in 2004-2008.

Furthermore, the sector contributed US$81 million (UShs183 billion) in taxes to Uganda’s economy in 2010. Tax revenues comprise VAT, excise tax and Pay as You Earn. The growth in revenue and investment of the sector has boosted employment. The number of people both directly and indirectly employed in the sector is estimated to be 300,000. Although the preference is for disaggregated figures of employment by each operator, this data has not been compiled. They are mainly employed as network engineers, sales personnel, air time resellers, among others. Overall, posts and telecommunications contributed 3.4 percent to Uganda’s GDP (UCC, 2010).

Apart from the reforms in the sector, there are other factors that in various ways contributed to the growth in the telecommunications sector: although Uganda is landlocked, it is a strategic hinterland extending to Democratic Republic of Congo, southern Sudan, Rwanda and Burundi. This would naturally attract investments that target these countries. Uganda’s population is growing at over three percent per annum, resulting in about 33 million people. Investors view this as a potential market for high subscription. Currently, subscription stands at about one-third of the population. Uganda is a member of the East African Community (EAC) that consists of: Kenya, Rwanda, Burundi, Tanzania and Uganda. This process started in 2000 and plans are in advanced stages to establish political and economic integration. This brings together over 120 million people with a large market, further increasing opportunities for doing business in the region.

### 3.2 Penetration of mobile telecommunications

Uganda’s telecommunications infrastructure before 1996 was among the least developed, not only in Africa, but also in global terms (Byarugaba, 2010). It had a teledensity of only 0.21 per hundred citizens, compared to the African teledensity average of 25 per hundred citizens (Shirley, et.al 2002: 8, 11). However, the sector experienced a dramatic and unprecedented transformation following liberalisation, so that by 2004 Uganda’s teledensity had risen to 4.2 per hundred, and 30 per hundred citizens by the beginning of 2010 (UCC, 2010). This figure has now risen to over 35. Uganda at present has about 12 million mobile phone subscribers, spread across five networks, (namely MTN, Orange, UTL, Warid and Airtel). The percentage of the population covered by mobile phone networks has increased to over 90 percent nationwide. When compared with fixed lines, the performance of the latter is poor, with fixed line subscribers standing at merely 244,455, in addition to 96,890 payphones countrywide.

Uganda has experienced an exponential growth in the use of mobile telephones in the last
decade. As an example, a total of 3.1 billion minutes were billed in the six months that ended December 2009, compared to 1.07 billion minutes that were billed in the period of six months that ended in December 2007. Out of these, 2.67 billion were on-net minutes, while 419 million minutes were off-net (UCC, 2010). The traffic is largely dominated by voice. This is explained by the discounted in-network tariffs, which help explain multiple-SIM ownership strategies adopted by many subscribers (Ndiwalana et al., 2010). Subscriptions across all the operators increased from fewer than 200,000 in 2000 to over 12 million in 2010. Although it is likely, as Aker and Mbiti (2010) report, that individuals hold more than one phone from the different operators, usage is still high for Uganda compared to Sudan, Mali, Mozambique and Democratic Republic of Congo (BMI, 2010). Figure 1, panel (a), illustrates this growth, where the year 2007 experienced a very big jump in subscription and during the same year the tele-density also increased. The mobile cellular subscription per hundred inhabitants increased from about five in 2005 to over 35 in 2010. This suggests that heavy investments have been made by subscribers into acquiring phones and this is reflected in both the subscription and tele-density. In terms of value, the annual cost of mobile phones imported increased from less than a half a million US$ in 2006 to US$70 million and further increased to close to US$ 100 million (data from the Uganda Bureau of Statistics). It is evident that the mobile phone subscription ‘explosion’ took place at the beginning of 2007 and this has continued to the present date. This is the period after the duopoly legally created had come to an end, enabling new competitors to join the market at national level.

**Figure 1: Mobile phone subscription and the cost of importation of phones**

Panel a: Subscription and tele-density phones

![Graph showing subscription and tele-density phones](image1)

Panel b: Annual cost of importation of phones

![Graph showing annual cost of importation of phones](image2)

**Sources:** Panel a: International Telecommunications Union and Panel b: Uganda Bureau of Statistics.

Table 1 gives a summary of the subscription market share among the five operators and the market penetration during that period, highlighting the power of the operators in the market. MTN initially contributed to more than a half of the market share; however, this reduced over time, so that by the first quarter of 2009, subscription had fallen to just slightly above one-third of the market share.

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8 Although seven MNO are licensed, only five are operating.
This decline in the proportion of subscription is explained by the growth in market share for UTL, which increased from 15 percent in mid-2007 to a quarter of the total market share by mid-2009. Even then, MTN remained in the lead in the market share. Notable is the decline in the market share by Airtel, possibly due to the change in ownership in a short period of time, from Celtel to Zain and now Airtel. The competition in the market by operators reveals a rather healthy state of affairs, which enhances better consumer services and innovation operators.

Table 1: Mobile operator data

<table>
<thead>
<tr>
<th>Operator</th>
<th>Jun-07</th>
<th>Sep-07</th>
<th>Dec-07</th>
<th>Mar-08</th>
<th>Jun-08</th>
<th>Sep-08</th>
<th>Dec-08</th>
<th>Mar-09</th>
<th>Jun-09</th>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>UTL</td>
<td>0.5</td>
<td>0.567</td>
<td>0.725</td>
<td>1.653</td>
<td>2.1</td>
<td>2.241</td>
<td>2.5</td>
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<td>WARID</td>
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<td>0</td>
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<td>0.65</td>
<td>1</td>
<td>1.35</td>
<td>1.667</td>
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<td>Zain (Airtel)</td>
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<td>1.17</td>
<td>1.435</td>
<td>1.635</td>
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<td>1.865</td>
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<tr>
<td>Market share</td>
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<tr>
<td>MTN</td>
<td>55.5</td>
<td>54.7</td>
<td>51.8</td>
<td>39.4</td>
<td>37.9</td>
<td>38.7</td>
<td>37.3</td>
<td>36.2</td>
<td>36.7</td>
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<td>UTL</td>
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<td>14.8</td>
<td>16.2</td>
<td>27.6</td>
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<td>27.3</td>
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<td>22</td>
<td>23.2</td>
<td>23.5</td>
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<tr>
<td>Orange</td>
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<td></td>
<td></td>
<td></td>
<td>1.5</td>
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<tr>
<td>Market penetration (%)</td>
<td>16.6</td>
<td>18.7</td>
<td>20.4</td>
<td>22.6</td>
<td>24.7</td>
<td>28.3</td>
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</table>

Source: Business Monitor International.

There are plausible explanations that underpin these trends. Initially it was only MTN and UTL that had licences to operate nationally and this duopoly gave them a platform to recruit throughout the country, while Celtel (now Airtel) was restricted. When the duopoly arrangements came to the end in 2005, other operators started installing their infrastructure throughout the country, thus increasing their subscription at the expense of MTN, especially. Furthermore, new entrants like Warid employed protracted promotion practices that attracted subscription. New subscribers were offered new phones at a value lower than the market rate, loaded with airtime, for example phones would cost as little as US$ 20 with air time of US$ 40. The call rates per minute were also strategically made lower than what MTN offered by the other operators. Once in a while, promotions that would enable subscribers to call for a whole day or week for as little as less than US$2 attracted subscribers, leading many to abandon the national giant, MTN. Operators like UTL and Airtel extended attractive products to the corporate world, where it became mandatory for them to use their services. Uganda Revenue Authority staff are given UTL lines on which they make ‘free’ calls to both fellow staff and non-staff, provided they are subscribers of UTL. Although MTN has started all these practices, they have come a little too late. Warid and Orange particularly attracted the elite, following their excellent internet services compared to the other operators. Therefore it is plausible to argue that social upgrading has taken place and explains the movement of subscriptions from one operator to another.
4. SOURCING OF SERVICES BY OPERATORS

The development of the Ugandan telecommunications sector has utilised different types of middlemen to facilitate the delivery of, and add value to, the core services provided by the main operators (ECON, 2002). They include distributors (mainly franchisees) and marketers among many who extend services beyond the reach of the operators’ networks.

4.1 Phone providers

These are distribution outlets for the major operators in Uganda, most often operated through franchise agreements. Regional franchises were awarded to independent distribution agents; and an active resale market developed for the franchise rights, with a primary agent selling to local distribution agents. The main franchisee for MTN is Simba Communications. Extel, Telechoice and Caltex are the main franchisees for UTL/Mango. Total (also an owner and operator of petrol stations) is the main franchisee for Airtel. Even with the existence of franchises, some phone stores are maintained and staffed directly by the major operators.

There are independent phone shops that are small commercial enterprises run by individuals and not affiliated to large operators. They are simply importers and suppliers of mobile phones and accessories. The service of phone provision is often an add-on to a core business, such as a grocery store.

There is a proliferation of even smaller commercial enterprises, an equivalent of street vendors. These are individuals with a phone (or several phones from different operators). Different rates are usually charged to customers, depending on which network (UTL, MTN, Orange, Warid or Airtel) the clients wish to call. There are many street vendors in Uganda, offering telephone services, and they are mainly in active peri-urban and urban areas.

4.2 Infrastructure usage and sharing

One of the major challenges for mobile telecommunications operators in Uganda is the lack of infrastructure-sharing policies, which results in high capital expenditure for rolling out infrastructure capable of reaching the entire country. Companies in Uganda have had to spend a lot of money on infrastructure before focusing on market expansion. The fact that each operator has its own infrastructure demands huge investment, which takes a long time to carry out. The ideal situation would have been the regulator establishing and installing the mast infrastructure throughout the country and then allocating frequencies. In this way, operators would capitalise on market expansion. This would reduce costs, protect the landscape and

*Unfortunately, no studies exist on these outlets and UCC does not have data on them. This makes it difficult to obtain details, except in a survey.*
ultimately enable increased coverage in remote areas. Sharing infrastructures would make it easier for new operators to enter the market. In spite of this constraint, WARID is one operator that specialises in offering mast services to other operators who are not established in specific locations.

4.3 Employment-related issues

The Uganda Communication Employees Union (UCEU) is a workers’ organisation meant to champion the interests of employees in the telecommunications sector. UCEU, by virtue of its institutional mandate, covers all employees in the communication and information technology sector. This includes all workers in the telecommunications, postal, information technology and data transmission sub-sectors, both in the public and private domains. To that effect, UCEU is the trade union for every worker in all mobile network operators (MNOs) and other communication companies. However, with the exception of UTL, the rest of the MNOs in Uganda have deliberately refused to subscribe to UCEU. It is possible that the management of these MNOs do not want to allow an atmosphere where their employees will use the union to negotiate for more benefits. This is an area that needs further research to empirically establish the correct facts.

The MNOs operate franchisees, distributors, agents and salespersons in the distribution chain of the telecom products, especially in the marketing of phones and air time. The conditions of workers and terms within the MNOs and the outsourced companies are different, in favour of the former. An empirical study is likely to reveal that outsourcing is strategically used to reduce the costs of human resources that would go into salaries and other benefits for the MNOS.

ILO (2008) reveals evidence of children’s involvement\textsuperscript{10} in the lower end of the distribution chain of some products, particularly in the sale of phone calling cards in the three districts of Kampala, Mbale and Mukono. The study was based on a small, non-random sample to provide a quick perspective of the phenomenon, rather than attempting to provide a complete picture. It was established that there were marginally more females than males among the minors involved in the sale of telecommunications products and services, and two-thirds were orphans. Most of the respondents were school dropouts or school leavers, having failed to continue with formal education for one reason or another, and the majority being girls. The children were working full-time, in some cases working for 11 to 14 hours per day. There was exploitation, as one in four of the children working in the sector were not paid for their work, on the grounds that they were working for parents or earning their food and lodgings. For those paid, the payment would not exceed Uganda shillings 30,000 per month – less than US$2. Further research should be conducted in a more rigorous way to obtain a more representative picture.

\textsuperscript{10} Child labour in the Ugandan context refers to work performed by persons under 18 years of age that is mentally, physically, socially and/or morally dangerous and harmful to children or that interferes with their school attendance.
5.0 RESEARCH AGENDA

Money transfer
The banking function of MNOs presents elements of social upgrading as the service transforms the lives of people, especially in rural areas, makes profits for the MNOs, and leads to increased subscription. Limited and inconclusive studies conducted to establish the impact of the money transfer service (Ndiwalana and Popov, 2008; and Ndiwalana et al., 2010) provide grounds for a research agenda. There are two areas for research, namely the regulatory and institutional framework for the purposes of safeguarding the clients and improving performance. Mobile phone payments systems present a significant opportunity to integrate more users within Uganda’s financial system. Innovation in settling payments for utilities, making remittances and others provides fertile ground for both economic and social upgrading. The impact thus becomes crucial. In addition, we could explore the gains made by the MNO as profits are made and also look at the outlet chains that facilitate this process.

Agricultural development
Although initiatives to establish the potential of mobile phone technology to increase agricultural productivity and marketing have been undertaken, there is limited empirical evidence to conclusively back the claim of the impact. Studies (for example, Masuki et al., 2010: Muto and Yamano, 2009; Ferris et al., 2008; and Tenywa et al., 2010) show that farmers use mobile phones during the different stages of crop growth, to contact inputs, stock shops, technocrats and traders. In essence, this reduces transaction costs and increases profit margins. The studies lack empirical evidence to demonstrate the impact on income. In most cases, qualitative analysis is used to describe the potential, which is necessary but not sufficient to explain the impact. The impact on productivity and reduction of transaction costs are areas that can be considered for further research.

Health services
Mobile phone technologies in Uganda are being developed, deployed and used in a number of health solutions for various purposes (Källander Karin, 2010). Mobile phones are used for spreading health information and awareness campaigns about HIV, TB and other topical diseases by SMS text messages. Among the key areas addressed are education and awareness, remote data collection and disease outbreak surveillance, and diagnostic and treatment support. Although a number of projects exist, there has not been rigorous research to establish the impact, a gap that could be addressed by further research.

Outsourcing of the marketing elements
The MNOs operate franchisees, distributors, agents and salespersons in the distribution chain of the telecom products, especially in the marketing of phones and air time. The conditions
of workers and terms within the MNOs and the outsourced companies are different, in favour of the former. In adhering to international standards, the conditions of work in the MNOs are relatively good. This is contrasted with conditions in the outsourced part of the chain, where conditions are poor.

The ILO (2008) study, although a ‘rapid’ analysis, seems to indicate that in the lower end of the distribution chain of some products, particularly the sale of phone calling cards, there are social downgrading issues. An empirical study is likely to reveal that outsourcing is strategically used to reduce the costs of human resources that would go into salaries and other benefits for the MNOS. The fact that MNOs are reluctant to become members of the Uganda Communication Employees Union indicates there are issues related to conditions of work for employees.

Conclusion
The paper demonstrated the explosive growth of the mobile telecommunications sector in the last two decades, underpinning the drivers that include deregulation, liberalisation, advancement in mobile phone technology, the growing population and strategic hinterland location. It is clear that the MNOs are owned by companies with strong global value chains, which spread continentally to other African countries, Arab countries and, in the case of Orange, France. The companies are thus not owned by Ugandans. To give insights into economic and social upgrading and potential areas for further research, the papers looks at outsourcing, infrastructure sharing possibilities and the developmental aspects of mobile phones. Although there are a number of applications of the mobile phone for developmental purposes, the prominent ones that could form the research agenda include money transfer, agriculture and health. Given that outsourcing of some of the services by MNOs is salient, issues of conditions of work in MNOs and the outsourced companies are critical and therefore form a research agenda.
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