IMPROVING COMPETITIVENESS AND INCREASING GROWTH IN UGANDA

The Role of Information and Communication Technologies

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This report was prepared by OTF Group, Inc., a consulting firm that focuses on Country Competitiveness projects in emerging economies around the world.
Improving Competitiveness and Increasing Growth in Uganda
Celebrated as the “Pearl of Africa,” Uganda is known for its rolling rural landscapes, Lake Victoria, one of the last reserves of wild gorillas, and the source of the Nile. But like the Nile, which defies the odds by flowing from South to North, Uganda is currently faced with the challenge of changing its economic course and moving its people from poverty to prosperity.

In Section One of the report, the study examines Uganda’s current economic and social context. Important progress has been made in these areas, but much is left to be done.

Between 1992 and 2002, poverty rates fell in Uganda from 55.7% to 37.7%, primarily through the emergence of successful new agro-industries such as fish, vanilla, and flowers in rural areas, as well as growth in services in urban areas. That growth in the agriculture sector brought much-needed disposable income to impoverished populations in rural areas. By 2004, however, poverty rates had crept up to 39%, although important caveats exist to the 2004 poverty data, and Uganda’s GDP growth rate slowed from an average of 6.86% between 1990 and 1999 to 5.5% between 2000 and 2004. GDP per capita growth slowed from 3.46% to 1.8% during the same period, due to a simultaneous population increase. The population has been growing at 3.3% annually, and that pace is forecasted to increase to 3.7% until 2015. With this anticipated surge in population, Uganda needs even higher GDP growth rates for the average citizen to feel the benefits of economic growth, and for poverty rates to continue to decline. Current growth rates, though impressive, are below the 7% sustained rates required to meet the Poverty Eradication Plan (PEAP) objectives.

Uganda’s development challenge is magnified by geographic and social inequalities in income distribution and basic services provision between urban and rural populations, and between its northern and southern regions. While ninety percent of the population lives in rural areas, only 2% of the rural population has access to electricity. Meanwhile, 70% of telecommunications services are in urban areas. Finally, 70% of those living in the North fall below the poverty line.

In this demographic scenario, Uganda’s economic transformation will only come about through the development of greater economic activity in rural areas, and the provision of basic social services to the rural population. The population has been growing at 3.3% annually, and that pace is forecasted to increase to 3.7% until 2015. With this anticipated surge in population, Uganda needs even higher GDP growth rates for the average citizen to feel the benefits of economic growth, and for poverty rates to continue to decline. Current growth rates, though impressive, are below the 7% sustained rates required to meet the Poverty Eradication Plan (PEAP) objectives.

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Figure 1. GDP Averages

Source: Uganda’s growth since the 1990s – A Macro Stock Intake.

1 Quote from Winston Churchill.
2 Poverty rate, 2004. EIU Uganda Country Profile 2005, (London, England: The Economist Intelligence Unit Limited, 2005); further research from the World Bank Uganda Country team indicates a number of possible contributing factors to the slight poverty incline: a potential measurement issue in the poverty indicators survey; external pressures such as a dramatic fall in real prices in Agriculture on the world market.
4 Ibid.
areas where the vast majority of Ugandans live and work—nearly 80% of the working population is currently employed in rural-based agricultural activities. Several critical imbalances need to be corrected to address these challenges. Greater investments in productive infrastructure such as electricity and telecommunications must be made in rural areas. Industries that have a potential to generate employment and income in rural areas in sectors such as agro-industry or tourism need to be fostered. Business development support to businesses operating in rural areas must be provided.

For such a transformation to happen, Uganda will need to identify new products and services, as well as upgrade the competitiveness of existing products and services, that are benefiting rural populations. These efforts must happen in concert with efforts to develop greater capacity and activity in urban centers, such as Kampala. Issues of income generation and issues of income distribution must both be targeted.

In Section Two, we discuss the kind of strategic approach Uganda can take to drive growth, and we examine the role ICT can play in that approach. In Uganda as in the rest of Africa, national economic performance is the sum-reflection of local industries’ performance. In turn, private sector and enterprise development relies heavily on the competitiveness of key local industries, composed of three main types of enterprises. The first category of businesses directly drives the main industries of the economy; in the tourism industry, for example, these include hotels, lodges, or airlines. The second category of businesses supports the larger enterprises operating in key local industries; these could be spare-parts manufacturers or leather seat suppliers to a strong local automotive industry. And the third category of businesses is the myriad of local SMEs that indirectly benefit from the increased disposable income and purchasing power that local successful industries generate; these include local retail and grocery stores in a prosperous mining town or neighborhood restaurants and bars in a thriving coffee export community.

Development of a strong private sector base is therefore strongly dependent on the competitiveness of key local industries. In countries where per capita income and purchasing power are low, the potential for dramatic revenue increases from the domestic market is often limited to a few industries. Therefore, the need for greater focus on export industries can be critically important in the initial stages of a country's national competitiveness efforts. Renewed efforts on strategic choices and on operational efficiencies in key rural-based industries, including through better deployment and use of ICTs, will help Uganda improve rural incomes.

For a country like Uganda, this means that on one hand the competitiveness of industries such as fishing, coffee, floriculture, vanilla, or tourism, which have the potential to dramatically affect rural incomes, needs to be upgraded. On the other hand, support programs must be put in place to ensure that Uganda’s private sector is equipped to drive growth, create wealth, and respond to the increased opportunities that local flagship industries generate.

A critical step in addressing such ambitious goals is to examine the performance of Uganda’s key industries, focusing on three guiding questions. First, are there opportunities for Uganda’s key industries to upgrade their competitiveness and provide greater income to rural populations? Second, what is the role of ICTs in the process of enhancing the competitiveness of Uganda’s key industries? Third, considering that Uganda needs a strong private sector to drive opportunities within and around key industries, what can be done to strengthen Uganda’s private sector and what role should ICT play in that process?

ICT can play an important role in upgrading the competitiveness of both domestically and export-focused industries in Uganda. Two types of competitiveness improvements are typically facilitated by ICT: First, ICT tools can improve operating and communication efficiencies within industries and businesses. Second, ICT tools can also improve industry and business profitability by increasing differentiation and by capturing parts of the value chain that were previously captured by intermediaries. The initial challenge is therefore twofold: identifying where ICTs can help enhance the competitiveness of key Ugandan industries, and then giving the players in those industries access to targeted ICT solutions that are right for them.

As barriers to ICT access are overcome, Uganda’s leadership must also ensure that local institutions, particularly productive institutions in the private sector and in government, have the capacity to
strategically employ ICT tools to drive economic growth. In order to leverage these tools effectively, however, Ugandan institutions must first strengthen their own operating fundamentals. A study of firms in Uganda revealed weaknesses in key business areas. When asked to identify the skills that were missing in the workforce, Ugandan managers highlighted essential functions such as sales, marketing, finance, and customer service. ICT skills were near the bottom of the list, suggesting a need for general educational efforts to continue to focus primarily on building the basic managerial skills that institutions need to function.

However, as Uganda’s economy becomes more sophisticated and increasingly incorporates technology, ICT skills will become more important. With its young population, the country is uniquely positioned to reap the benefits of investment in general education. Efforts to grow an ICT literate population should be modeled on programs that integrate ICT into the broader long-term goals of growing and transforming Uganda’s economy. This will require a three point approach: developing basic ICT literacy, aligning curricula with the needs of the private sector, and developing a base of skilled and specialized ICT users to support the deployment of further ICT technology.

In Sections Three and Four, the study examines levels of access to ICT, levels of ability to use ICTs, and perceived benefits of ICT in Uganda. In order to do so, the sections begin by looking at the current state of Telecommunications and ICT in Uganda.

Infrastructure challenges are a particular barrier to improving access. Since deregulation of the Telecommunications Industry in 1997, Uganda has succeeded in increasing the number of telecom users from 50,000 to 1.5 million in 2005. However, its current teledensity is only 4.4%, or half of that of Kenya. The vast majority of the telecommunications market’s growth has been in mobile telephony, with 1.4 million subscribers in 2005. Uganda’s three mobile providers—MTN, Celtel and UTL—now provide coverage in 80% of Uganda’s territory. However, high taxes on mobile telephony have kept mobile penetration rates low. Uganda has the second highest tax rate in the world after Turkey, and taxes currently account for 30% of the cost of a call. As a result, in rural areas, only 2% of the population owns a mobile phone compared to just 16% in urban areas.

This means that farmers, for example, whose livelihoods could benefit greatly from the use of mobile telephony, are being shut out of the market. In 2005, the number of mobile subscribers increased by 29%, far below the 50% and 97% growth rates accrued in 2004 and 2003 respectively. The 2005 mobile subscription growth rate has been the lowest growth rate experienced in the industry since 1997.

With 80% of Uganda’s territory covered by a mobile network but only a tiny percentage of Ugandans using mobile telephony, there is enormous growth potential for the three providers. However, their growth depends heavily on lowering taxes on mobile telephony. Furthermore, the mobile telephony infrastructure that exists will need to be complemented with investments in other critical productive infrastructure such as electricity and backbone networks so that better conditions for information and communication activity are created.

Infrastructure development, both of a national backbone and a smoother less costly international connection are a primary concern for Uganda. Further developing this infrastructure will directly alleviate other important access constraints such as cost, reliability, and bandwidth levels. Three types of infrastructure investments will need to occur simultaneously.

First, Uganda needs to provide electricity to a much wider spectrum of its population throughout its national territory and find creative solutions to the ongoing power crisis that is now affecting the entire country. Access to telecommunication networks without electricity negates the productivity increase potential provided by telecommunications. Second, in order to expand access to data and internet-based technologies, Uganda must develop a national backbone for the entire country by pairing a coordinated fiber optic network in urban centers with various microwave and wireless technologies that can reach rural areas. Third, in order to complete that picture, Uganda’s national backbone needs to be efficiently connected to an international backbone so that the country’s current reliance on expensive and erratic satellite technology can be
reduced. Construction of the East African Submarine Cable System (EASSy) fiber optic cable is intended to provide this critical bridge to an international backbone. If the EASSy project moves forward, the potential for ICT upgrading will be significant for Uganda, particularly in the area of reducing costs for accessing the internet and addressing bandwidth constraints.

Efforts to rollout Uganda’s national backbone and improve its international connection face a number of constraints. Important questions remain as to who should fund initiatives and what technology development option should be preferred. Important issues such as cost and reliability of access, speed, and bandwidth, are at stake. Creative technical, regulatory, and financing approaches are required, and both public and private sector leaders have a role to play. Discussions are under way and options such as the open-access model have been put on the tables, but Uganda and its partners need to evaluate every option very carefully before making their final choice.

In general, these types of costly investments are most productive if they are coordinated with broader efforts to upgrade the overall competitiveness of the Ugandan economy. In other words, deploying greater information and telecommunications infrastructure in areas where populations have no sustainable sources of income is an incomplete solution. Chapter Four will discuss the notion of ICT benefit and will explore ways Uganda’s key economic sectors could benefit from ICT.

In Section Five, the study explores the role that the public sector can play in supporting the productive use of ICT. It looks at how ICT can be integrated to improve the Government’s own performance, and it looks at where government ICT policy needs to be enacted to enhance Uganda’s ICT platform.

Finally, in order to prosper, Uganda must prepare its people to take ownership of their economic futures. The type of systemic transformation that Uganda needs must be driven by investment in a targeted national growth strategy, followed by the careful alignment of resources—including ICT—with that strategy. The recommendations that follow provide guidance on how the country can begin to meet this objective.

1. Make Investments to Address Country-wide Power Crisis

Uganda’s current power situation is truly a national crisis. The scenario is grim: due to increased load shedding, the parts of the country with access to electricity face 24-hour on, 24-hour off energy delivery. In response, businesses are increasingly turning to expensive, alternative sources of power such as diesel-powered generators to meet energy needs. World prices for oil and diesel remain high. In addition, energy charges have increased dramatically: as of June 1, 2006 tariffs for residents and small businesses increased by 37% while tariffs for heavy industry increased as much as 58%.

Quantifying the real impact of the power crisis on business productivity is challenging, in part because the crisis is just a few months old. Further detailed studies will need to be done. However, Ugandan firms recently surveyed ranked reliability and cost of energy as their number one constraint for doing business. Firms spent an average of 13.86 days without power last month, and spent on average about $660 during that same month on energy costs. In addition, firms estimated an average investment of $2,445 in additional costs (generators, etc.) to try to stabilize their energy supply.

The highest levels of the government of Uganda (GOU) are signaling investments to address the situation. President Museveni has recently announced plans to move ahead with the construction of two dams at Karuma and Bujagali designed to increase energy production. It is estimated that these projects will be completed by 2010, although some believe this projection is optimistic. Additional short-term measures include a waiver of the diesel tax for the manufacturing sector, and discussions to target energy delivery to heavily industrialized areas to help mitigate some impact of the energy crisis on production. While short-term efforts to alleviate energy constraints are to be applauded, a long-term plan is needed. Not only must the current demand be addressed, but as industries continue to develop, demand will increase and investments must be made to meet the needs of a growing consumer base.

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Based on an exchange rate of 1 UGX = 0.000541419 USD
Because much to the productive benefit of ICT is predicated on reliable electricity, solving this ongoing issue is a top priority for Uganda’s development.

2. Reduce taxes on Mobile Telephony to Drive Penetration

Despite the fact that 80% of Uganda’s territory is covered by mobile telephony networks and the presence of three mobile providers in the market since 2000, only 4.4% of Ugandans currently have mobile phones. In rural areas where mobile telephony could be an effective communication tool for farmers, this penetration rate is only 2.2%. While the prices for mobile telephony in Uganda are not high compared to some of its neighbors, they are high for a population with a GDP per capita of $285. Prices on mobile telephony are inflated by 30% due to government-imposed taxes. Uganda’s mobile market faces the second highest tax rate in the world after Turkey. Studies indicate that dropping a tax rate by as little as 1% can result in a 2% increase in subscribers in five years. Considering growth in mobile subscriptions has dropped from 97% in 2003 to 29% in 2005, a tax relief could help to re-ignite the market.

3. Develop a National Infrastructure Backbone and Facilitate Connection to the International Backbone

Access to ICT is a critical part of building a strong competitive platform for all firms, whether they compete domestically or internationally. Increased access can lead to better coordination and communication across the value chain, which in turn drives productivity and efficiency. For all firms, but particularly those competing in international markets, increased access to ICT can also lower cost structures. Although this benefit may not translate into increased competitive advantage against firms from other countries, it levels the playing field for Ugandan companies.

Access to ICT in Uganda is low; teledensity has increased dramatically since the 1990s, but is currently only at 4.4%. Internet penetration rates are low, largely due to the expense of accessing the Internet via dial-up technologies and low bandwidth. One important step that Uganda needs to take is to develop a national backbone to enable cost-efficient access at bandwidth speeds meeting the needs of businesses.

Now that the first telecom policy has expired, an opportunity exists to expand the focus from improvement of teledensity to ability to send and receive data, along with voice services. This will require building up a stronger network through the strategic use of fiber optic and wireless technologies. Achieving this will not happen by sole reliance on the private sector because experience has shown that private sector operators will naturally focus on expanding fixed networks where it serves their own customer base. Inevitably huge segments of Uganda’s population will be excluded as a result of this strategy, and potential synergies will be lost due to the lack of an organized plan.

Uganda should explore developing its national backbone and international connection through a creative technical, regulatory, and financing approach; both public and private sector leaders have a role to play. Discussions are under way and options such as an open-access model have been put on the table, but Uganda and its partners need to evaluate every option very carefully before making their final choice.

4. Enhance the Competitiveness of Key Industries – with ICTs

Uganda’s biggest challenge to achieving sustained growth and competitiveness will be the dynamic, non-linear process of upgrading the performance of its key industries. Uganda must be prepared to focus resources on those key sectors of the economy that will provide the majority of Ugandans the opportunity to participate in national growth. Strengthening the performance of emerging agricultural industries such as vanilla, or emerging ICT Enabled Services (ITES) such as education, will further diversify the economy. Simultaneously, several of Uganda’s traditional industries such as coffee and tourism, have the potential to grow through improvements in productivity and process efficiency.
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The approach to upgrading Uganda’s industries must be twofold: developing national strategies for sustained growth for each sector, combined with industry-specific technology interventions that improve logistics, ensure quality, facilitate communication with customers, and create access to markets.

5. Develop Support Programs for the Ugandan Private Sector – with ICTs

In order for Uganda’s economy to grow, businesses must not only find ways to survive, but must also chart a course to thrive. One potential solution to meeting these needs and strengthening the general performance of the private sector is through the provision of Business Development Services (BDS) and incubation services. There is a need for a strategic approach to drive business growth in Uganda. Firms must be supported generally, and with regard to ICT adoption. The existence of well designed and managed business incubators and BDS may provide a good conduit for the deployment of ICTs to Ugandan firms, especially SMEs.

Two criteria are critical for successful BDS or incubator interventions: the content of interventions and services must be customized to the actual needs of Uganda’s firms—training in basic business principles, practical guidance on how to get access to affordable finance or structure financial records, and training on the productive use of ICT within an environment constrained by low access and power challenges. The provider business models must also be configured to meet the needs of this primarily rural population.

The business development service space in Uganda is well populated, but this activity is centralized primarily in Kampala and other major urban areas. Models that bring relevant support for the rural sector—for example, the use of SMS to share market prices and build access to information, or the use of radios to share technical guidance on how to grow a certain crop—should be further explored.

Best practice models of incubation and BDS emphasize the need for a range of services, from hands-on training in functional areas and facilitating access to finance, to simply providing space and access to facilities such as telephones and computers. Future efforts to expand and improve service delivery in this critical space should focus on clearly mapping service provision to the needs of the local business community, and on setting clear performance metrics for service providers.

6. Develop General ICT Training Capacity

Uganda must prepare its population to take on the responsibility of revitalizing, managing, and
building its key economic sectors. The level of capacity of individual entrepreneurs and citizens to benefit from ICT and other competitiveness initiatives is a critical factor to consider before making investments in ICT and competitiveness building initiatives. Although current primary enrollment rates of 89% are impressive, secondary (14%) and tertiary rates (3%) suggests that few Ugandans may have the adequate level of educational readiness to use advanced forms of ICTs that require well-developed literary and numeric skills.

Continued efforts must be sustained to encourage enrollment at the primary levels. At the same time, programs at the secondary and tertiary levels must graduate students that can meet the real needs of the private sector. To this point, teaching ICT for ICT literacy’s sake will do little to improve Uganda’s competitiveness. Rather, building basic ICT skills must be paired with efforts to expose students to real business applications of ICT.

Innovative programs, such as the Faculty of ICT at Makerere University, are graduating students with advanced degrees in IT-related fields, but most focus on developing the specialization needed to fill skilled posts in Ugandan business. Improving ability in the private sector requires a different approach, and should be focused on enhancing training in applied ICT business skills. A survey of over 200 Ugandan firms conducted by the OTF Group indicates that the country’s labor force gaps are not so much in ICT skills, but rather in basic business functions such as marketing and finance. These are the skills that Ugandans must learn now to be prepared to enter the workforce. ICT in the form of e-learning, for example, can be used as a conduit to attaining these skills.

A combined approach is needed. At the basic education level, broader access to ICT must be given to primary and secondary schools in order to build basic ICT literacy, and an organized approach must be used to integrate ICT into curricula. At the tertiary level efforts must focus on teaching both business and ICT skills that are connected to the current workforce needs of Ugandan firms.
The Ugandan economic success story is showing signs of fatigue. Between 1990 and 1999, GDP grew by an average of 6.86% per year. However, growth slowed between 2000 and 2004 and the rate declined to 5.5%. While these rates are still relatively impressive, and progress has been made on issues of poverty, important work remains to be done. Uganda needs a sustained target GDP growth rate of 7% in order to meet Poverty Eradication Plan (PEAP) objectives. In addition to this, Uganda is characterized by income and social inequalities between urban and rural areas, as well as between the northern and southern areas. Future economic development programs will not have dramatic impact on the prosperity of the average citizen unless special attention is paid to these imbalances.

1.1 GDP Analysis

Accounting for 35% of GDP, the agriculture sector was at one time the economy’s largest contributor to GDP. However, its leading position has eroded over the past eight years and the service sector, accounting for 39% of GDP, is now the economy’s biggest contributor. Although export crop production has increased, subsistence farming still accounts for half of total agricultural output.

Export growth remains fairly strong, growing at an average annual rate of 11% annually between 2000 and 2005. Contributions to GDP from export earnings for traditional exports such as coffee have declined, while contributions from non-traditional exports including services, vanilla, fish, and flowers continue to climb (see Figure 3). This signals an important move towards economic diversification, a positive trend that includes expansion of service industries and the introduction of new industries such as flowers and fish.

Another important trend within the Ugandan economy is a move towards more value added products. Currently Uganda exports the bulk of its traditional export industries in raw or semi-processed form. Expanding into value-added products, such as extracted vanilla, will allow

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Figure 2. GDP by Sector


Figure 3. Percentage of Contributions of Traditional versus Non-Traditional Exports

Source: egdev.org

Uganda to capture more of the revenue potential than with basic commodity exports. Moving into these sophisticated industries, however, requires additional investments in infrastructure and human capital. ICT, as we will discuss, will also play a key role in this move.

Ugandans live in rural areas (90% of the total population) and are employed in the agricultural sector (nearly 80% of the labor force), yet this sector contributes only 35% to GDP. A move away from subsistence agriculture represents an important opportunity to increase productivity, and upgrade Uganda’s overall economic performance. Value added agriculture and a move into agribusiness and processing will have a positive impact on rural job creation and poverty alleviation.

However, it must be noted as we will discuss later, that although ICTs can have a critical role to play, better strategic choices and sound investments to improve operational efficiencies will be the key drivers of enhanced competitiveness in Uganda’s key industries, including all agriculture-based ones.

1.2 Demographics

Uganda is a landlocked country of 27 million people, roughly the size of the United Kingdom. Uganda borders five countries: Sudan to the north, Democratic Republic of the Congo to the west, Rwanda and Tanzania to the south and Kenya to the east. More than 18% of Uganda’s land surface is covered with water with Lake Victoria being the largest of Uganda’s five major lakes.

Uganda’s demographics highlight both challenges and opportunities. It is a primarily rural country, with only 10% of the population considered urban. According to the UNDP, this situation should remain unchanged through 2015. Economic growth plans must focus on creating opportunities that will benefit the primarily rural population, such as agribusiness.

In addition to being heavily rural, 50% of Uganda’s rapidly growing population is under the age of 15, a situation that the UNDP estimates is unlikely to change over the next 10 years. Being such a young country puts enormous pressure on the government to educate its next generations.

Significant efforts are already being made on this front, with policy supporting universal primary education established in 1997. Between 1992 and 2002 poverty rates declined from 55.7% to 37.7%, primarily through the emergence of successful new agro-industries such as fish, vanilla, and flowers in rural areas, as well as growth in services in urban areas. This growth in the agriculture sector brought much needed disposable income to impoverished populations in rural areas. By 2004, however, Uganda’s GDP growth rate slowed from an average of 6.86% between 1990 and 1999 to 5.5% between 2000 and 2004\(^{10}\). GDP per capita growth also declined from 3.46% to 1.8% during the same period, partially due to the slowdown in GDP growth, but also due to population increase: the population has been growing at 3.3% annually and is forecasted to increase to 3.7% until 2015\(^{11}\). With such high population increases, Uganda needs even higher levels of GDP growth so that the average citizen can feel the benefits of economic growth, and poverty rates can continue to decline. Current growth rates, though impressive, are below the 7% sustained rates required to meet the PEAP objectives.

Another issue contributing to the challenge of eradicating poverty is distribution of wealth, both between rural/urban areas, as well as between different regions. Issues of distribution and access equality are particularly stark between the North and South of Uganda. The North is currently in a state of intermittent conflict with the Lord’s Resistance Army (LRA) undertaking guerrilla attacks on the local population. Only 40% of those living in the North have had some formal schooling and nearly half of the population over the age of 10 is illiterate. By contrast, in Kampala, 96% of the population has had some formal schooling and only 4% are illiterate\(^{12}\).

Health is another important area when measuring overall economic improvement. Compared to its neighbors (Kenya (1.7%), Rwanda (3.1%) and Tanzania (2.1%), the Ugandan government spends the most on public health, investing 3.4% of GDP\(^{13}\).

10 Ibid.
11 Ibid.
12 Uganda National Household Survey 2002/2003
Nonetheless, healthcare remains a critical concern for Uganda. HIV infection rates have declined from a national average of 18% (with concentrated areas of high infection reaching as high as 30%) in the early 1990s to just 6% in 2005\(^\text{14}\). Although it is considered an African success story for decreasing its HIV/AIDS infection rates, AIDS is still the leading cause of death for adults in Uganda. It is estimated that infection rates are higher than the national average in Northern Uganda.

1.3 Uganda’s export patterns

A key component of building the competitiveness of developing economies—in which, by definition, needs are significant and resources limited—is the ability to prioritize investment in industries based on their relative potential to be globally competitive and return the most value to the local population. Because there is a strong correlation between a country’s ability to export more value-added products and that per capita income, this section builds on GDP statistics and analyzes Uganda’s trade patterns in relation to comparative and competitive advantage models of competition.

This analysis is built on the idea that increasing Uganda’s competitiveness is linked directly to the ability of Ugandan firms to increase exports. By exporting, Ugandan firms will expand their markets beyond their own economy, increasing foreign exchange earnings and driving a net increase in the population’s purchasing power and standard of living.

**Methodology and Theory**

To illustrate trade patterns and export flows, trade charts are calculated for Uganda over the 1992–2002 period (see the Appendices for complete trade charts). The first broad cluster band is depicted in the top row and shows upstream-sectors characterized by industries whose primary products are inputs into products in other industries. Most of these industries are resource-based, with the exception of semiconductors/computers, and competition is mostly based on costs (i.e. gold, timber, oil, memory chips).

Across the middle row are broad end-use sectors involving industrial or supporting functions. These clusters are centers of complex operations and

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\(^{14}\) Uganda AIDS Commission

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Note: Purchasing power parity is standard in this presentation as opposed to GNP because it is an estimation of exchange rate changes based on keeping prices of goods in different countries fairly similar by offsetting inflation differential with changes in the currency exchange rates. Correlation coefficient determines the relationship between two properties, coefficients closer to 1 indicate the variations in one variable are perfectly explained by variations in the other. Arrow illustrates the 66 correlation between purchasing power parity and export in natural resources.

Source: World Bank 1994
Improving Competitiveness and Increasing Growth in Uganda

conduits of innovation and upgrading, characterized by competition based on differentiation as much as costs (i.e., power generators, motor vehicles, and scientific instruments). Finally, the bottom row contains end-use sectors mostly associated with final consumption goods and services. In these sectors, competition is mostly driven by product differentiation (i.e., breakfast cereals, clothes, furniture).

The link between these three horizontal bands and productivity upgrading is relatively straightforward. Economies generally begin the upgrading processes from initial positions at the top (upstream industries, usually extractive natural resource-intensive industries) or the bottom (final consumption goods and services) bands of the trade chart.

Resource-rich countries typically begin with final consumption industries, and gradually develop competitive industries in the mid-band (industrial and supporting goods) or the services sector by investing the rents extracted from their resource exports into developing human and knowledge capital that allows them to make this transition. This process of transformation allows countries to lay the foundations of a complex industrial core or a thriving services sector that relies on skilled human capital.

Resource-poor nations, in contrast, typically start exporting labor-intensive upstream goods derived from basic agricultural products or simple manufacturing. As these products are commoditized and price competition becomes fierce, countries should start focusing on a number of niche markets and, in parallel, invest in human and knowledge capital to develop a competitive service sector.

Uganda’s current situation, where exports are still heavily concentrated in final consumption goods, with some activity in metals and minimal cluster activity in the middle band (mostly in transportation and power generation and distribution), indicates the need for a growth and competitiveness strategy that focuses on producing more differentiated and value-added final consumption goods. Special attention may be given to engaging in such agro-transformation activity in rural areas.

**Broad Economic Performance and Trade Statistics**

A deeper analysis of trade statistics allows us to delineate the broad economic and export patterns that emerge across Uganda’s existing clusters. The analysis also provides insight into the evolution of an economy towards higher levels of productivity and value-added products. The export receipts were $786 million in 2004/2005, which equals 10% of

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**Figure 5. Trade Statistics Framework for Uganda**

<table>
<thead>
<tr>
<th>“Broad Cluster”</th>
<th>Definition</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upstream Industries</td>
<td>Primarily used as inputs into other industries</td>
<td>Gold, Oil</td>
</tr>
<tr>
<td>Industrial and Supporting Functions</td>
<td>Centers of complex operations, Conduits of innovation and upgrading, Competition on differentiation as much as cost</td>
<td>Power Generators, PABXs, Motor vehicles, TV tubes</td>
</tr>
<tr>
<td>Final Consumption</td>
<td>Goods destined for final consumption, Competition traditionally on differentiated products and services</td>
<td>Breakfast Cereals, Jewelry Diamonds, Furniture, Television Sets, Clothes</td>
</tr>
</tbody>
</table>

Source: OTF Group Inc.

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16 Uganda ironically exports electricity per bilateral agreements has with Kenya, Tanzania and Rwanda that date back to the 1950s. Uganda actually ends up re-importing some of the electricity it exports.
GDP\(^{17}\). In comparison, Tanzania's exports represent 18.6% of its GDP and Kenya's 26.2%. Uganda clearly lags behind its neighbors in the weight of exports to its overall economy.

There are two broad export patterns emerging in Uganda. Both of these patterns are alarming and underscore the urgency for Uganda to evolve its economy towards increasing high value-added exports.

- **High export concentration in commodity products\(^{18}\).** Although there has been a generally positive trend toward diversification, Uganda's export base is still highly dependent upon traditional, labor-intensive crops that add very limited processing and value to their products (e.g., coffee, tea, and cotton) and extractive industries such as metals/materials. Focusing such a large percentage of exports in generic commodities puts Uganda in a vulnerable position relative to market fluctuation in commodities prices. At the same time, sectors located in this band provide a starting point for earning foreign exchange. Through forward integration and investments for greater transformation towards higher value products in appropriate industries, Ugandan firms should be able to increase export revenue for rural populations.

- **Import-export balance.** Uganda's trade balance deficit of US$821 million, which is equal to 10.6% of GDP, increased by 42% between 1997 and 2004. Most of this growing trade imbalance has been driven by larger final consumption imports (5-fold increase from $41 million in 1998 to $261 million in 2004), while midband products imports grew more moderately from $299 million in 1998 to $397 million in 2004. While a negative overall trade balance is not unexpected in a developing country context, in Uganda's case there might be reason for alarm because while mid-band imports are important for building a manufacturing base, such a growing trade deficit in final consumption goods coupled with a slower GDP growth rate may be indicative of future economic trouble.

Encouragingly, there is a small, but present, increase in industrial and support (mid-band) exports. Although this mid-band represents only 6.75% of total exports, this has climbed from a mere 2% in 1996. This change signals that with the right focus and strategic investment, Uganda has been able to grow its export base in this critical middle, industrial and supporting functions band.

1.4 Regional Trade Statistics

Another important Ugandan trade pattern is the configuration of its trading partners. While Uganda trades extensively with distant partners such as the EU, it may not be maximizing the potential benefits of regional trade schemes such as the EAC and COMESA.

Despite the transportation challenges Uganda faces as a landlocked nation, 37% of its exports go to the EU. Surprisingly, trade with the Common Market for East and Southern Africa (COMESA) is less at 27% of exports. Meanwhile, only 3.5% of Uganda’s formal exports go to Tanzania and Kenya, its partners in the East African Community. Informal trade is an important factor in Uganda's regional trade relationships, particularly Tanzania and Kenya but is more difficult to capture. Uganda is heavily dependent on Kenya which provides 45% of its imports.

Although increased regional trade and integration are seen as potential drivers of growth for Uganda, efforts to further this process continue to face obstacles such as the homogeneity of export products among EAC countries. Uganda, Kenya, and Tanzania produce similar agricultural goods, including coffee, tea, cotton and fish. This lack of product differentiation makes trade less attractive between neighbors, and suggests a need to increase Uganda’s competitiveness in world markets, perhaps in partnership with other neighboring countries, while continuing to search for complementary export products to expand regional trade. Some progress was made in 2004, when EAC members signed a customs document aimed at eliminating tariff and non-tariff barriers to internal trade within five years. Provisions also exist for setting common external tariffs between the three countries. A significant component of regional trade which is difficult to quantify is informal trade, for example in

\(^{17}\) Bank of Uganda, FY 2004–5

\(^{18}\) Final consumption goods takes into account agricultural inputs—e.g. uncombed and uncarded cotton, while in and of itself not a final consumption good, its main function is as an input into a final consumption good and is thus categorized as such.
agricultural products. Uganda has yet to actualize the potential of membership in COMESA; it has not joined the free-trade area (FTA) of COMESA, primarily due to concerns of zero tariffs impact on manufacturing sectors and government revenues. This decision somewhat limits Uganda’s ability to favorably access markets in member countries.

Increased participation in regional trade is one important, though limited opportunity, for Uganda’s growth.

**Conclusion**

While important progress has been made in growing Uganda’s GDP and reducing poverty, there is still work to be done. Much of the country’s economic activity revolves around commodity industries, such as agriculture, and the benefits of growth in these industries are not reaching the majority of the rapidly growing population. While steps are being taken in some promising new sectors, Uganda must continue to proactively increase revenue generation through economic diversification and address issues of inequality. While optimism for the future is high, government and private sector leaders must act decisively to improve the competitiveness of the Ugandan economy and generate more wealth for the average citizen. In the next section of the report, we will explore the current state of usage and penetration of various forms of ICT in Uganda, and make some preliminary recommendations on policy and infrastructure development.
2. The Need for a Strategic Approach

It is strategically important for Uganda to focus on industries as the predominant economic level of engagement when articulating national competitiveness programs to drive growth and reduce poverty. Overall national economic performance is the sum reflection of local industries’ performances. Industries are the key overall drivers of economic growth. Renewed efforts on strategic choices and on operational efficiencies in key rural-based agriculture industries, including through better deployment and use of ICTs, will help Uganda improve rural incomes.

The competitiveness of both domestically- and export-driven industries drives the performance of large businesses or small businesses, government agencies or NGOs, and it can be enhanced through better strategic choices, in parallel with operational efficiencies which include, among other things, the appropriate use of ICTs. The key issue is to formulate a comprehensive strategic approach and within that framework, determine where ICTs can have the greatest impact. From there it becomes relatively simple to identify what should be done to provide ICT access and ICT training to Uganda’s most strategic economic segments. So ICT in and of itself can never be the only solution to key industries’ competitiveness, but once sound strategic choices have been made and potentially high-impact operational improvements have been identified, ICT more often than not has a critical role to play in accelerating industry transformation. For example ICT alone will not turn the fortunes of the Ugandan coffee industry if production and wilt disease problems are not addressed. Similarly in Uganda’s flower industry, the formation in 2001 of Fresh Handling Limited, a logistics and cargo service was a move that was a critical transport logistics improvement that helped unlock the overall the overall competitiveness of the industry in a way that ICT solutions along the flower value chain alone could never have.

Workforce access to ICT and ability to use ICT are meaningless if users do not recognize the tangible benefits of ICT. Institutional investments in ICT must be rationalized against competing uses of time and capital. Measuring improved ICT access and ability is relatively straightforward. ICT benefits, however, are more complex to measure. Measuring the effects of technology on firm level productivity and innovation is challenging, particularly in developing countries where data is limited. Often the true benefits of ICT investments are diffused and entrenched within firms’ operations, making them more difficult to measure.

One potential approach for evaluating the impact of ICT interventions is to assess their impact at the industry level. Focusing on an industry means that ICT interventions can be targeted to the needs of the various businesses and institutions operating in that industry, and can be customized at the appropriate level of the value chain (e.g. the farmer growing a specific crop can utilize SMS messaging to check market prices or contact an agronomist while an exporter can employ a complex inventory control and communications system). Improvements in the
overall performance of the industry versus overall ICT investments can then be looked at more closely.

In Uganda, as in many other parts of Africa, three main categories of enterprises exist. The first category directly drives the main industries of the economy; these would be hotels, lodges, or airlines in a Tourism-driven economy. The second category tends to be SMEs that support the larger enterprises operating in key local industries; these could be spare-parts manufacturers or leather-seat suppliers to a strong local automotive industry. And the third category is also SMEs, but SMEs that indirectly benefit from the increased purchasing power local successful industries generate; these would be local retail and grocery stores in a prosperous mining town or neighborhood restaurants and bars in a striving coffee export town.

In countries where per capita income and purchasing power are low, the potential for dramatic growth based on a domestic market focus is often limited to few industries. Greater focus on export industries can be critically important in the initial stages of a country’s national competitiveness efforts. What really matters to drive Uganda’s economic competitiveness is to ensure that the key industries perform well and become successful and competitive. This success will bring increased business opportunities to local entrepreneurs who find ways to provide input or provide services to workers, thus strengthening the domestic economy and increasing disposable income among local populations.

The majority of businesses in Uganda are SMEs—more than 800,000 are believed to operate in the formal and informal sectors. This SME heavy structure is true of most developing countries. SMEs play a critical role in the Ugandan economy. An important factor in the ability of Uganda’s private sector to compete is whether SMEs are able to increase their productivity and execute competitive strategies.

In a country where rapid economic growth coincides with ambitious poverty reduction goals, strengthening SMEs represents one opportunity to focus development where it will impact the domestic economy and help play a supporting role to strengthening key industries. By seizing opportunities in both export and domestic markets, SMEs play a key role in increasing the purchasing power of the local population. Much of the discussion that follows centers around business challenges and industries where SMEs play a key role.

2.2 Uganda’s Enabling Environment

Simply stated, it is not easy doing business in Uganda. Out of 155 countries, the World Bank ranks Uganda as the 72nd most difficult country in which to do business. This ranking came before the current power crisis which has been crippling Ugandan businesses over the last 6 months. Regionally, Uganda scores just below Kenya (68th) and well ahead of Tanzania (140th) and Rwanda (139th). Uganda receives high scores in areas of labor (10th in terms of ease of hiring and firing labor), but comparatively low scores for the cost of starting a business (100th), dealing with licenses (92nd) and registering property (97th). Meanwhile, corruption is widespread. The World Economic Forum ranks Uganda as the seventh most corrupt

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**Figure 7. The Pull-Push Approach**

<table>
<thead>
<tr>
<th>Three Types of Private Enterprises</th>
<th>Required Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Enterprises that drive the main industries of the economy: hotels, lodges, or airlines in a Tourism-driven economy.</td>
<td>Main Industries’ Companies, in Tourism: Coffee, Fruits and Vegetables</td>
</tr>
<tr>
<td>2. Enterprises (usually SMEs) that support the larger enterprises operating in the main industries: spare-parts manufacturers or leather-seat suppliers to a strong local automotive industry.</td>
<td>National Strategies for main industries Execution of National Strategies</td>
</tr>
<tr>
<td>3. Enterprises (usually SMEs) that indirectly benefit from the increased purchasing power local successful industries generate: local retail and grocery stores in a prosperous mining town or neighborhood restaurants and bars in a striving coffee export town.</td>
<td>SME-Companies Main Industries’ Suppliers</td>
</tr>
</tbody>
</table>

Source: Xxxxx
country in Africa, with its judiciary considered among the most corrupt institutions in the country.

The costs of starting a business are prohibitive. The start-up costs of a business in Uganda are 117.8% of GNI per capita, as compared with Kenya (48% of GNI) and South Africa (8.6%). It should be noted that while this figure compares favorably with the average for sub-Saharan Africa at 280%, it does not eliminate capital burdens on entrepreneurs. The start-up process itself is burdensome, with 17 necessary steps, as compared to an average of 11 for other sub-Saharan African nations and a mere 6.5 for High Income countries. Getting credit in Uganda is also extremely difficult for the average entrepreneur—the country ranks 127th out of 155 in terms of access to capital.

As the graph above shows (Figure 8), not all of the challenges facing Uganda’s private sector are enabling environment related. Others related to a lack of internal capacity.

Once a business is established, an unreliable and inadequate transportation sector drives up costs substantially and prevents many businesses from participating in regional and foreign markets. Approximately 90% of goods are transported by truck. Compared with its EAC trading partners, Uganda has a more expansive road network (112 km per 1,000 km surface area compared to 110 for Kenya and 93 for Tanzania) but less than 7% of them are paved compared to over 12% in Kenya19.

Rail service is minimal at best, with only the southern line (running from Kampala to as far as Eldoret, Kenya) in operation. The rail line connecting Kaseme, in the south west, to Kampala was shut down in 2000 due to high maintenance costs. The Government is considering privatizing the railway system. The Ministry of Finance estimates that the rail system currently carries less than 1 million tones of goods a year but could potentially increase this amount to 2.5 million within five years, and that a reliable and well-run system could transport goods for 20% less than road20.

Freight costs put Uganda at a significant disadvantage. Transport costs rated as a important challenge in the 2006 Firm-level study, as the fourth most serious constraint. While the average cost of transporting a container from sub-Saharan Africa to the U.S. is between US$1,000 and US$1,500, a container that originates in Kampala, travels to Mombassa and on to the United States can cost up to US$4,000. The absence of any competition in Uganda’s shipping sector indicates that these prices will not come down anytime soon. While Kenya has 12 shippers, Uganda has just two shipping companies21.

Figure 8. Enabling Environment Challenges

Source: 2006 OTF Group Firm-level Survey

21 World Bank: Export Growth and Competitiveness in Uganda.
Energy is another significant challenge. Quantifying the real impact of the power crisis on business productivity is challenging, because the crisis at its current level is just a few months old. Further detailed studies will need to be done. However, access to and cost of energy was the top enabling environment challenge cited in the 2006 OTF Group Firm level study. Additionally, 42% of firms surveyed felt that the power crisis was negatively impacting their business. Firms spent an average of 13.86 days without power last month, and spent on average about $660 during that same month on energy costs. In addition, firms estimated an average investment of $2,445 in additional costs (generators, etc.) to try to stabilize their energy supply over a five-year period.

All of these factors create a volatile business environment where sustainable success is difficult to achieve. This results in high failures rate for new start-up enterprises. For small SMEs, the majority of new businesses, failure rates are worrying: according to a recent study, 187,000 small enterprises that started in 2000 were still in operation in 2003, while 158,000 enterprises closed in that same year. It has been estimated that the probability of an SME surviving its first five years is less than 50%.

An important challenge for Ugandan businesses is access to capital. As mentioned above, the World Bank Doing Business study ranks Uganda 127th out of 155 countries for difficulty in accessing credit. Banks’ reluctance to lend is compounded by the absence of a broad understanding of basic business, finance and accounting skills. Financial institutions demand that clients maintain orderly financial accounts, and SMEs’ transactions are often not reflected in their bank accounts. Furthermore, investors often demand a bank guarantee upfront, but SMEs inability to provide credible financial records prevents them from receiving such guarantees.

Encouragingly, ICT is not considered a major limitation to those surveyed. Firms in Uganda are using at least the most basic forms of ICT, primarily as a means for communication. In the firm-level survey, 94.1% of firms used a telephone for communication and 74% actively conduct business over the telephone. 38% rated email as an important means of communication. Still, more than 99.5% of firms surveyed conduct most business in person.

Less than half access the internet, and numbers dwindle as technologies become more complex.

Given the relatively low usage of the Internet within Uganda, firms that target domestic consumers may not be able to reach enough buyers to justify investing in ICT hardware, training and maintenance. With the low connectivity of Ugandan society, a compelling need to use email or other computer-based means of communication does not exist for many firms. Many of these firms are making very rational decisions to not invest in ICT in the short term. Nonetheless, these firms need to be prepared for the potential, eventual need for the further integration of ICT into business processes as industries and customer demands become more sophisticated.

In order to overcome the enabling environment and firm-level challenges outlined above, as well as continue to increase productive use of ICTs in their businesses, Ugandan firms can benefit from Business Support Services. One of the key roles that Business Support Services can play, particularly for SMEs, is providing targeted interventions to overcome enabling environment challenges: weakness in the institutions needed to protect entrepreneurs and their ideas, limited access to financing, cultures where pro-innovation attitudes are actively suppressed. When trying to promote innovation and entrepreneurship, and create environments where small firms can thrive and grow, the central challenge is to design mechanisms to reduce these barriers.

Business incubation and business development services (BDS) are levers designed to address the most critical challenges in SMEs’ enabling environment. Each is designed to target a specific weakness in the enabling environment. Cyberparks provide infrastructure and connectivity, for example, while associations strengthen critical networks and often lobby to create a policy environment that will promote innovation. The relevant question is not which is the right universal mechanism—many are actually hybrid models—but what is the necessary

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22 Based on an exchange rate of 1 UGX = 0.000541419 USD
23 2006 OTF Group Firm Level Survey
25 Interview with Charles Ocici, Executive Director, Enterprise Uganda, March 7, 2006.
series of interventions for a particular environment, so that knowledge-based entrepreneurs can thrive.

2.3 Business Support Services

Improving operations and upgrading products and services is part of an important virtuous cycle for firms. When firms compete domestically, regionally, and globally by providing unique value to sophisticated consumers, they spur economic development. These firms are able to employ more workers and pay them a higher salary. In turn, they invest in research and training to ensure continuous innovation in premium products or services that will drive the firm’s growth. Targeted steps must be taken to initiate this cycle for Uganda’s small businesses. ICT can play a role in improving the operations of SMEs. There is a strong need to build fundamental business skills in the workforce. In this section, we will explore how education and business development services (BDS), in part by employing ICT, can help Ugandan businesses become more competitive.

Business incubation is one way to target and strengthen firms. Business incubators facilitate the process of enterprise development by helping startups to survive and grow when they are most vulnerable. They provide a range of services, from hands-on technical assistance and access to finance, to support services and infrastructure such as office space and communication facilities. Although their core competency is often providing access to SME financing, they can be a potent mechanism for intermediating venture capital and establishing networks of investors.

In order for BDS and incubation services to be effective in Uganda, they must meet two needs. First, the content of interventions and services must be customized to the actual needs of Uganda’s SMEs—training in basic business principles, practical guidance on how to get access to affordable finance and structure financial records, and training on the productive use of ICT within an environment constrained by low access and power challenges. Second, the actual models and mediums through which they offer their services must be configured to meet the needs of this primarily rural population.

The business development service sector in Uganda is well populated, but this activity is centralized primarily in Kampala and other major urban areas. On of the major areas of service that these institutions focus on is ICT support. There are more than...
50 firms in Kampala providing technology training to SMEs. Some players combine initial training in key business and management areas with customized follow up for businesses. At the same time, a number of providers are making a concerted effort to reach the rural sector and are using some very entrepreneurial approaches. For example, a company called Ugabytes provides technical support and training to over 30 telecenters throughout Uganda, in order to better ensure their sustainability. Ugabytes’ service answers a real need among telecenters, which when well managed can serve as a critical access point in rural communities. As noted in the previous section, many telecenters fail because they have no one to call on to troubleshoot basic technical problems.

Other firms providing business services to the rural sector use ICTs. FIT Uganda, for example, uses radio, the most prevalent ICT used in the rural sector, to provide sector specific educational programming tailored to the business needs of Ugandan farmers.

One Incubator, the Uganda Industrial Research Institute (UIRI) has recently been started with a strong technology focus, offering services in important areas such as technology transfer and industrial research. In addition to providing numerous human resource development and capacity building services throughout the country, UIRI has recently become Uganda’s only industrial incubator. A select number of industrial SMEs, originally established under the auspices of the UIRI, will be further developed and nurtured specifically in the areas of communication, trade performance and efficiency with the ultimate goal of engaging in export business. The incubator program will rely on ICT tools to improve the performance level of the incubator; improve the overall content, quality and delivery of technical training materials through application of ICT tools; and strengthen the overall monitoring and evaluation processes of the incubator and its partners.

One model for Uganda to consider as it continues to develop tools to support individual firms is the development of an incubation and business support model that focuses on a number of related industries, and achieves economies of scale. As discussed above, Business Support Services whether in the form of Incubation or Business Development Services can be powerful tools for interventions specifically designed to strengthen firms and overcome enabling environment challenges.
Three aspects matter when attempting to translate the productivity improvements potential ICT presents into tangible results: Access, Ability, and Benefit. Access refers to the degree of difficulty or ease through which Ugandans are be physically exposed to ICT. As a result, access issues naturally center on physical ICT infrastructure constraints related to things like electricity, telecommunications, and internet networks. Ability is about whether Ugandans have the financial and basic educational means to use ICT. In other words, it looks at users’ level of preparedness to use ICTs in terms of both education and affordability. This chapter of the report will provide a review and analysis of the current state of ICT access and ability to use ICT in Uganda. Chapter Four will focus on the Benefits ICT presents for key Ugandan user-segments.

### 3.1 Access to ICT and Ability to Use Them

The promise of ICT to improve competitiveness cannot be realized simply through a country’s undiscerning deployment of ICT tools and services. If funds are invested in ICT to drive access and improve potential users’ ability to use them without demonstrable returns in productivity, efficiency, as well as lifestyle and social impact, future investments in ICT will be harder to justify in light of a negative track-record. When seeking to invest ICT resources, three keys to ICT success must be opened at the same time: Access, Ability and Benefits (see Figure 10). Access and Ability are discussed here, while Benefit is discussed in chapter 4.

**Access**: Do potential ICT users have the right infrastructure to gain access to ICT? Factors that affect access are availability of pre-required services such as electricity, telephone (fixed and mobile service), and satellite. In Uganda, electricity and telecommunications are scarce, unreliable, and expensive. Both represent formidable impediments to ICT access.

**Ability**: Do potential ICT users have the skills and financial means to use technology? The capacity of an institution to pay for ICT services is an ability factor, as is the level of education and technology training of the employees of that institution. In Uganda, educational and training ability is highly

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**Figure 10. Keys to ICT Usage**

- **Access**: Physical access to ICT
  - Electricity
  - “Dial Tone”: Telephone access
  - Cell phone access

- **Ability**: Individual ability to use ICT
  - Affordability
  - Education

- **Benefit**: Perceived Benefits of Using ICT
  - Economic benefit
  - Lifestyle benefit

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Currently, 90% of Uganda’s population lives without electricity and has limited access to basic utilities. Levels of telephone and internet penetration remain low. Recent efforts to improve access have paid off—for example, teledensity rates have increased dramatically since 1997—but significant progress still needs to be made before most Ugandans can harness the productive potential of ICTs. Current obstacles to access, such as unreliable power and infrastructure limitations, must be addressed simultaneously with efforts to improve Ugandan institutions’ ability to use ICTs. The government’s agenda towards facilitating the emergence of an ICT-led economy is commendable and should drive an urge to find faster solutions to Uganda’s ICT infrastructural problems.
stratified. While primary enrollment is on par with that of South Africa and Mauritius, there is still a lag in secondary and tertiary enrollment and an insufficient supply of IT savvy, skilled labor. Fortunately, both the private and public sectors recognize the need for more training, both on how to use ICT and how to develop and maintain it. On the capacity to pay for ICT aspect, Ugandans are impacted by the high cost of pre-required electricity and telecommunication services.

It is important to note that commercial institutions cannot potentially benefit from ICT in the same way. In fact, the optimal level of ICT usage can vary greatly depending on the industry, the position and role of the user in the industry, the type of product and service offered, etc. The appropriate level of ICT usage by an institution needs to be informed by various factors. In the meantime, different levels of ICT penetration exist, as illustrated below by Heeks & Duncombe’s ICT penetration framework (Figure 11 below).

These five stages are not necessarily linear. The level of ICT penetration in an institution can be “leapfrogged” over intermediary levels depending on its needs and capabilities. For example, as connectivity improves through backbone networking, an institution that was formerly classified in the “CT Only” category could move directly into “Networked ICT” category.

For a rural farmer, the institution here being ‘the farmer’, simply gaining access to a telephone may allow a significant leap in productivity when considering the time and money the farmer could save by phoning an agronomist for advice on the proper herbicides to combat a fungus, instead of traveling to town and incurring transport costs for the same information. At the same time, a bank serving the entire nation may well demand state-of-the-art ICT solutions to tie together regional branches with real-time information. In the same way that a bank cannot be most efficient using only telephones, the rural farmer would not (and could not) use the management information systems used by the bank to be a better farmer. Accurate measurement of the needs and capabilities of ICT end-users is necessary for ICT to create real economic value in Uganda.

Just as an economic diagnostic is required for identifying barriers to national growth and competitiveness, a comparable process is useful in assessing barriers to ICT-led productivity in an economy. The rest of this section of the report offers an analysis of the current state of ICT access and ability in Uganda. This data will lay the groundwork for an evaluation in Chapter Four of the current and potential benefits ICT can bring to Uganda.

28 The model has been used in previous studies to assess and prioritize investments in ICT to improve competitiveness.

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**Figure 11. Five Levels of ICT Usage in Uganda: Results of Firm-level Survey**

<table>
<thead>
<tr>
<th>Non-ICT users</th>
<th>ICT only users</th>
<th>Non-networked ICT users</th>
<th>Networked ICT users</th>
<th>Intensive ICT users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprises that make no use of computers and have no immediate access to telecommunication services</td>
<td>Enterprises that make no use of computers, but have access to—and make regular use of—telecommunication services: telephone, tax, cellular</td>
<td>Enterprises with one or more computers on their premises, but with no network connections; they will have access to telecommunication services</td>
<td>Enterprises with stand-alone computer(s) that lack internal networking, but which have an external email/internet connection</td>
<td>Enterprises using two or more internally networked computers that also have email/internet connectivity</td>
</tr>
</tbody>
</table>

4.4% | 35.1% | 23.4% | 19% | 10% |

Source: OTF Group Inc.
3.2 Access Issues in Uganda

In order to increase access to ICT, Uganda’s private and public sectors need to tackle a number of pressing challenges:

- the development of a sound national backbone infrastructure
- an efficient and extensive telecommunications platform
- a wide and dynamic Internet access offering

**National Backbone**

The general infrastructure of Uganda was decimated under the rule of Idi Amin. In fact up until the mid-1990s, Uganda was considered to have one of the least developed infrastructure systems in Africa. Although progress has been made, especially in basic economic infrastructure such as roads, infrastructure limitations continue to make ICT inaccessible to many Ugandans, especially those living in rural areas. There is growing demand for connectivity to facilitate high capacity, quality delivery of voice, data, and image services and support applications that cannot be reliably and cost-effectively met by simple dial-up or wireless transmission.

Uganda has an existing fiber optic network, centralized primarily in urban areas, that is inadequate in reach. Roughly 80% of the country’s digital phone lines and modern switching technology are found in Kampala.

In rural areas, access to ICT is encumbered by inadequate and sparse infrastructure. Fixed line technology is almost non-existent and penetration rates are just 2%. Even though 80% of Uganda’s territory is covered by cellular networks, many people do not benefit from mobile telephony due to the high cost of service and handsets as will be discussed in the telecommunications section. The backbone outside of the capital is primarily based on microwave relay links (wireless and satellite) which uses radio for transmission, as opposed to fixed copper lines or fiber optic cables.

In 1997, the GOU began to aggressively address this issue by introducing competition into the market in order to provide wider access to telephony services. However, despite some noticeable progress, the results have not been what they were expected. With the revised telecommunications guidelines released and a new policy being finalized, Uganda is in need of a policy model that will help address infrastructure and national backbone challenges in a more structured manner. The critical questions to be answered are now: Who should lead the effort, and what type of infrastructure should be built? To date both UTL and MTN have invested hundreds of millions of dollars in their own networks, $125 million and $200 million respectively, but these investments, Uganda’s telecommunications players are unable to support the needs of an entire country. Should backbone development be considered a profit-making endeavor or should it be treated as a public good that all providers should be able to share equally? Going forward, these are some of the questions that will require careful considerations by Ugandan decision makers and their partners.

**International Backbone**

When it comes to Uganda’s international backbone, the country suffers the same costly fate as its East African neighbors. While countries in western, southern, and northern Africa are connected to submarine fiber optic cable systems that provide both intraregional and international access, East Africa has no such connection and must rely solely on satellites to access international data and communication systems. Relative to connection via fiber optic cables, broadband connection via satellites tends to be very expensive and unreliable.

For the purposes of comparison, we’ll use the US dollar price for 1 megabit per second per month. Prices offered are affected by a whole range of factors, but two of them have a significant influence: volume purchased and the length of the contract. Crudely, the more you buy, the less you pay and the longer you commit to buying, the less you pay. Satellite providers are reluctant to talk about prices (except directly with their customers) because it is often difficult to explain to new customers that the lowest prices are only available to large customers with long contracts. However, if pressed satellite operators will say that below US$1800–2000 per mbps per month is not likely to be commercially feasible for them.

29 Backbone infrastructure refers to the physical assets that enable transmission of telephony and data, such as mobile transmission points, wireless and satellite transmission and fiber optic cables. Developing this backbone infrastructure is critical to reliably and to cost-effectively expand into more complex ICT service provision, including data, to meet the needs of Uganda’s business sectors.

The low level of fibre prices are often because of overbuilding of capacity and the write-off of initial capital through bankruptcies. The telecom operator Telegeography recently reported a bandwidth deal of US$20,000 for 10 gigabits per second per month, which works out at US$2 per mbps per month.\textsuperscript{31}

Satellites also have limited bandwidth capacity and experience transmission delays. Furthermore, because of the lack of direct links within the continent, some African carriers must pay hundreds of millions of dollars annually to switch intra-African traffic through foreign carriers.\textsuperscript{32}

The East African Submarine System (EASSy) aims to provide high-capacity submarine fiber optic cables to increase international connectivity between Eastern African countries and the international community. The EASSY project involves the construction of a 9,900 km submarine fiber optic cable system that would link the East African seaboard from Durban, South Africa through Mozambique, Madagascar, Tanzania, Kenya, and end in Djibouti.\textsuperscript{33} Figure 12 illustrates the proposed connection in black, in which the SAFE fiber optic cable in southern Africa would be connected to the SEA ME WE fiber optic cable in northern Africa:

Linking into the EASSy network would enable Uganda to move away from its dependency on costly satellite technology and facilitate rapid access to non-locally hosted website content. It would also bolster inter-Africa trade by making regional communication easier and less expensive. A preliminary feasibility study estimates the total project cost at US$200 million, including a US$170 million for system supply and US$30 million for project management.

Uganda’s national operators UTL and MTN have partnered to lay a fiber optic cable connecting Uganda to Kenya, in order to be ready when the undersea cable running from South Africa to Kenya is complete. Recent, positive progress has been made on the EASSy project discussions, which had previously stalled over debates around financing and ownership options. As the project moves forward, participation must continue to be a priority for all affected East African countries so as to alleviate important access challenges in Uganda and in the region.

\textbf{Telecommunications}

Telecommunications, referring strictly to communication via telephones/telephony, is one of the most important determinants of access for a country such as Uganda. One of the most useful metrics to measure access in telecommunications is teledensity, defined as the number of phone users per 100 people, including mobile and fixed. We will begin with a history of the Telecommunications sector in Uganda, for the context of how the industry has developed is useful in understanding the broader current landscape.

\textbf{The History of Deregulation}\textsuperscript{34}

In 1997, recognizing that the ability of the information revolution to bring about economic prosperity would be facilitated with more private sector and less government involvement, the Government of Uganda (GOU) passed the Uganda Communications Act. This Act set the liberalization of the telecom sector in motion. With this Act, the GOU hoped to increase teledensity from 0.21 to 2\% by 2002, improve existing telecom facilities and introduce new ones, and increase geographical distribution of telecom services.

\textsuperscript{31} Satellite vs fibre: different costs for different things. Available at http://fibreforafrica.net/main.
\textsuperscript{34} Although a formal policy was established in 1997, efforts began in 1995 with the admission of Celtel Uganda as the first mobile service provider.
The 1997 policy comprised a four-part strategy: First, Uganda Telecommunications Limited (UTL) was split off from the wholly government-owned Uganda Posts and Telecommunications Corporation to become a stand-alone entity with a major national operator license. Second, the Uganda Communications Commission (UCC) was created as an independent regulator to, among other things, issue minor licenses for paging, Internet service and private telecom service; assign radio frequencies; sets tariff, and advise the government on ICT policy. Major licenses are issued by the Ministry of Works, Housing and Communication. UCC statutes were designed to make it a self funded, independent body, but it is considered a part of the Ministry of Works, Housing and Communication. UCC funding is derived from fees from minor licenses, as well as from the 1% levy that all communications providers pay into the Rural Development Fund.

Third, the introduction of competition was another key component of the policy. Mobile telephony services, Internet access, email and sales of terminal equipment were fully liberalized. In 1998 a second national operator license (allowing any telecommunication service to be provided, including fixed line telephony, also referred to as a major license) was granted to Mobile Telephone Networks Uganda (MTN Uganda) for US$5.8 million. UTL and MTN were granted a 5-year period of protection (June 2000–2005) for the provision of international dialing, basic fixed telephony, large trunk capacity resale, certain fax services, and public pay phones. Like UTL, as a major license holder MTN had rollout service targets it was obliged to meet by 2005, namely providing service in every one of Uganda’s 56 districts, installing 100,000 subscriber lines, and providing 2,000 payphones. Initial rollout targets were denoted in fixed-lines, but the GOU revised that decision in light of the explosive mobile market, agreeing that either a landline or a mobile subscriber would be counted toward MTN and UTL’s rollout obligations.

Fourth, the privatization of UTL was set in motion. While the GOU intended to sell shares of UTL early on in the liberalization process, talks with several investors failed to produce a deal. As a result, the GOU found itself being the sole owner of a telecom entity competing head on with privately-owned MTN. It wasn’t until June 2000 when 51% of UTL was sold for US$33.5 million to UCOM, an international consortium made up of pan-African mobile cellular operator Telecel International (80%) and Deteco (20%), a subsidiary of Germany’s Deutsche Telekom. The GOU plans to list the remaining 49% of UTL on the Uganda Stock Exchange at some point in the near future.

The Players
There are currently three major players providing telecom services in Uganda: UTL, MTN and CELTEL. Until the 1997 creation of the telecommunications policy and subsequent liberalization, there was no competition in the fixed line or mobile markets. Consequently, costs were high and teledensity remained very low. The introduction of new players into the market helped lower connection prices, expand service and bring about a dramatic increase in adoption of the technology, especially in the mobile phone market.

35 Interview with the Uganda Communication Commission, March 16, 2006.
36 At one point, UTL was in discussions with Telekom Malaysia but a deal was never formalized due largely to the ramifications of the Asian financial crisis on Malaysia’s economy.
Since its entry in 1998, MTN Uganda has invested over US$125 million in mobile, data and Internet infrastructure.

**UTL:** Up until Celtel was granted a mobile license in 1995, UTL was the sole telecommunications provider in Uganda. As a national telecommunication operator, UTL was licensed to provide all telecommunication services, but until 2000 it remained focused on the fixed line market. It wasn’t until 2000 that the partially privatized company ventured into the cellular market by launching Telcel, which now accounts for 24% of the market. UTL entered into the ISP market in 2001 with the launch of UTL Online, its Internet and high-speed data service. Since being partially privatized in 2000, UTL has invested over US$125 million in mobile, data and Internet infrastructure.

**Celtel:** Celtel entered Uganda in 1995 when it was granted a limited license by the GOU to provide cellular services. As the only mobile service provider until MTN’s entry in 1998, Celtel had no pressure to compete on price and as a result its prices were extremely high and thus not affordable by the majority of Ugandans. With just a 17% share of the mobile market in 2005, Celtel’s growth has been constrained. One factor in Celtel’s slow growth is the limits of its ability to provide services outside mobile. Celtel was also slow to react in adjusting prices when additional competition was introduced into the mobile market by MTN, and has never fully recovered its customer base. In 2000, Celtel’s holding company purchased ISP InfoCom giving it an entry into the ISP market. In March 2005, Celtel then owned by Netherlands-based MSI Cellular Investments (which in addition to Uganda, operates in 12 other African nations) was acquired by Mobile Telecommunications Company of Kuwait for US$3.4 billion.

**MTN:** MTN Uganda is currently the largest telecommunications provider in Uganda with 60% of the mobile market in 2005. The company entered in 1998 after acquiring a second national operator license. South Africa’s Mobile Telephone Networks owns 50% of MTN Uganda, Telia of Sweden has a 30% stake and Uganda-based Invesgo and Rwanda’s Tristar each hold 10%. MTN is licensed to provide all telecommunications services. However, unlike UTL, MTN launched its mobile service before its fixed line service and, by entering the mobile segment with tariffs lower than the incumbent provider Celtel, MTN was able to capture the majority of the cellular market within its first year.

**Market Growth – Fixed and Mobile Telephony**

The GOU’s decision to liberalize the telecommunication sector has succeeded in bringing unprecedented growth in terms of revenue and investment. As Figure 14 shows, the growth of telecommunication revenue and investment has been significant since 1995.

Figure 14. Telecommunication Revenue vs. Investment Growth (1995–2004)

Since its entry in 1998, MTN Uganda has invested over US$200 million in its network which covers 90% of the urban population and serves more than 120 towns.

The inclusion of MTN into the monopoly held by UTL in fixed line service and into the mobile telephony monopoly held by Celtel had a dramatic impact on penetration rates in Uganda. After the shake-up caused by the initial competitive dynamic, however, there has not been much progress. As we will explore below, growth in the market has slowed dramatically over the past year and the GOU is now seeking to model how the telecommunications policy should be implemented moving forward.


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Telecommunication revenue took off soon after the entry of MTN and the privatization of UTL but has recently started to decline. Investment also increased markedly during this initial time period but has leveled off since 2002. Telecommunication revenue as a percentage of GDP has risen from 1.5% in 1999 to 4.3% in 2004\(^40\).

Uganda’s telecom market is currently dominated by mobile telephony. The entry of MTN in 1998 lowered costs and brought about a surge in the use of mobile phones. In just one year, the number of mobile phone subscribers jumped from 12,000 to over 72,000. Uganda was the first country in Africa where the number of mobile subscribers surpassed fixed line-users. By the end of 2005, there were over 1.4 million cellular subscribers in Uganda, putting the ratio of mobile to fixed at 15:1 with overall mobile penetration at 4% (16% in urban areas, 2% for rural). As Figure 15 shows, the compound annual growth rate of Uganda’s mobile telephony market, at 83%, is far above the average for Africa, the world and high-income nations.

However, growth in the mobile telephony market has slowed significantly in the past two years. In 2005, the number of mobile subscribers increased by 29%, the slowest growth rate since 1997, and far below the 50% and 97% growth rates accrued in 2004 and 2003, respectively. As will be discussed later in this next section, mobile telephony taxes and their impact on prices are hindering further growth in the mobile market.

Uganda’s fixed line market has experienced minimal growth, with a CAGR of 4.6% and a penetration rate of just .3% (almost entirely urban)\(^41\). In the eight years following liberalization, less than 50,000 fixed line customers have been added. Currently there are just shy of 100,000 fixed line phones in service, 80% of which serve the business community\(^42\). The area covering Kampala, Entebbe and Jinja, the three largest cities in Uganda situated close together along the northern shore of Lake Victoria, is the most technologically advanced with modern, digital fixed line equipment.

Comparatively speaking Uganda’s teledensity of 4.4 phone lines per 100 people\(^43\) in 2005 is impressive when measured against the teledensity rates of neighboring Tanzania (2.9) and Rwanda (1.6)\(^44\). Uganda’s teledensity rate is even more impressive taking into account the fact that in the mid-1990s, Uganda’s communication infrastructure was one of the least developed in the world and teledensity was only 0.21\(^45\). Progress has indeed been made, but when compared against some of its other neighbors (for example, Kenya with a teledensity of 8.0) it is clear that Uganda still has a long way to go.

As an aside, it is important to note that actual mobile reach is probably higher than the numbers state, in part because of “technology sharing”—multiple people sharing access to a phone is one way to address affordability issues.

Prices
Looking at pricing trends for fixed line and mobile service over the past six years, it is clear that connection rates (the cost of having a fixed line installed or signing up for a mobile account) have benefited from competition. Between 1999 and


\(^{41}\) Uganda Communications Commission.

\(^{42}\) Interview with Ann Rita Ssemboga, Economist, Uganda Communication Commission, April 27, 2006.


\(^{44}\) Ibid.

\(^{45}\) Rural Communications Development Policy for Uganda.
2005, fixed line connection rates fell 27% from $94 to $69, and cellular connection rates fell 54% from $25 to $11.50. While fixed line connection rates represent 24.3% of GDP per capita, cellular connection rates represent 5% of GDP per capita, making mobile telephony subscriptions far more affordable for many Ugandans.\(^46\)

Despite the fact that connection rates for both mobile and fixed telephony have fallen, competition has not benefited prices for calls. The actual cost of making a local phone call on both fixed and mobile lines has increased. Between 1999 and 2005, the cost for a three minute call at peak times on a fixed line increased 69% to $2.22 cents, while the cost on a mobile phone rose 73% to $2.57, excluding taxes. Mobile usage has increased as connection fees have dropped, but the cost of using a mobile phone to make local calls remains more expensive than calls on a landline.

When compared with prices regionally, Uganda’s fixed line costs are among the highest, but base costs (excluding taxes) for mobile phone usage are relatively favorable when compared with neighboring countries.\(^47\) Factors for inclusion in this price basket take into account Uganda’s relatively low connection fees.

**Price Basket**

Fixed line telephony is costly mainly because the market is small, targeted at only a handful of urban businesses, estimated at around 80,000 (as compared to Tanzania and Kenya with respective fixed customer bases of 300,000 and 500,000).

With regard to mobile telephony, one factor that is responsible for driving up costs of mobile calls is the high taxes placed on mobile telephony service. It should be noted that in addition to taxes, a power crisis (frequent power outages and a steadily rising cost of diesel—up 20% in 2005) is profoundly affecting the telecom market. While it is difficult to directly quantify the full impact of the power crisis on telecoms since it is only 6-months old, anecdotal evidence demonstrates the effects. Base stations and cell towers require their own diesel generators to combat frequent power outages. One study estimates that energy represents 25% of operating expense for the industry in 2005.\(^48\) According to MTN’s Chief Financial Officer, the company is spending up to US$500,000 a month to run generators.

In May 2006, the three operators increased their rates by 5%, furthering the gap that makes mobile telephony rates, although relatively attractive comparative to the region, still not financially viable for the majority of Ugandans. Due to the increased cost of power, telecoms are passing along some of their operating expenses to customers. These financial pressures further emphasize the need for the excise and value added duties to be reduced.

**Future Options**

Ugandans have benefited in some respects from telecom deregulation. The fact that more than 1.5 million people are using phones (either landline or mobile) is a significant improvement over the 45,000 that used telephones in the mid-1990s. Nevertheless, Uganda’s teledensity is inadequate for a country that is trying to grow its economy.


\(^{47}\) Source: World Bank, Information and Communications for Development 2006: Global Trends and Policies. Washington DC, 2006. It should be noted that Uganda tax rates are not factored into ITU indicators used as base data. Confirmed in interview with author of World Telecommunications Development Report 2006: Measuring ICT for Social and Economic Development, (Geneva, Switzerland: International Telecommunication Union, 2006). It is important to note that these price baskets were determined on a combination of factors. Taxes factoring into fees vary for other countries. Confirmed in written correspondence with Henny Roehardt, World Bank Group. However, this data represents the best international standard currently available on this topic.

With 80% of the country covered by a mobile network but only a tiny percentage using mobile telephony, there is enormous growth potential for the industry. Mobile penetration rates would benefit from a tax reduction, and this should be an immediate priority for Uganda. Nonetheless, the new telecom guidelines issued in May 2006, which have ambitious teledensity goals, did not include a reduction in taxes.

High prices of both fixed line and mobile access constrain teledensity rates. In order to drive more access, prices need to come down in order to be more affordable to the average Ugandan. To push down prices further and increase penetration, increased competition will be key. However, skepticism exists on whether Uganda will be able to attract large new players to its telecom market, especially in the short-term. Operating expenses—particularly in light of the power crisis—are high, much of the country already has access to signal service, and growth is slowing dramatically. As will be explored in the following section, smaller players with lower operating and entry costs may be more likely to enter a market such as Uganda.

The Internet
Another important component of access is the access to and the usage of appropriate internet technology. Although internet services first appeared in Uganda in 1994, Ugandans are still not showing advanced Internet usage rates. Reasons for low usage include cost and limited bandwidth, and limited availability of services and infrastructure.

Internet Usage Overview
According to the World Bank, Uganda has 6 Internet subscribers per 1000 people compared with an average of 15 per 1000 in other sub-Saharan nations. The Uganda Communications Commission (UCC) has expressed its concern about the country’s low Internet penetration. As quoted in the UCC’s January 2005 review of the telecommunication sector policy, “Uganda is de facto not using the Internet…it is economic suicide to permit this situation to continue in the global knowledge society.”

According to a 2006 firm level survey conducted by the OTF Group, only 50% of businesses own at least one computer. Of those businesses that do not own computers, 33% named cost as the primary reason. On a more positive note, 42% of businesses surveyed are using the Internet, but only 22% have their own Internet connection. The remainder are borrowing connections or using Internet cafes.

In terms of how businesses surveyed are accessing the internet, dial-up was the most common way to access the Internet (51.4%), followed by ISDN or broadband cable (37.8%). Meanwhile, only 11% are using VSAT/wireless technologies to gain access. Those businesses that use the Internet, but choose not to maintain their own connection, cite cost (30.8%) and inability to maintain connection/equipment (24.5%) as the major barriers to usage.

Despite these low penetration rates there are 19 Internet Service Providers (ISPs) operating in Uganda, and of these, 6 providers, in addition to MTN and UTL, have VSAT™ international data gateway (IDG) licenses that allow them to provide connection to the global Internet backbone via satellite.

Licensing international data gateways to ISPs was restricted during a 5-year period of exclusivity (2000–2005) with only MTN and UTL allowed to offer these services. During that time, other ISP providers had to buy international bandwidth from those two players. This situation of a duopoly created relatively high costs for consumers.

As of January 2006 the new telecom guidelines opened up the ISP provision market by enabling market players to apply for their own IDGs. Similar to IDG restrictions, provision of Voice Over Internet Protocol (VOIP) services was also limited to MTN and UTL and has since opened up.

Currently, the ISP market is competitive on prices. Total ISP charges for 20 hours of Internet access average $30, on par with ISP charges in other African countries (Figure 17). However when the cost of 20 hours of local telephone usage is added the total price, Ugandan’s cost to access the Internet jumps to $90 for 20 hours. This cost is beyond the financial reach of the vast majority in a country where the average GDP is under $300.

49 AFSAI, Infocom, One2Net, Spacenet, Africaonline, and Multichoice.
50 VSAT, Very Small Aperture Terminal, is a type of satellite technology which in this case allows Internet providers to deliver broadband Internet access to sites which cannot get cable Internet access, which are usually remote or rural locations.
Improving Competitiveness and Increasing Growth in Uganda

Base costs are compounded by bandwidth issues, as slower speeds require customers to be online for longer periods of time to complete speed-dependant tasks such as downloading or uploading files. As noted previously, the cost of fixed line access in Uganda is one of the highest in the region, two or even three times the costs of neighboring countries.

When comparing the combined costs of ISP and telephone usage against GDP, as Figure 18 shows, Ugandans end up spending nearly one third of GDP ($90) per capita for 20 hours of access time. Of the countries represented, only Tanzania has a more adverse GDP per capita/cost of access relationship.

**Efforts to Improve Internet and Telecommunications Access**

Both the public and private sectors are taking steps to speed up telecommunication and Internet accessibility. In 2001, the UCC adopted the Rural Communications Development Policy, which eventually led to the creation of a Rural Communications Development Program and subsequently to a Rural Communications Development Program Fund. In 2004 UTL, MTN and Celtel together paid over US$1.9 million into the fund and the GOU had committed to spend US$5 million on telecom services (e.g., Internet cafes, ICT training) in rural areas by the end of the 2005. The Rural Communications Development Fund program is aimed at improving telecommunication services in rural areas.

The private sector is also developing initiatives to improve access. MTN Uganda, in partnership with a number of Ugandan micro finance institutions, is extending telecommunication access through its MTN villagePhone program. MTN villagePhone is built off a model that was developed by the Grameen Bank in Bangladesh. Under this program, micro-entrepreneurs purchase a mobile phone, power solution, and prepaid airtime with a small loan from a micro finance institution. They then sell use of the phone to members of the community on a per minute basis. These village “operators”, most of which are women, generally live in areas where electricity is unavailable and where the MTN network can only be accessed with a booster antenna. There are currently 4,000 MTN villagePhone operators providing such services in Uganda, many of whom have seen their monthly earnings triple as a result of their participation in the program. This model helps substantiate the idea (as it originally did

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**Figure 17. Charges for 20 Hours ISP vs. Telephone Usage in Select African Countries**


**Figure 18. Telephone and ISP Prices vs. GDP per Capita**


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51 Grameen Foundation website, [http://www.gfusa.org/technology_center/village_phone/the_uganda_project/meet_the_operators/](http://www.gfusa.org/technology_center/village_phone/the_uganda_project/meet_the_operators/), accessed May 1, 2006.
in Bangladesh) that there is demand for mobile technology, as long as it is accessible and affordable.

Community-based telecenters have also sprung up over the past seven years. Some are funded by the government, but the vast majority are supported by foreign NGOs and development agencies. Telecenters provide local residents a place to use email and gain access to the Internet. Many telecenters also operate community radio stations which broadcast local programming to residents. It is not known how many telecenters exist in Uganda, or how many people are using them. Telecenters provide important access points for rural business people.

The sustainability of these telecenters has been a real challenge. Many telecenters, particularly those in rural areas, fail because they do not have technical staff on hand to troubleshoot and/or train local residents on how to use the technology. Without this expertise on hand, inevitably machines that are believed to be “broken” sit idle, and residents are less willing to use the center due to lack of training available on how to use the machines.

Cybercafés provide an important source for access, especially in Uganda’s urban centers. Like telecenters, the number of cybercafés is unknown. Many have short life spans due to the high connection fees they must pay to provide access to the Internet, and due to general poor management. However, as Figure 19 shows, compared with the costs that a small business might pay for dial-up service, in Uganda cybercafés provide an important alternative to the Internet user. OTF survey results found that 18.1% of businesses access the Internet via cybercafés, due in large part to the cost associated with maintaining their own connection.

While a number of organizations and firms are attempting to address the access issue via telecenters and cybercafés, a demand issue remains. Until the underlying issues driving up costs (taxes, insufficient and slow connectivity) are resolved, usage will remain low and programs and projects designed to enable access will meet with limited success.

Some policy work has been done to encourage demand, for example regulations requiring the major license operators to achieve certain roll out targets for telephone lines. Another effort came in 2004 when the GOU eliminated import taxes on computers, hoping to stimulate Internet usage. This initiative met with limited success: most Ugandans simply cannot afford computers, irrespective of taxes.

Much more work on the part of the government and private sector is required to address the underlying issues constraining usage, particularly further development of the backbone. These will be essential for the ambitious goals set by the new telecom guidelines to be achieved.

### 3.3 New Guidelines and Ongoing Challenges on Access Issues

The GOU issued new telecom guidelines in 2005. By 2010, as part of its universal service target, the GOU aims for Uganda’s teledensity to reach 20%—up from just under 5% in 2005—and for at least 10% of households in the rural sector to have access to an Internet connection at greater than 64kbps, up from 1% in 2005. These two goals will be difficult to meet unless significant investments are made.

The new telecom guidelines end service monopolies held by the national operators, enabling stronger competition in both the fixed line and mobile markets. Uganda’s market is dominated by mobile phones. Therefore, the country’s ability to meet teledensity targets will be largely dependent on increasing mobile phone penetration. Government policies to increase teledensity must focus on two priorities: lower taxes on mobile telephony, which is discussed in section 3.4, and efforts to solve the current power crisis (costs, access and reliability). In terms of achieving the second target of the new telecom guidelines, faster connectivity for a larger group of people, a national fiber optic backbone supported by appropriate wireless technology needs to be developed.

The new guidelines also address Internet access issues in small ways, for example by abolishing the period of exclusivity for the licensing of international data gateways so that ISPs that have entered the market since 2000 can now apply for their own licenses and will no longer have to route their Internet traffic through MTN’s or UTL’s network. This should result in lower prices for broadband service on a small scale, but it does not address the issue of the national and international backbone.

In order to dramatically expand access to data and Internet-based technologies, Uganda needs to develop a national backbone with sufficient reach and bandwidth capabilities to serve the needs of the growing economy. Then, to complete that picture, Uganda’s national backbone needs to be connected to the international backbone so that the country’s current reliance on expensive and erratic satellite technology can be reduced.

Uganda’s initial telecom policy was designed with a clear goal in mind: to increase access to telephones. The policy was successful as teledensity rates climbed rapidly year-over-year. Networks were built out according to individual firm needs, and this was a perfectly rationale choice given the market conditions of the time. The two national mobile telephony operators, MTN and UTL, laid down their respective fixed backbone networks according to their own firm-level needs. There was no overarching plan to coordinate the development of these networks and as a result, Uganda’s bandwidth and reach is inadequate to meet the needs of the whole country. However, in hindsight, we see that the lack of an overarching plan to guide the development of an optimal backbone has resulted in serious ICT infrastructure impediments for Uganda.

It is not surprising that Uganda opted for the backbone development model it did given the low level of telecom activity that existed when the initial policy was developed. However, going forward, Uganda should consider to adopt an innovative approach for the deployment of physical infrastructure, where both public and private sector parties have a chance to participate. Different models exist to address this according to industry experts, and the open access model is one such a model, among others, for consideration.

To briefly outline the Open Access Model, it makes use of a layered networks system which conceptually means that the competitive forces are taken out of infrastructure provision, leaving the development of the backbone in the hands of one entity; the government or a form of a Special Vehicle Entity (SVE) comprised of a partnership between private sector and the government, in order for the two groups to share large investment costs that African governments often find difficulty financing alone. Here all providers pay a set price for the use of the infrastructure, a method also known as the “facilities-sharing model of competition.” Competition in this model takes place in the form of service provision that feeds off of backbone infrastructure. Of course, much more investigation and reflection is required to inform Uganda’s optimal option.

What seems certain in the meantime is that further investments in the infrastructure backbone by the private sector telecoms in Uganda, at least in the short-term, are likely to be constrained by the financial impact of the power crisis and associated increased operating expenses. A solution in which the financial responsibility for this development is shared is more likely to bring about timely action. It also addresses the common “chicken and egg” problem of infrastructure—without investment, the market can’t grow, but investment is often not made when a market’s potential is not apparent.

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53 Interview with Viktor Mayer-Schoenberger, Professor of Public Policy, Kennedy School of Government.
The optimal structure for and management of the public, or public/private SVE that would oversee the development of the backbone needs to be considered seriously. Broad representation will be needed from various stakeholders in government, service providers, and consumers.

Regardless of what national backbone development model Uganda goes with, there are some important decisions that need to be made around the technical type and physical configuration of Uganda’s future unfolding national backbone. Currently no coordinating effort has been made around this. One imperative for the government now, regardless of whether they will be the ones actually building it or not, is to provide structure to the dialogue of equipment and layout options for Uganda’s national backbone.

The UCC has suggested the development of a “fiber optic star” reaching out from Kampala into the various districts of the country, with an estimated cost of $45 million. One industry expert has suggested that laying out a comprehensive fiber optic network may not be the most cost-effective model for a country like Uganda, where the desire to facilitate access is combined with varying levels of demand and bandwidth needs in different regions. As discussed earlier, the needs of a rural farmer, for example, are not the same as those of a national bank in Kampala, and there may be a more suitable approach to efficiently meet these differing needs.

Another alternative proposed is to build out a fiber optic ring around Kampala and the surrounding urban areas, laying the foundation off which “last mile access” can be achieved through the use of microwave and wireless technologies that facilitate higher speeds of access.

Before any decisions on medium- and long-term strategies are considered, a key first step is to conduct a detailed feasibility study. This will help the government determine where investments going forward should be made and structured. The feasibility study should also look at the current state of infrastructure and services in Uganda—providers, the existing grid for various types of infrastructure, levels of access to services, and likely levels of demand on district-by-district basis. Rural areas where farmers use SMS to check agriculture market prices require a very different (and potentially less expensive) level of investment than urban areas trying to build service export bases. A baseline understanding would help to make decisions on where the strongest potential for return on investment exists with respect to productive sectors of the economy.

With regard to service, it is anticipated that the smaller, more nimble ICT and telecommunication players, rather than the large vertically integrated ones, will be the ones increasingly entering the market. The larger companies (MTN, UTL) are already entrenched in the most profitable areas and impetus to expand is low in the short to medium term. Smaller players may, however, see these areas as attractive entry points, and the “small, niche” model has been one that has played out in other countries in the region whereby new telecommunications and ICT players get a toehold in the market by targeting areas that are not attractive to the larger players. Future introduction of competition into a market like Uganda may come in the form of smaller players.

Conclusion – Access

The GOU made improvements in its mobile penetration rates through early, creative use of telecommunications policy to introduce competition and lower connection rates. They now need to develop a similarly innovative policy to address the ongoing issue of access.

As the country develops, a main impediment is the lack of a national backbone. A detailed understanding of the needs and potential returns, combined with a willingness to look at different models that may involve an increased role of government participation in financing infrastructure development, will help Uganda decide on the right model. At the same time, the country needs to be focused on the connectivity to the international backbone.

These infrastructure improvements will help increase usage and provide the platform necessary to allow firms and other users to leverage the productive benefits of ICT. In turn, greater access to ICTs, in a framework of sound business strategy and industry-level improvement in operational efficiencies will go

a long way to enhancing the competitiveness of the Ugandan economy.

### 3.4 Ability Issues in Uganda

#### Ability Issues in Uganda

The second component of the AAB (Access, Ability and Benefit) model used to drive ICT impact is ability. Ability refers to the educational capacity and financial means of institutions to use ICT. Ability is a direct function of education and technology training as well as financial health. A key input in upgrading Uganda’s ICT competitiveness is the upgrading of knowledge and human capital.

As the economy continues to become more sophisticated, education will be a primary component of Uganda’s ability to meet the demands of increasingly complex business models and higher levels of technical integration. Ability issues need to be addressed at the same time as access issues: ignoring one will ultimately defeat the impact of advances in the other.

When looking ICT ability issues in the Ugandan context, the following six issues emerge:

- Developing basic ICT literacy amongst the larger population
- Ensuring quality primary and secondary education
- Aligning tertiary education to the ICT needs of Uganda
- Developing ICT curricula in ways that address private sector needs
- Fostering a broad base of ICT technicians
- Improving the affordability of Telecom services in Uganda

#### Ensure Basic ICT Literacy

One of the building blocks of ability is the creation of basic ICT literacy amongst all layers of society. ICT literacy is generally defined as “using digital technology, communications tools, and/or networks to access, manage, integrate, evaluate, and create information in order to function in a knowledge society”.

Since introducing Universal Primary Education in 1997, Uganda has made enormous strides in increasing its enrollment rates. Between 1996 and 2004, Uganda’s primary enrollment more than doubled from 3.4 million to 7.4 million. At 89%, Uganda’s primary enrollment rate is on par with that of South Africa and Mauritius, the two most highly developed nations in Africa. The government has faced criticism, however, that funding for teachers, textbooks, and facilities has not kept up with enrollment and that as a whole, quality of education at the primary level has suffered.

Uganda has made less progress with secondary school enrollment. Although the number of students has grown from 265,000 in 1998 to 697,000 in 2004 (a 163% increase), Uganda ranks the second lowest in secondary school enrollment among the selected African countries profiled in Figure 20. In order to rectify this situation, President Museveni has promised to introduce universal secondary education during his third term, set to begin in mid-2006.

In terms of tertiary education enrollment, rates are low, but are higher than those in Kenya, Tanzania, and Zambia. Additionally, when compared to its counterparts, the percentage gap between Uganda’s secondary and tertiary enrollment rates is much narrower, suggesting that once they reach the secondary level Ugandans are more likely to go on to the university level. The recent increase in primary education should support higher enrollment rates in secondary schools, expanding access beyond a small group of privileged youth.

Currently, about 3.2% of Uganda’s population pursues a university degree. While higher than most of its immediate neighbors, this percentage remains well below the 15% enrollment rate in South Africa and Mauritius. Encouragingly, the ratio of students who continue on to university from secondary school is the best in the region.

This report will also examine education as a potential revenue generator. As Uganda makes important strides in increasing its own enrollment rates and scaling up offerings to meet the need of its domestic population, it is possible that these efforts in partnership with a strong reputation and flexible curricula could position Uganda as a regional center for education excellence; a positive base for an aspiring ICT-active country.

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56 Educational Testing Service’s Center for Global Assessment, Digital Transformation
ICT Initiatives in Primary and Secondary Institutions

The importance of ICT education is well-recognized in Uganda. In 2004, the Ministry of Education demonstrated their commitment to developing ICT ability by asking all schools to include a budget line for ICT development, requiring that funds be set aside for both teacher training and equipment. Further initiatives are underway to expand students’ exposure to ICT in schools. SchoolNet, a one-time World Bank funded project, is now an independent NGO that works very closely with Uganda's Ministry of Education. Its mission is to make Ugandan graduates more globally competitive, by utilizing ICT to enhance the teaching and learning process. What makes SchoolNet’s model unique is that it touches multiple links in the knowledge dissemination chain. SchoolNet partners with educational institutions to develop their ICT facilities, Internet connectivity and technology plans. It also provides training workshops for teachers on how to use ICT as a tool to develop and present their lesson plans. This includes using the Internet for research purposes and utilizing collaborative tools such as chat and discussion boards.

Other interesting initiatives are enabling a number of Ugandan students to benefit from continent-wide efforts to expose youths to ICT in an academic setting. As a member of NEPAD, Uganda was the beneficiary of the first e-school in Africa. In July 2005, the Bugulumbya Secondary School, located in eastern Uganda was established. Hewlett-Packard, a partner on the project, helped equip the school with computers, a server, Internet connection, a mobile telephone booster mast, a digital satellite television, and an e-health facility. Teachers are trained not only on how to use ICT but how to integrate it with their lesson plans.

Initiatives such as those described above are commendable efforts to increase ability and build relevant ICT skills early. However, it is important to note that the scalability and sustainability of such models has not yet been proven.

Furthermore, far too many countries in the region seem to be having ad-hoc ICT initiatives within their education system, but no systematic national programs to drive ICT training in schools. A continued focus on building basic ICT literacy skills at an early age is important for future performance. However, it is important to recognize that these efforts will not be effective on a broad scale until two things happen. Enrollment rates at the secondary level must improve for impact on a wider audience. Additionally access challenges such as connectivity will need to be addressed before the internet and similar tools can be fully leveraged to improve ICT learning on a wider-scale.

ICT Initiatives in Tertiary Education

As the most immediate feeder into the Ugandan private sector, it is imperative that the tertiary education system develops fundamental business concepts and ICT skills aligned with the needs of the private sector.

Makerere University, a private institution with 30,000 students, is a key player in developing Uganda's ICT talent. All students who attend the university, regardless of their area of concentration, are required to take at least three ICT-related courses to graduate. This policy ensures a working knowledge of how to use ICT in a professional setting.

Meanwhile, the university's Faculty of Computing and Information Technology (CIT) is in the process of scaling up the number of CIT professors who hold PhDs from 7 (out of 100) to 60 in the next year, many of whom are currently being trained abroad. The school has also started construction on a new CIT building that will be four times its current size. The new facility will have multiple computer labs and lecture rooms spanning six floors. The school hopes to lease space in its computer labs to primary and secondary schools during the two-month break between each term, so that more of Uganda's youth can have access to ICT. To date, roughly US$2 million of the US$7 million needed for construction has been raised. This concentration of high-tech talent and physical assets to support it could very well help Makerere become a regional leader in ICT-supported and ICT-focused education. Education as a service export will be explored in detail in the next section.

Formal ICT-education at the tertiary level is also available to those already employed. The Uganda
Management Institute, a public professional school which offers various management degrees for working professionals (a high percentage of the student body are government employees) requires that some form of ICT be integrated into all degree programs. The school, which holds classes only at night, offers degrees in ICT and is currently trying to set up a master’s program in ICT management. The school’s Global Distance Learning Center, originally funded by the World Bank, includes a video conference room and several computer labs and lecture halls equipped with computers and Internet access. There are roughly 150 computers for 600 students.

A number of private sector players have also stepped in to provide specialized ICT training to Uganda’s workforce. A current estimate is that there are 50 training centers in Kampala providing basic computer training. Aptech, the largest ICT training group in the world, has been active in Uganda since 1999. It is now extending its offerings to include bachelor’s and masters’ degrees in various technology-oriented fields through a partnership with an Indian university. Roughly 200 students complete certificate programs each year.

**Align ICT Curricula Offerings with the Needs of the Private Sector**

While players in the tertiary space such as Makerere and Uganda Management Institute are integrating ICT into their curriculums and developing ICT-focused degrees, it is important to ensure that the programs being offered are preparing students to meet the needs of the private sector. A higher level of involvement of the private sector in the development of curricula, as well as actively inviting them to participate in the learning process as lecturers and guest speakers, will help ensure that Uganda does not develop a workforce with an oversupply of the wrong type of ICT skills, but instead focuses on the development of skills needed to support further development of key productive sectors.

As Figure 20 shows, respondents to a recent firm-level survey indicated that business skills such as Marketing, Sales, and Finance were more pressing needs than ICT skills for further workforce development. These findings can be directly correlated to the current levels of ICT adoption described by firms in the 2006 OTF Group survey—nearly 40% of firms were only using telephones in terms of technology. At the same time, many core business functions today require basic ICT literacy in order to run productivity enhancing software programs and basic functions that depend on email communication or preparation of written documents. These skills, that all require basic ICT literacy, will become increasingly important as ICTs are further integrated into business processes.

However, as Uganda evolves towards more sophisticated products and industries, the importance of ICT will move up in the hierarchy of needs. Preparing now for the future should be the motto of the education industry that offers ICT skills & training to the private sector.

**Create a Broad Base of ICT Technicians to Support the Deployment of ICT**

While business community needs center around business support functions and basic computer literacy, Uganda still has a need for skilled and specialized ICT experts. One important anecdotal example is that of Uganda’s telecenters’ limited sustainability due to a lack of skilled technicians available to keep basic hardware working. Examples of potentially relevant and transferable technology skills needed include the ability to troubleshoot and configure hardware and networks, and provide ongoing technical support; the ability to develop, configure and maintain databases needed for the information sharing and information gathering will be important next steps for so many sectors of the economy and areas of government; and the use and maintenance of specialized systems such as the HAACP systems utilized by fishing exporters.

![Figure 20. Uganda’s Skill gaps](Image)
Improve the affordability of Telecom services in Uganda

One of the key drivers of teledensity is getting mobile telephony costs to a level that is affordable by the target consumer base. At 29.9%, Uganda now has world's second highest total tax rate on mobile telephony after Turkey (where consumers face a 43.4% tax burden). The total tax rate includes excise duty on airtime and VAT. First introduced in 2001 at 7%, the excise duty on airtime for mobile telephony topped 12% at the end of 2005. At the same time, the Value Added Tax (VAT) increased from 1% to 18%. Handsets are charged an importation tax of 27%, which has created a black market for handsets (average cost around $75). Together, these taxes account for 1.3% of total taxes collected by the GOU.

Taxing telephony is a common and easy way to increase government revenue: unlike other businesses, it is easy to measure consumption given the close regulation of the sector. However, a number of studies that have looked at the relationship between taxation and increasing mobile penetration rates have concluded that when it comes to long-term economic development, it does not make sense for governments to tax mobile telephony at high rates for short-term financial gain. A London Business School study that looked at growth rates in developing countries from 1996–2003, concluded that a 10% increase in the proportion of a country’s population with a mobile phone would boost the GDP per capita by .59% per year, a significant percentage considering most developing economies achieve GDP per capita growth rates of 2% a year. This study offers a compelling reason for lowering telephony taxes, perhaps to African averages, and making investments in ICT a national economic priority.

Conclusion – Ability

The upcoming wave of significant investments to expand ICT access in Uganda will not translate into greater productivity unless Uganda’s population is equipped to use this infrastructure; both from an educational and an affordability standpoint. The Uganda government has to oversee the evolution of an ICT Education agenda that simultaneously builds a strong foundation of ICT literacy among a broader base of the productive population, while ensuring that the ICT needs of increasingly sophisticated businesses are supported. At the same time, the high cost of using ICTs needs to be addressed proactively. Lowering mobile telephony rates, for example via reducing taxes, is one important step. An important component of ensuring the applicability of the overall ICT education agenda is an open dialogue with the private sector on the skills needs of the workforce. Conducting a systematic audit of the core ICT needs of the private sector and developing related targets (e.g. curriculum goals and ways in which BDS and other innovative programs can play a role in shaping ability) should be a responsibility of the Ministry of Education.

As discussed in Chapter Three, three components drive the productive use of ICT in a society and in particular in an economy: the general access user-segments have to ICTs, their financial and skills ability to use ICTs, and the potential benefits ICT can bring to these user-segments. Chapter Three discussed how ICT access and ability issues play out in Uganda. And this chapter explores what types of benefits ICT can bring to a selection of strategically important Ugandan industries and the firms that operate within them.

First, we will look at four export industries: tourism, flowers, fish and vanilla, each of which offer a case study of differing applications of ICT. Next, we focus on “ICT enabled services” industries that can be grouped into two main categories. Those categories are traditional service industries whose offerings can be enhanced by a strong ICT platform (education, health and financial services) and innovative emerging sectors that use ICT as the core of their service offering (Business Process Outsourcing – BPO –and Software Development). In the next section we will explore opportunities for strengthening government service through e-government applications. Each industry is analyzed in a consistent format that looks at an overview of the industry, its core business challenges, some strategic recommendations, and a few ICT-specific interventions.

Sectors were selected in order to show the scope of ways technology can benefit businesses: communicating with customers, improving logistics, improving competitive positioning, and making distance irrelevant.

- Connecting with Customers: Website marketing can be used to improve Uganda’s tourism brand while capturing important demographic data to inform visitor segmentation.
- Improving Logistics: Sophisticated logistics systems in the flower industry can be a model of success for other industries, such as fish.
- Creating Differentiation: Uganda’s vanilla industry must define a positioning for its product (go organic?), or remain subject to volatile world prices.
- Make Distance Irrelevant: ICT can be used as a medium to deliver education, health and financial services, as well as provide the foundation to explore ICT driven service Industries such as BPO and Software Development.

4.1 Tourism: The Need to Communicate With Customers

Industry Overview

Uganda has gorillas and other wildlife, Lake Victoria, the source of the Nile, internationally known white water rafting and a range of other features that should make for an attractive tourism offering, particularly to eco-tourism and nature-focused segments. With many unique and under-exploited tourism offerings, significant potential exists to further develop Uganda’s tourism industry beyond its current platform.

Tourism is the nation’s largest foreign exchange earner, drawing in an estimated US$444 million in 2004 in official statistics, although concern exists...
that this amount is significantly overstated. Although the official statistics show that 512,000 individuals entered Uganda in 2004, additional work done by the World Bank suggests that only an estimated 45,000 of those were tourists on holiday or foreign residents engaged in tourist activities. Due to the skewed figures, capturing the impact of the tourism sector on the economy as a whole is a challenge. However, it is estimated that tourism employs around 420,000 people directly and indirectly, when informal employment is taken into account. Encouragingly, arrivals continue to steadily increase year-over-year, regardless of purpose of visit: from 193,000 in 2000 to 512,000 in 2004. Comparison to arrivals with select neighboring countries shows Uganda’s total receipts are small and have the potential to grow by attracting the attention of other travelers to the region (see Figure 21).

Travelers coming to Uganda specifically for holiday or business purposes mainly originate from the United Kingdom, the US, South Africa, and Kenya. The average length of stay ranges between 11 and 15 days for Independent/Package travelers, and 5 to 7 days for business travelers. Spend per day ranges from $82 per day for the independent backpacker to $145 per day for the business traveler.

The GOU has developed a National Tourism Policy and Strategy, and made further amendments through a Uganda Tourism Bill. Objectives laid out include engaging the Ugandan private sector and attracting foreign investors to the sector, prioritizing environmental preservation, and ensuring the positive social and cultural impact of further tourism development. The government has also been discussing implementation of a new tourism levy; revenue collected from this levy will be used to upgrade core tourism infrastructure and promote marketing activities. The policies target increasing holiday tourist arrivals to 100,000 within a 10-year period. In order to achieve this goal, proactive steps must be taken to overcome specific perception, accommodation, transport, and service challenges.

**Industry Challenges**

Tourism in Uganda faces several core challenges. First and foremost, the country lacks a national brand that is valued by international tourism markets. While efforts have been taken to increase Uganda’s broad international visibility, in order to be successful Uganda must identify and market itself to a much narrower and more attractive segment of customers. But challenges in perception tied to AIDS, security concerns with the war in the North, and the relative unknown nature of the destination are all barriers to the sector’s success.

For visitors who do come to Uganda, some important areas must be addressed in order to improve their experience. First, important actors who drive visitors’ experiences such as hotels, travel agents, and tour operators, are failing to communicate effectively with one another for tasks such as confirming reservations. This disconnect is particularly evident between foreign booking agents and local service providers, which creates unmet expectations in the tourism experience. Second, there is a serious need for upgrading the quality and operations of local infrastructure, services and attractions.

These challenges reveal the need for change, particularly in the sector’s relationship with customers, in its outreach efforts and in the quality of the experiences it offers. These changes need to be given high priority: in mid-2007, Uganda is sponsoring

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60 World Bank, “Uganda Tourism Sector Report”, Background Paper for the Diagnostic Trade Integration Study, 2005; this figure is calculated based on 512,000 visitors spending an average of $868. Yet 274,000 of those were East Africa residents in Uganda for only 1 day and/or passengers on layover at Entebbe airport.

61 Ibid.

62 Ibid.
the Commonwealth Heads of Government Meeting, during which thousands of visitors are expected to descend on Uganda. This conference will create a unique opportunity for the country to showcase its tourism.

Although a number of priorities exist for Uganda’s tourism sector, efforts at upgrading and investment should focus in the short-to-medium term on projects that are likely to bring the highest returns. It has been recognized that Uganda’s tourism sector, on the whole, is constrained technically and financially and would benefit from an industry cluster approach\(^63\). Limited resources can be channeled toward shared, high priorities for the greatest impact. In addition, adoption of the Tourism Levy and deferring a percentage of that toward specific initiatives can help overcome the funding barrier\(^64\).

**Recommendations**

**Build Uganda’s National Brand**

Uganda’s tourism industry is taking steps to address one of its biggest challenges: a relatively unknown country brand. Weak international perceptions present a barrier—both in relation to HIV/AIDS and the insecurity in the North due to LRA activity. Two ICT driven initiatives can be considered in the immediate future to help address this point.

Continued focus on web presence/collateral: Uganda recently launched a one-stop Internet portal (www.visituganda.com) with information on touring the country, a static website with brochures, a service directory, and a marketing slogan “Uganda: an Elegant Adventure.” In addition, the Tourism Board recently upgraded its marketing collateral. These activities represent an important step, and should be continuously refined and updated as Uganda more specifically defines its target segments, product mix, and messaging.

**Public Relations Campaign**

With security concerns and issues around HIV being major deterrents to potential visitors, brand image efforts must be coupled with a proactive public relations strategy to promote Uganda. Such a campaign might consist in placing third-party articles in various media outlets, producing documentaries, etc. that simultaneously raise awareness and allay concerns. Uganda may consider hiring a professional Public Relations or Destination Management firm to coordinate these efforts.

**Improve Data Gathering Efforts and Targeted Marketing**

An important part of improving the effectiveness of marketing efforts is to gather more specific data on the existing tourism base. This will enable more complex market segmentation. Primary sources of information are immigration cards, entry forms to National Parks and surveys such as the 2001 National Tourism Expenditure Survey that touched 3,038 people, or the 2003 Motivation and Expenditure Survey. While the survey data was insightful and representative, a more systematic and sustained approach is needed to gather information on larger samples of visitors over a period of time to

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\(^{63}\) ibid.

\(^{64}\) ibid.
develop a complete picture. This can be achieved through two approaches:

**Improving Internal Data Gathering:** Three ICT driven components can be implemented to help improve internal data gathering activities on the tourism sector. The Tourism Board, in its organizing capacity, can drive that activity through a partnership with the immigration service and other relevant government agencies (UWA, etc.). Collaboration of the agencies at different touch points in the visitor experience is important to get a holistic picture of tourist activities and expenditures. In addition to customizing the data collected, a shared information management system must be put in place to allow relevant agencies to access and analyze this data. An additional data feed into this system should include an exit survey given to tourists leaving the country, for example at the airport. The long-term value of this effort will be greatly enhanced by the inclusion of all data in a centralized system that can be accessed by multiple stakeholders.

**Customer Segmentations:** Uganda is at a pivotal point in developing its tourism industry, and a significant input to that growth will be about making informed decisions about the segments it can most successfully and profitably serve. These decisions need to be based on market size, potential return on investment, and needed investments in local infrastructure/facilities to meet target segments’ expectations. While improved data collection will help in the long-run, Uganda may wish to consider commissioning further visitor segment studies to help prioritize immediate investments.

**Improving Communication Among Tourism Actors**

In addition to improving communication with customers, ICT can also play an important role in strengthening industry operations within Uganda and between Ugandan tourism actors and their foreign partners. There is a communication disconnect between foreign agents and agents on the ground, and limited communication even between Kampala based agents and tour operators in the field. While developing information sources such as the Visit Uganda website will help, there is strong anecdotal evidence of breakdowns in communication that leave visitors without accommodations or traveling hours by road only to find out that a tour has been canceled.

This challenge is magnified by the fragmented nature of the industry, with many small players, particularly at the tour operator level. Many domestic tour operators act informally and don’t have offices or even office infrastructure, which contributes to the communication barriers. Ways must be found to formally confirm reservations, availability of tours, and other details.

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Level of ICT involvement</th>
<th>Summary of ICT enabled intervention</th>
<th>Backbone implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build Uganda’s Brand: Improve web offering and collateral</td>
<td>High</td>
<td>An interactive, robust website necessary for reaching travel agents and potential tourists</td>
<td>Hi speed fiber optics</td>
</tr>
<tr>
<td>Build Uganda’s Brand: Public relations campaign</td>
<td>Medium</td>
<td>ICT as an enabler of various aspects: builds off strong web presence</td>
<td>Improved connectivity amongst smaller players</td>
</tr>
<tr>
<td>Data gathering and marketing: Improved internal data gathering</td>
<td>High</td>
<td>All players in the link participating in data gathering, manually and electronically; centralization of all materials, etc.</td>
<td></td>
</tr>
<tr>
<td>Data gathering and marketing: Segmentation efforts</td>
<td>Medium, but dependent on above</td>
<td>ICT as an enabler for larger scale policy decisions about allocation of resources to specific markets, tourist segments, etc.</td>
<td></td>
</tr>
<tr>
<td>Improve communication: Cooperative booking/reservation agency program</td>
<td>High</td>
<td>ICT systems allowing feeds from individual players (tour operators, hotels) for streamlined reservations and enhanced operations</td>
<td>Improved connectivity amongst smaller players</td>
</tr>
</tbody>
</table>

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42 Improving Competitiveness and Increasing Growth in Uganda
Cooperative Booking/Reservation Agency: In addition to individual tour agencies and hotels implementing individual reservations management systems, one model to explore is the development of a cooperative booking agency in which member hotels, tour operators, etc. contribute to the operating expenses of a centralized booking service (which might be a not-for-profit organization) that can handle major reservations and coordinate communication between different industry players. This approach worked well for a consortium of small hotels in the Caribbean, offsetting the initial impact of the investment/start-up costs of establishing such a system.

4.2 Flowers and Fish: Improve Logistics

Flowers: A Logistics Success Story

Industry Overview
Uganda’s flower industry, introduced in 1993, is one that has overcome tremendous logistical barriers to become an important player in Uganda’s export market. With heavy financial backing by European investors, both the volume and value of flower exports from Uganda have experienced a steep upward trajectory over the past 10 years (Figure 22).

Despite a rocky start attributed to inexperienced growers, difficult financing terms and some questionable early technical advice about varieties, the young industry has prospered. Today there is a network of 20 farms employing approximately 6,000 workers. Currently 180 hectares of various rose and chrysanthemum varieties are under production. In 2004, 6,300 tons of flowers, worth US$32 million, were exported. It is projected that the industry could produce US$80 million in revenues and employ 10,000 people by 2010. Today, Uganda is Africa’s fifth largest exporter of cut flowers with 60% being sold at auction and 40% being sold through direct sales. Flowers represent 4% of total exports.

One of the most important developments in the evolution of this new industry was the formation, in 2001, of Fresh Handling Limited, a logistics and cargo service that helped to lower airfreight rates, overcome logistical challenges and increase the overall competitiveness of the industry.

The Uganda flower industry has to date made good use of ICT and ICT technologies, not only for logistics issues, but also for communication purposes. The proximity between buyers and sellers has been a strong comparative advantage since commerce commenced. Historically the time and effort required to move physical goods reduced—and often prevented—competition from afar. As barriers to movement and shipment reduced over time, difficulties in coordination and communication still gave the edge to local firms.

65 Interview with Graham Stone, Fresh Handling LTD, March 29, 2006.
66 Uganda Flower Exporters Association

Figure 22. Volume and Value of Flower Exports from Uganda

Source: Uganda Flower Exporters Association
With the advent of global ICT, distance has ceased to become a barrier to entry to all but the most niche products or markets. Rosebud Limited is a flower exporter that has learned this lesson, integrating ICT into its operations and allowing orders to be placed online. ICT have made it easier and cheaper than ever to stay in touch with customers and suppliers, and as knowledge and insight become an increasing percentage of the ‘value-add’ of products, ICT creates significant value by allowing the free and instant transport of digitized knowledge and insight.

Challenges

Due to the increased cost of fuel, Uganda’s airfreight rates are becoming increasingly uncompetitive. This situation must be resolved in order to increase profit margins within the industry and attract additional investors. Other enabling environment challenges include the high cost of electricity, which is crippling greenhouse-based production.

Another core issue that the Uganda flower industry is facing is the need to move away from commodity type flowers into more sophisticated products. As Figure 23 demonstrates, Uganda’s flower industry competes on basic factors like low wages, sun and good soil and produces low price, undifferentiated flowers.

But the world cut flower industry, led by the Dutch, does not compete on climate or other basic factors. Theirs is a sophisticated business highly dependent on technology, R&D, and logistics. When technology is imbedded into a flower, it becomes a complex product with customer preferences engineered into details like shade and size of bloom, with freshness guarantees, and a high-end market appeal. It is because of this focus on advanced factors that the Netherlands, despite its land and climate constraints, has become one of the world’s largest cut flower markets.

Uganda has done an excellent job of leveraging natural advantages to create a thriving flower industry, but in order to continue growth the industry must evolve towards more sophisticated products that leverage ICT. The continued of the evolution must be supported by more sophisticated applications of ICT in core areas such as logistics.

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**Fresh Handling Limited**

Fresh Handling Limited (FH) is a company that has successfully used ICT to provide a much needed export logistics service for the flower industry. Owned and managed by Ugandan horticultural exporters, FH organizes air freight for the exporters by chartering planes ahead of time, books cargo space for the flowers and negotiates prices based on quantity of product going out. FH also provides refrigerated storage facilities for the flowers so that they can remain cool and undisturbed until they are loaded into the cargo hold of the plane. Before FH, Ugandan flowers often sat in the hot sun at the airport, slowly wilting while waiting to be loaded onto a plane.

FH relies on mobile phones, computers with broadband access and user friendly software to run its business. Bookings are done through a simple customized electronic booking system. FH uses an accounting software program called Tally to manage its books. It communicates with growers and importers through email, keeping both sides up to date on when shipments leave Uganda and when they are expected to be received. FH provides growers with feedback on their shipment and any issues pertaining to quality.

The results that flower exporters in Uganda have experienced because of the logistics services offered by FH are impressive. Between 2001 and 2004, FH nearly doubled the volume of flowers it exported. Door to door freight costs to Europe fell from $2.40/kg in 2000 to $1.60/kg in 2004, although the recent increases in world fuel prices have caused prices to rise again.

**Rosebud Limited**

Rosebud Limited, a flower export company, has made ICT an intrinsic part of its growth strategy. The US$5 million farm project employs 700 and is owned by three Ugandan shareholders. Total exports per year are in the neighborhood of 60 million stems, primarily destined for Europe. Rosebud has succeeded in eliminating the distance barrier in several ways. It uses email to communicate with customers and its website has an online form which allows customers to place orders. Users specify desired quantity and the form automatically updates prices, including taxes. Clients supply billing and shipping addresses, and staff from Rosebud follows up on the submitted order. In February of 2006, Rosebud became the first Ugandan flower company to ship directly to the United States, with a shipment of 500,000 roses. Orders are processed through Miami-based Orange Flower Connect. It is unclear at this time whether Uganda’s flower industry can compete on a large scale in the United States due to the high cost of transportation, as it costs about twice as much to ship flowers to the United States compared to Europe.

Source: Interview
Recommendations

**Ongoing investments in Logistics**
Significant logistics challenges have been overcome in the flower industry through the efforts of Fresh Handling. Continued improvements can be made, however, to ensure that all producers use refrigerated trucks to transport flowers to the cold storage facility. While this is a significant investment, it will be critical to long-term competitiveness.

Additionally, a priority must be to expand cold storage space at the airport. Efforts are underway in this area, but the initiative must not lose momentum. In addition, the airfreight issues (price and capacity) need to be addressed.

Electricity remains an important input for Uganda’s flower growers, to power cooling stations. Improvements made to address the power crisis will have an important benefit to this cost sensitive industry’s long-term ability to compete and attract additional investors.

**Building the National Brand of Uganda’s Flowers**
Developing an image of the Ugandan flower as a world-class product will be important to commanding higher prices in the auction system. The industry must continue to find ways to use ICT for international marketing and to create a Ugandan brand among experts in the world’s flower industry. The UFEA (Uganda Flower Exporters Association) currently features a website, as do many individual producers. The sites are essentially static. ICT such as regular website updates or an email newsletter can be used to more broadly communicate the industry’s efforts and progress to a wider audience, and build the profile of Uganda’s flowers with buyers and industry experts.

**Increase Direct Customer Communication**
By leveraging continued logistics improvements and communicating with export markets, Uganda flower producers should continue to capitalize on their growing reputation to increase direct exports to end
user countries. While most exporters are “well-wired”, success in building direct export relationships will require continued innovations to build the brand of Uganda’s flowers and find unique solutions to Uganda’s geographic vulnerability vis-à-vis distribution. The industry’s current position of using email and internet-based order forms to communicate with members along the value chain is an excellent start. Ongoing direct communication with customers will allow Uganda to better understand client preferences, and work to integrate those preferences into the final product.

**Increase Training**
Training has been a critical component to the Ugandan flower industry’s success and should continue to be a priority for the industry. Ongoing training must be provided at all levels, from applied floriculture, pest management, business skills, and cool chain auditing for high level management to basic care and harvesting techniques for laborers. Ongoing innovations must be incorporated into individual business models, and production techniques must be continually upgraded as growers diversify into new products in order to capture new markets. One potential area of focus is the use of technology in the R&D process, in determining new species for Uganda to diversify into. The Flower Exporters Association has proposed the development of a Horticultural Training and Development Center to coordinate and regulate the quality of these courses. ICT may provide one medium in which training can be provided.

### A Strong Need for Logistics Improvements

#### Industry Overview
Uganda’s fish industry, which employs over 270,000 Ugandans\(^67\), is an emerging strategic success story. Between 1992 and 2005, fish exports grew from US$6.4 million (or 6.4% of total exports) to US$169 million\(^68\) (22% of total) surpassing coffee as Uganda’s biggest agricultural export, a somewhat ironic achievement for a landlocked nation. Uganda now holds a 0.2% share of the global fish market\(^69\). Currently, there are 17 processing facilities in Uganda, of which 15 are certified to export.

Nile Perch, primarily in the form of chilled fillets, account for over 90% of exports, while Tilapia makes up the remainder. Approximately 73% of the 70,000 tons of fish exported go to the EU. The United Arab Emirates and the United States are the next largest export markets, each representing 6% of export value. At the regional level, Rwanda, the DRC and Kenya together import about 10,000 tons of fish annually and there is a great deal of informal trading activity in this sector.

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\(^68\) In fiscal year 2004/5, Bank of Uganda Annual Report, number factors both foreign and regional exports

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### Summary of ICT Implications for Recommendations: Flowers

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<thead>
<tr>
<th>Recommendation</th>
<th>Level of ICT involvement</th>
<th>Summary of ICT enabled intervention</th>
<th>Backbone implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongoing investment in Cold Chain</td>
<td>Medium</td>
<td>ICT as a supporter of Efficient operations</td>
<td>Increased use of ICT</td>
</tr>
<tr>
<td>Resolve the electricity crisis</td>
<td>Low</td>
<td>Not directly related to ICT issues; national crisis with strong implications for this industry</td>
<td></td>
</tr>
<tr>
<td>Build brand customer</td>
<td>High</td>
<td>Improving website presence; using logistics improvements and continued</td>
<td></td>
</tr>
<tr>
<td>Increased communication</td>
<td>High</td>
<td>Customer communication/learning to enable increased sophistication of product</td>
<td>Increased connectivity amongst smaller players</td>
</tr>
<tr>
<td>Training</td>
<td>High</td>
<td>Use of technology in R&amp;D process to support increased sophistication of base product—flower varieties, etc.</td>
<td>Improved connectivity amongst growers and trainers</td>
</tr>
</tbody>
</table>

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**Notes:**

- 68 In fiscal year 2004/5, Bank of Uganda Annual Report, number factors both foreign and regional exports
In a short period of time, Uganda’s fish industry has succeeded in moving up the value chain. It has transitioned from being a market that exported unprocessed frozen fish to one that is now exporting both fresh and frozen whole fish, and fresh and frozen fillets to EU consumers that value high quality foods. Between 2000 and 2004, the percentage of fresh chilled fish to total fish exports nearly tripled, from 28% to 78%, indicating the efforts of processors to add processing value to their products. This shift in strategy has opened the door to potential expansion into even higher value-add products, including breaded fillets and ready-made meals.

Challenges
Before the sector can begin this transition to higher value added products it must respond to a number of challenges. First, more investment is needed lower down in the value chain where 90% of Ugandans who work in the fishing industry are employed. A recent report indicates that the growing profitability of the industry is not trickling down to the local fishing communities and that fishermen are lacking in basic materials such as motor engines, appropriate fishing gear, and life jackets. Meanwhile, because fish is a perishable product and because small-scale fishermen lack cold storage facilities, they are forced to sell at whatever price is offered by the processors. Unless conditions for fishermen improve, guaranteeing a high-quality product will be increasingly difficult.

A second challenge relates to Uganda’s higher costs of production. When it comes to the price of its fish, Uganda will never be able to compete on cost with Tanzania or Kenya with distribution costs that are 36% and 12% lower, respectively. These factors make it all the more imperative that there be significant investment in its operations and in its value-added processing.

A third challenge is the increasingly stringent hygiene and processing standards that the European Union demands of its food suppliers. Uganda’s fish industry must do more to ensure that these standards are adhered to all along the value chain. In 1997 and again in 1999, the EU deemed Uganda’s fish to be below standards. The resulting bans on Ugandan fish exports cost the industry millions, and while it forced an influx of capital investment, process innovation, and other technology that has ultimately benefited the industry, significant investment is now needed upstream for Uganda to continue to meet the EU’s stringent health requirements and avoid another disaster. ICT can certainly play an important role in helping the fish industry streamline its basic operations.

Recommendations
Consolidate landing sites
Upgrading basic hygiene at landing sites (central points where fishermen bring in and sell their catch and sell their fish) must be the fishing industry’s top priority. Consolidating Uganda’s network of existing landing sites will lay the foundation for future improvements, making efforts such as providing ice or basic facilities upgrades more feasible both logistically and in terms of finance. While the 15-privately owned and export certified processing factories all meet international standards, which include operating with HACCP control systems, the same cannot be said for the industry’s 522 landing sites. Deemed public property and therefore managed by the government, these sites fail on most accounts to comply with hygiene requirements. It is estimated that between

70 Ibid.
72 Ibid.
73 HACCP (Hazard Analysis Critical Control Point) is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution, and consumption of finished product.
20% and 40% of all catches are lost due to breakdowns in the cooling portion of the supply chain.

One industry report suggested that the industry could function with as few as 70 sites.74 Consolidation would make it easier to upgrade each landing site to meet EU requirements—including a supply of potable water, fencing around fish handling areas to prevent animals and pests coming in contact, and insulated fish storage facilities. At the moment, few, if any, of Uganda’s landing sites have this basic and relatively inexpensive infrastructure. Projections on the cost of upgrading these sites are estimated to be about $100,000 per site, plus an additional $20,000 for a cooling solution (ice plant or refrigerated room).75 Infrastructure development projects in this area are currently being funded by loans and donor financing.

**Focus on cold chain access**

Investments in cold chain systems are necessary for Uganda’s fishing industry. Tilapia or Nile Perch put on ice in an insulated cooler will keep for up to 1 week. Currently, many of Uganda’s small and medium sized fishermen do not have the scale required to invest in their own cold chain facilities. Coordination and cooperative agreements are the solution. One model that individual firms can implement immediately is for individual exporters/processors using middlemen with coolers and ice to employ a systematic program of SMS to inform fishermen of when and where those trucks will arrive at landing sites. The potential for a higher price (versus selling fish about to spoil at a lower price point to the local market) should help induce cooperation among fishermen. Over time, more permanent cooling features may be installed at landing sites.

**Employ sustainable fishery management techniques**

Over fishing in Lake Victoria, which accounts for 75% of national production, is threatening the sustainability of the industry. Because Uganda relies heavily on one species in contained lake environments, sustainable fishery capture management is essential. Although steps have been taken in this direction, regional coordination with Tanzania and other countries bordering Lake Victoria will be critical in protecting this shared resource. The government is in the process of reforming the fisheries sector to address these hurdles. In May 2004, the government approved the formation of the Ugandan Fisheries Authority (UFA) which will replace the under-performing Department of Fisheries Resources. The UFA will be the central government body that will manage the fishing industry overseeing development, resource management and law enforcement.

**Explore Aquaculture**

Ugandan fish processing plants operate at approximately 40% capacity on average due in large part to the industry’s dependence on one product (Nile Perch), one body of water (Lake Victoria), and one market (the EU). The industry needs to diversify away from these dependencies, into new inputs, products and markets. One solution would be to develop an aquaculture industry (fish farming), which would allow Uganda to market different varieties of fish, and be less reliant on Lake Victoria’s threatened supply.

Uganda has the ideal environmental conditions for aquaculture, which would give the industry additional control over the quality of exports and enable it to expand its market beyond Nile Perch to diversify into species such as tilapia and catfish. A limitation of concern is the current inadequate regulatory regime, including lack of veterinary drug controls and residue monitoring. The private sector should drive these investments with potential government incentives for R&D, improvements in key infrastructure particularly in the area of power, and training centers focused on technique and care.

**Ensure Traceability along all points of the Value Chain**

To remain competitive, Uganda must be able to certify that its fish industry, from capture to packaging, is EU compliant. It is no longer sufficient to simply maintain high hygienic and food safety standards at the processing levels: those improvements must be extended down the entire value chain from source. With processors implementing HAACP quality control systems, ICT is already integrated into production. However, HAACP inspection and data systems are designed to control potential biological and chemical hazards during processing, yet other stages of the value chain (both preprocessing and post-processing) are not fully

74 ibid.
75 ibid.
76 ibid.
compliant with traceability requirements\textsuperscript{77}. One relatively simple option to increase compliance is a manual traceability system, involving the placement of tags on traceability units (e.g. a batch of fish). Those tags can then be cataloged, or with a slightly more complex system uses tags with barcodes that can then be scanned. The incentives for individual firms to adopt these measures will be increasingly clear; there is also a case for Uganda’s fishing industry to incorporate minimum standards over time to set a baseline for traceability standards that can be demonstrated to export markets. The recommendation above regarding consolidation of landing sites will go a long way towards promoting the implementation of traceability systems.

**Industry Overview**

In 2000, Uganda’s vanilla industry seized an opportunity to step up production and meet a gap in global supply left by mega-producer Madagascar’s crop decimation due to cyclones. Uganda has since become an important player in the global vanilla industry with 3% of world market share.

Between 1995 and 2004 vanilla exports increased from US$8,000 (0.2 tons) to $6 million (132 tons). Vanilla under cultivation soared from 10,000 acres in 2001 to 50,000 acres in 2004. The majority of Uganda’s vanilla exports are destined for markets in

### Summary of ICT Implications for Recommendations: Fish

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Level of ICT involvement</th>
<th>Summary of ICT enabled intervention</th>
<th>Backbone implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consolidate landing sites</td>
<td>Low</td>
<td>Foundation step to allow better coordination and access to better hygiene infrastructure</td>
<td>Increased use of ICT</td>
</tr>
<tr>
<td>Focus on cold chain access</td>
<td>Medium</td>
<td>ICT as a supporter of efficient operations</td>
<td>Infrastructure: increased connectivity for access to information</td>
</tr>
<tr>
<td>Explore sustainable fishery management techniques</td>
<td>Low</td>
<td>Policy and enforcement steps needed for longer-term sustainability of the sector</td>
<td></td>
</tr>
<tr>
<td>Explore aquaculture</td>
<td>High</td>
<td>ICT as an enabler of efficient communication operations and supporting further R&amp;D</td>
<td></td>
</tr>
<tr>
<td>Ensure traceability</td>
<td>High</td>
<td>ICT as a supporter of increasingly operations and better communication; technology range from simple, manual systems to ICT enhanced to such as HAACP</td>
<td></td>
</tr>
</tbody>
</table>

### 4.3 Vanilla: Improve Competitive Positioning

Improving competitive positioning is one part strategy and one part smart application of that strategy. Certain agribusiness products such as vanilla, the world’s second most expensive spice, can greatly benefit from the development of strategies to help them define a unique positioning in global markets and insulate them against price fluctuations in this volatile industry. ICT can help implement those strategies through direct marketing to global customers, improving production, and helping to ensure quality.

### Vanilla – Market Share by Supplier (2003)

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Market Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Madagascar</td>
<td>63%</td>
</tr>
<tr>
<td>Comoros</td>
<td>9%</td>
</tr>
<tr>
<td>Uganda</td>
<td>3%</td>
</tr>
<tr>
<td>India</td>
<td>1%</td>
</tr>
<tr>
<td>Jamaica</td>
<td>1%</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>1%</td>
</tr>
<tr>
<td>Others</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: The International Vanilla Market – Price is the main handicap

\textsuperscript{77} Comprehensive Reviews in Food Science and Food Safety, Seafood Traceability in the United States: Current Trends, System Design, and Potential Applications.
Improving Competitiveness and Increasing Growth in Uganda

Vanilla is exported from Uganda in the form of cured beans. Most vanilla is grown by smallholders, but unlike other agribusiness industries in Uganda, especially those dominated by small farmers, the vanilla industry is well organized through the auspices of VANEX, the Vanilla Exporters Association. VANEX handles issues of coordination, marketing and training growers on key issues including the importance of harvesting beans at the right point of maturation and not simply when prices rise. Beans that are harvested too early are inferior in quality and will inevitably have a negative impact on Uganda’s reputation as a vanilla producer. These efforts seem to be paying off as Uganda is gradually establishing a reputation as a high quality player.

The competitive landscape of this young industry has changed dramatically over the last five years. A market that once supported two processors (bean curing facilities) has expanded to 10, giving growers increased bargaining power. Although vanilla is a commodity industry, quality is critically important and the foundation for differentiation. Training, proper inputs and quality control are essential elements that have to exist in order for Uganda to maintain its position in the vanilla market. The Kasese Smallholder Income and Investment Program (KSIIP) is a good example of a fully integrated, organized partnership that has succeeded in producing high-quality, branded vanilla.

**Challenges**

Despite a strong start, Uganda’s vanilla industry is now in flux. Over the last two years, world prices have fallen dramatically in response to increased production in Madagascar and entry from new players such as Vietnam. There is also intensified competition from synthetic vanillas: demand for synthetics increased in the wake of the volatile world supply situation between 2000–2003. World Vanilla prices fell from nearly $US 300 per kilogram in 2003 to less than $US 50 in 2005.

Unless the move towards high value added and quality products continues, production is expected to decline as returns are lower that in previous seasons. However, Uganda’s recognized position as a Madagascar Bourbon alternative (the highest quality variety) suggest that with a quality and niche-market focus, Uganda may retain an attractive position in this volatile industry.

The vanilla industry, although a small percentage of total exports, is very attractive for its potential to impact lives at the grower level. Uganda, which initially capitalized on an opportunity when global

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**The KSIIP Program**

The KSIIP program, started in 2004, is a partnership between a Catholic charitable foundation based in the Netherlands (CORDAID), two specialist horticultural consulting firms (Fintrac Inc. and its Ugandan affiliate Agribusiness Management Associates Ltd.), a Dutch trading firm (Highlow Supermarket B.V.), and seven smallholder grower associations, representing more than 2,000 individual farmers, located in the District of Kasese.

Over 45,000 vanilla vines have been provided for farmers in Kasese, financed by a loan from the coalition of partners. The loan for planting material and tractors—totaling 200,000 Euros—is to be paid back by 2009. The committee members of each producer association have signed a contract to make the specified repayments and to supply vanilla of the required quality on time.

Two full-time agronomists are responsible for providing technical assistance and advice by working with groups on farmer-owned demonstration plots, and through regular visits to individual farms. As members, farmers benefit from group discussion and reduced cost inputs, as the associations buy fertilizer and other goods in bulk and make them available on credit to members who have to make repayments from the proceeds of their harvested vanilla. The vanilla being produced through this partnership is organic, although it has not been certified.

Growers are obligated to sell their vanilla to Highlow which is responsible for processing the vanilla and exporting it to Europe. Highlow is evaluating the option of establishing a vanilla extracting factory in Uganda. As it is now, the vanilla is extracted in Holland. “Vanilla Moon”, which refers to the Rwenzori mountain region where the vanilla is grown, is the name that has been given to the vanilla produced through this partnership. Vanilla Moon has its own website which includes a link that enables viewers to learn about the partnership, access recipes for cookies, ice cream and cakes using high quality vanilla, and purchase Vanilla Moon branded vanilla beans from a US-based agent. Vanilla Moon has taken important first steps toward selling a branded Uganda vanilla directly to customers around the world.

Source: Interview

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78 Uganda Export Promotion Board Product Profile on Vanilla, No. 9, 2005.
supply was down, now has the opportunity to leverage strategy and ICT to define their position in the global market. Many non-profits and development programs have helped Ugandan growers make important strides in this area, but efforts need to focus on passing on technical know-how and management expertise to the local private sector so that a vertically integrated partnership like KSIIP can eventually be 100% Ugandan. ICT can play a role in quality assurance, and communicating branding messages in this global industry.

**Recommendations**

**Focus on Brand & Quality**

In this quality sensitive industry, Uganda should continue to explore possibilities to build a brand for Ugandan vanilla. Among connoisseurs, vanilla from Madagascar is known for its creamy flavors while Tahitian vanilla is known for fruity notes. What will distinguish Ugandan vanilla? The quality of Ugandan vanilla is recognized to be an alternative to Madagascar Bourbon—and Uganda has the potential to position itself as a more stable supplier as they are outside the cyclone band. Ongoing efforts to ensure quality, including the provision of training and enforcement of minimum standards by VANEX, are key.

**Go Organic**

There is a growing movement within vanilla to “go organic.” Uganda would do well to explore becoming a proactive player in this sub-sector of the market. The exact size of the organic vanilla market is not known, although it has been estimated to fall at about 1% of the total global market in 2004 and growing79. Estimates on the premium for organic vanilla range from 20%–50%, but prices fluctuate as dramatically as regular vanilla prices80. Demand is often driven for vanilla as an input into other organic products, such as yogurt, and by the gourmet set. Supply of organic vanilla on the global market has been limited, but Uganda is already frequently cited as a source, with a number of local firms actively exporting. Further exploration the market potential for this product is warranted, as well support for the production and certifications requirements necessary to compete in this market.

**Continue to Explore Possibilities for Value-Add & Processing**

Uganda currently cures all the beans that are exported. Curing is a multi-step process that takes the bean from its green state through to the darkened product that can be used for extraction. Beans are then sold to extraction plants in Europe. As a next step, in order to capture more value from its vanilla production, Uganda needs to invest in extracting facilities. This will enable the industry to start exporting a more finished product. Processed

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products are also less sensitive to the fluctuating prices that plague the commodity bean market.

**Invest in Training & Extension Services**  
Training is important in this quality sensitive industry. Planting, care, and harvesting must occur at very specific times. VANEX offers training, and recently opened public demonstration gardens to share knowledge among farmers. These investments must continue to be supported, and proactively disbursed among the smallholders that make up the bulk of production in the industry. Continued investments in training are needed.

### 4.4 Select Services Industries: Making Distance Irrelevant

The service sector plays an important role in Uganda’s economy. Broadly, it encompasses wholesale and retail trade, hotels and restaurants, transport and communications, and community services, representing 39% of GDP. In 2004, service exports reached $330 million, up 38% since 1999/2000.

When looking at the role of ICT, services can be divided into two main categories: those where ICT acts as an important enabler of services (education, health, finance) and those where ICT is the core of the service offering (BPO and Software development). These last two service sectors are considered “service exports”, industries where the main “client” of the service is outside the country.

While this report has focused primarily on the use of ICT to enable business clusters that are not themselves technology clusters, this section will explore the growth potential for more ICT intensive sub-sectors, and look in detail at the question of whether Uganda possesses (or can build) the infrastructure and knowledge capital required to be competitive in these markets.

#### 4.4.1 ICT Enabled Services: Education

Education accounts for 3% of global service exports annually. Revenues are generated from tuition and associated school fees, travel costs, living expenses, and discretionary spending. The economic impact to traditional “branded” education export earners—the United States with Harvard or the United Kingdom with Oxford, for example—can be staggering. The U.S. earned US$10.7 billion in revenue from foreign students in 2003. New players are trying to come on the scene, both by attracting foreign students to their secondary, private, and tertiary schools, as well as establishing capabilities in niche outsourcing services such as e-tutoring or outsourced exam grading.

Exporting education refers to one of two things: attracting foreign students and educating them in your domestic system, or providing educational services to overseas markets, including distance education through ICT-enabled media.

In order to understand the potential for Uganda to export education, one must understand what the “products” are that are currently being marketed in this space. This list is not intended to be exhaustive, but rather to give a flavor for the range of possibilities. In addition to importing students to a nation’s higher education system, other products include English as a Second Language (ESL) instruction, Examination/Professional bodies (certification boards for specific professions, such as teaching or engineers), independent primary and secondary educational equipment, production and broadcast of educational programming, and educational BPO (Business Process Outsourcing) including grading papers, helping students with homework, or curriculum development. While little data exists on the proportions these sub-sectors contribute to national revenue, in the UK, Higher Education is the largest segment. Uganda’s greatest potential lays in attracting regional students to its tertiary education system, based on its existing participation in this market, historical strong reputation and flexible curriculum.

Due to the country’s young population and developing economy, the education industry is rapidly growing. There are roughly 2,055 educational institutions in Uganda of which 42% are private, 35% are government-owned and the remaining 23% are community-owned. In 2004/2005 the GOU earned about US$31 million in tax revenue from education institutions, the vast majority ($24 million) coming from private secondary schools and $6.6 million from tertiary institutions.
Private and Secondary Education

Within the past decade, Uganda’s school system was liberalized in order to allow private education providers to alleviate some of the state’s burden of trying to educate more than 50% of its population at one time. The number of private secondary schools has recently overtaken the number of government schools.

Despite the added expense, parents often prefer to send their children to private schools. Students in private schools tend to perform better on national examinations, including the A-level Examination, necessary to enter college. Despite the fact that they receive higher fees, private schools face significant financial challenges. They are taxed at the same rate as a commercial enterprise. In addition, there is a limit to revenue potential. School fees remain low; although the capacity of population to pay high fees is limited, it is increasing.

One alleviating factor to these financial pressures is the growing number of foreign students who are coming to Uganda for both primary and secondary schooling. Kenyans, in particular, are flocking to Uganda because education is less expensive (average $130 for a year at a Ugandan boarding school compared to $280 a year at a Kenyan day school). Uganda is also developing a reputation for offering a wide variety of different types of curriculum models, particularly in the area of practical vocational training and has a reputation being more flexible. For example, the Taibah School, a private school founded in 1999, has succeeded in building a solid base of foreign students (30% of its student body) in large part because it is filling a market need for a curriculum focused more on hands-on, practical learning.

As Uganda innovates to meet the educational needs of its own rapidly growing domestic market, it can build the foundations necessary to attract foreign students with a regionally competitive education product. The Taibah School has succeeded in doing so by offering a different type of educational experience. But as will be discussed further, in order for the country’s primary and secondary education markets to attract more foreigners, several steps need to be taken.

Higher Education

Uganda has the potential to be a regional destination for higher education. With a number of universities, including the regionally respected Makerere University, once known as the “Harvard of Africa”, Uganda has a reputation for educational excellence at the tertiary level. One of the main reasons foreign students come to Uganda to complete their tertiary education today is its flexible

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**Taibah Schools**

There are two Taibah schools in Uganda—a primary and a secondary school—which have about 450 students between them. About 30% of the student body is classified as foreign, coming either from Tanzania, Kenya or Ugandans who are living in Europe or the United States. The school markets itself through television ads, the newspaper, and live presentations and receptions. The school has recently launched a website to serve as an additional venue to attract more foreign students.

The Taibah schools have differentiated themselves from their competitors by offering a practical curriculum that places less attention on preparing students to excel on national examinations. In fact, the school does not publish examination results. In addition to basic subjects like English, math and science, students can choose to participate in a number of vocational classes including technical drawing, woodworking, home management, and textiles that typically are not found in Ugandan schools. Every student is required to have training in at least one vocation. The school stresses the importance of teaching students about management. Banks give lectures to the students about saving and loaning money. There is also a school bank where students are encouraged to keep their money as a way to teach them about managing their finances.

Technology is also being integrated into the curriculum. Both schools have computer labs, and the secondary school has Internet access. Students are required to use the computer at least one hour a day. Every subject is required to have an ICT component incorporated into the lesson plan, either as a venue to give presentations, or conduct research. However, the ongoing power situation and lack of funds for paper and printing material is making it difficult for the school to fully exploit the technologies in these ways.

Taibah is an example of a service provider that has listened to its customer base and has differentiated itself based on an unmet need for an educational institution that is focused on practical, relevant curricula that includes ICT. While ICT has until now not been a driving force behind this strategy, by utilizing the reach of the Internet to get its message out, Taibah will likely be able to continue to increase its foreign student body.

Source: Interview, Oscar Musoke
Improving Competitiveness and Increasing Growth in Uganda

curriculum and the quality of its instruction. Makerere University is a large recipient of what is called the “Kenyan brain drain”. Between 2002 and 2005, the number of Kenyans admitted to Makerere jumped from 400 to 750. Of these, 90% had completed their A’ Level Examinations in Uganda.

Uganda’s tertiary sector comprises 10 private and 4 public universities, several polytechnic institutes, 45 teacher and training colleges and 65 technical and vocational institutions. This set of institutions represents a solid starting base from which to build a vibrant export sector. Uganda is already attracting foreign students from neighboring countries, and with a more concerted effort and better targeting of foreign students’ needs, this small pool of students can grow to be much larger. Education services represent a viable option for Uganda to expand its export service offerings, particularly to a regional consumer base.

To be successful, however, will require investments in the following areas:

- Data gathering on the number, origin, needs and perceptions of foreign students
- Active marketing to attract foreign students
- Increased investment in the sciences and technology
- Increased specialization among tertiary education centers to create centers of excellence
- Strong leadership, both at the institution and government-levels, to create a cohesive strategy around Uganda’s education export vision.

Competition in this space, however, is heating up. A number of active players in this space—the UK, Australia, and South Africa, notably—are engaging students within the East Africa area and offering attractive opportunities to study abroad. Already, even without actively engaging the market, Ugandan schools and universities are attracting a base of foreign students. However, in order to take this potential to the next level, a proactive approach needs to be taken. Uganda needs to move fast to build on and consolidate its reputation as a regional center of excellence if it wishes to compete in this industry. A number of recommendations, some actively using ICT, will allow Uganda to succeed in this industry:

**Focus on data collection.** Before Uganda can begin to market education services as an export, more information about market size and customer needs is needed. This information can be captured with the help of ICT through a coordinated effort led by the Ministry of Education or by an enterprising member of the academic sector (e.g. Makerere or another university).

Data should be collected on such things as the numbers of foreign students, what motivates them to come, revenues being generated, etc. By understanding the current market, Uganda will be better positioned to target services and market them to potential foreign students. Data collection can be done at two levels—the individual organizations can employ basic student data tracking systems to better understand their own constituents, and a centralized system can integrate schools’ data into a country-wide database.

**Market schools to target markets.** Schools seeking to increase their foreign student bodies must aggressively market themselves. Marketing techniques commonly used by educational institutions to attract foreign students include collateral such as brochures, maintaining an online presence, and very importantly, personal visits to target countries. It is common practice for universities to send Admissions staff or ambassadors from specific programs to speak about the school to top performing schools in a target country, and meet with groups of students and interested parents in small group settings. Resources can be focused in target markets such as Kenya, Tanzania, and Rwanda, with an eye toward helping to build Uganda’s brand as an education destination.

**Improve infrastructure.** Infrastructure and facilities constraints have been cited as a limitation for Uganda. Basic facilities, such as classrooms and living quarters, will need to meet a minimum standard to sustainably attract students. Further, reliable access to telecommunications services will be important to accessing online resources such as e-libraries, a critical component to research when local resources are limited. These constraints can be addressed on an institutional level, particularly in the short-term: e.g. universities can build a new

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86 Uganda Service Sector Export Strategy, (Kampala, Uganda: Uganda Export Promotion Board and Sector Counterpart Team, June 2005), p. 6
dorm, or invest in student ISDN access for an on-site computer facility. Small investments can have measurable impact on the quality of students’ experiences.

**Offer internationally oriented courses and programs.** Foreign students often have particular needs or interests which can be better met with targeted degree programs or with specific courses. For example, in law classes a school might offer classes in legal frameworks in other countries' legal systems, or offer certifications that are recognized by other country governments.

### 4.4.2 ICT Enabled Services: Health Services

Many Ugandans believe that health services, including telemedicine and strategic health planning, could become a viable service export. During the 1960s and early 70s, Uganda had one of the best health systems in sub-Saharan Africa, and Makerere University was considered one of the top medical schools in the developing world. While there was a brain drain during the years of Idi Amin, medical talent has slowly started trickling back from countries like South Africa.

Globally, cross border trade in health services accounts for about 1% of trade in services. Yet, with global health expenditures approaching US$3 trillion in 2004, that 1% represents US$30 billion in revenues. Interestingly, when telemedicine (consultations and/or information exchange between two remote medical facilities via ICT) is discussed in conjunction with Africa, it is most often focused around how medical expertise can be imported from Europe or North America to help Ugandan doctors.

Telemedicine benefits Uganda’s domestic health services by allowing access to experts and specialists in the developed world. However, a major obstacle to both importing and exporting telemedicine are bandwidth and infrastructure issues. Medical data, especially for diagnostic or consultative purposes, is often transmitted as an image—for example, images of an ultrasound or x-ray. Image files are large in terms of size, and Uganda’s limited bandwidth makes transmission slow, or not possible at all. Further, the areas that might benefit most from these services from an import perspective (e.g. rural areas) have such limited access to electricity and telecommunications services that such communication is not possible. Much of the telemedicine happening on the local level is happening at a much more rudimentary level.

Traditionally with regard to telemedicine, the question is framed as “How do we bring international expertise on health issues to Africa?“ Uganda is also asking another question, reframing the discussion by asking what competencies it could export in terms of health services to the wider world. While sharing medical information across borders is not a new concept in Uganda, trying to export that knowledge in exchange for foreign currency is.

One area bearing further exploration is the export of Uganda’s expertise in HIV/AIDS management to other developing countries struggling with the issue.

Uganda is renowned within Africa for its ability to control communicable diseases. The reduction of HIV/AIDS prevalence from 18% (30% in high infection rate areas) in the 1990s to 6% today has earned Uganda international recognition. Guinea worm has been eradicated and considerable headway has been made on controlling malaria. The ability of the country to manage the spread of communicable diseases and the medical community to treat them are both fountains of experience that could be packaged and exported to others within the region and beyond.

As other members of the developing world continue to struggle with HIV/AIDS (some such as Sub-Saharan Africa continue an ongoing fight while others such as India are seeing sudden surges in the numbers of infected patients), Uganda’s experience will be valued—not only for its direct medical knowledge in caring for patients, but more importantly for its broader policy experience in developing, implementing, and managing a national level strategy to lower infection rates, and its ability to mobilize partners and donors for resources such as funding, generic drugs, and outside expertise.

The expertise that Uganda has to offer could be very attractive if strategically managed. However, several factors must be considered before this industry can

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be developed, and in the short-term, it is likely to remain very small.

**Codify and package knowledge:** In order to transfer this knowledge, it is important that it be codified and replicable. On the policy side, formal management plans, communications strategies, and other tools utilized by the government and its partners should be captured and centralized. Undertaking a full inventory of what could potentially be incorporated into such a service offering is an important first step toward formalizing this interesting possibility and putting Uganda in a position to formally market its expertise. Individual experts within Uganda should also be polled for their willingness not only to participate, but also the scope and scale of their available knowledge.

**Market understanding and analysis:** Detailed feasibility studies to understand the potential for the export of Uganda’s AIDs expertise, including attractive customer segments and products and requirements (infrastructure, services and human capital) to succeed.

**Enhance access infrastructure:** Basic infrastructure is needed for communications such as email and videoconference, for the sharing of files including management plans and patient information. Increased broadband access is also critically important for the continued use of “traditional telemedicine” for transmission of data heavy files including x-rays and photographs.

### 4.4.3 ICT Enabled Services: Financial Services

The development of a sophisticated financial services industry that can facilitate secure transactions and efficient capital allocation is an essential component of an enabling environment conducive to private sector growth. Uganda is at a nascent stage in terms of financial services and products. The national banking industry consists of both foreign and local players, including Barclays, Standard Chartered, Citibank, Nile Bank, and Tropical Bank of Africa. In actuality, the majority of Ugandans are not currently utilizing the formal financial services sector. Uganda’s financial sector has been described as “intermediation rather than savings constrained.” Rather than lacking funds, the country’s financial institutions either seem reluctant (due to the risk of lending to low income populations engaged in a highly volatile, commodity-based agriculture industry) or unable to distribute funds to the private sector. This is particularly true in rural areas. Although 51 of the country’s 56 districts are served by at least one financial institution, the majority of districts outside of Kampala have not succeeded in attracting competition and continue to be served by just one bank. It is not cost effective for banks to open up branches in rural areas, with high volumes of low-income customers.

Uganda’s domestic savings rate is low, especially in rural areas, due to low incomes and the persistence of a subsistence economy. Consequently, the majority of the population does not use bank savings accounts. For those that would have money to deposit, usage of banks is further constrained by high fees on checking accounts and negligible interest rates on deposits. Bank account penetration rates are low: only 4.7% of Ugandans currently have deposit accounts. Compared to other countries in the region, these rates are very low, with 7% of Kenyans and over 40% of Namibian having savings accounts. Low savings rates meanwhile increase the cost of capital, limiting investment opportunities further.90

Operating costs and overhead remain high for Ugandan banks. These costs come in part from investments to expand branch networks, develop ATM networks, and relatively high telecommunications and energy costs. An important area for financial services to explore as it continues to expand is how cost-saving ICTs can be employed to streamline operations and help achieve goals such as outreach more efficiently.

Access to affordable credit remains elusive for the majority of Ugandans. In the 2002–2003 National Household Survey, only 23% of rural households reported that there was a credit institution not requiring collateral within 10 km from the village center, compared with 60% of urban households. Interestingly, according to another survey, over 70% of rural households state that they have no need for credit. It is likely, however, that demand would increase if barriers to access were lowered. Uganda’s high lending rates (19.7% in January 2006)

Potential ICT Benefits to Uganda’s Economy

Potential ICT Benefits to Uganda’s Economy

preclude many businesspeople, especially those in agricultural industries, from acquiring investment capital. Agriculture, despite accounting for 35% of GDP, only accounts for 10% of commercial bank lending. The majority of lending that does take place is focused around short-term capital needs, rather than longer term investment capital.

The government has taken recent steps to reform Uganda’s financial services industry so that the needs of low income, rural based Ugandans are better met. Legal reforms enacted in 2003 sought to transform many Micro-finance Institutions (MFIs), which up until that point had operated without a clear legal framework and simply provided loans and not deposit services, into Microfinance Deposit-taking Institutions (MDIs). The idea behind MDIs (of which now 4 exist) is to make it easier for low-income Ugandans to open up deposit accounts.

One of the constraints behind the set up of the MDI legal framework is the ceilings imposed on lending: MDIs cannot lend more than 1% (individuals) or 5% (companies) of their total lending capital. These ceiling limits on MDIs constrain their ability to finance larger-scale commercial or semi-commercial farming. As one of the goals of deepening and broadening Uganda’s financial services sector is to bring more smallholder farmers into organized supply chains, this is a significant barrier that needs to be addressed. While the ceiling may allow for working capital needs to be addressed, longer-term investment needs will likely not be able to be met.

In short, while the banking system is growing, it is still small and reach is limited to urban areas. Only four MDIs, designed to serve the rural population, have been opened to date. Other obstacles include high costs of banking, the limited array of products many of which are limited to the short-end of the maturity curve and/or do not specifically serve the agriculture and agri-business industries where the majority of need is concentrated. Uganda’s financial services sector still has important steps to take in meeting its domestic need before seriously considering financial services as an export sector.

Uganda’s larger financial institutions are starting to respond to local market conditions and provide products and services appropriate for Uganda’s level of ICT adoption. For example, Nile Bank just introduced SMS banking, which allows clients to use mobile phones to transfer funds and receive balance information. SMS banking represents one application of technology that works with the relatively advanced levels of mobile phone usage in Uganda. As financial institutions and their client bases grow, further leveraging ICT to meet the needs of the population through innovative services such as SMS banking, will expand reach while obviating the need for physical bank infrastructure. The strategic use of ICT to improve internal operations and lower costs will ultimately benefit consumers as those cost savings can be passed along in the form of lower fees. Additionally, until the demand in rural areas is high enough to support competition to allow for multiple bank branches to profitably operate, models for collaboration such as shared brick and mortar facilities to process transactions should be explored.

4.4.4 ICT Core Services: Business Process Outsourcing (BPO)

Recent excitement within the nascent BPO industry in Uganda has posed the question “Can Africa become the next India?” According to a recent study by Datamonitor, Africa will see the fastest growth in the number of call centre workers of any region between now and the end of the decade. Ugandans are anxious to capture a piece of this growing pie. Experts project the global market will exceed US$ 90 billion by 2006. However, in order for BPO to be at all feasible or profitable, careful consideration must be given to the inputs and enabling environment necessary to foster a competitive BPO sector.

The most basic form of BPO is the call center, of which there are two major types: telemarketing, which involves outbound calling to sell products and services, and customer service, mostly inbound calls answering concerns and solving customer problems. Telemarketing centers receive commissions on sales closed. Typically a call center will purchase call lists, and are paid, for example, by a credit card company based on how many credit cards are sold. In the telemarketing and low-level customer service industries, the ability to compete is based on low labor costs. Other BPO opportunities exist that are not commoditized, and build on basic

93 Zagada Markets Inc., 2002
services, such as backoffice activities, including invoicing, credit card services and other niche opportunities in high-end customer service.

There is growing BPO activity in Uganda, and Uganda’s ICT Services Outsourcing Association currently has around 30 members. For example, Uganda’s Globenet obtained a contract to telemarket telecommunications services to potential customers for AT&T. Other meaningful investments include Interglobal Services, a US firm, that established a 150-seat call centre in Jinja. After a thorough analysis, it deemed Uganda to be an attractive location due to the “English-speaking, educated, service-oriented” population. While there are some positive signs, Cayman Consults (example below) depicts some the cautions to be considered for this business to prosper.

The experiences of firms pioneering outsourcing activities in Uganda reflect some of the most important lessons of the broader global market. Some key issues for Uganda’s BPO industry development include:

**Labor Productivity.** Call centers from the U.S. will outsource operations if they are able to make at least 40% margins on labor costs⁹⁴. Low wages are not enough—Uganda must also keep productivity high.

**High Connectivity Costs and Broadband Constraints.** The cost of connectivity and outbound calls remain an important constraint for Uganda in terms of BPO competitiveness, especially in telemarketing. However, firms such as Globenet have negotiated special rates with telecoms to help defray costs, and are also exploring VOIP. Bandwidth is also a critical issue for businesses such as Cayman whose activities require the download of large volume files—as noted above, the slow speed of download was cited as the major constraint to continued BPO business. Investments in improving the national backbone, will be increasingly important as activities in the sector grows.

**Accents.** It has been said that Uganda’s English speaking population is an asset in its development of BPO services, describing the general speech as slow, deliberate, and easy to understand. However, those already operating in the space are making concerted efforts to reduce heavy Ugandan accents in response to consumer reactions. Previous OTF research about call centers in other regions further confirms that trust in confidentiality becomes an issue for U.S. consumers when giving credit card and other information over the phone to agents with accents.

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**Cayman Consults**

Cayman Consults is one Ugandan firm that has entered the BPO space, doing bookkeeping and data processing, thanks largely to the support it gets from its Canadian client, a small accounting firm. The outsourcing transactions between the Canadians and Cayman are fairly simple. Documents, mainly receipts from its clients, are scanned on the Canadian side into a password secured data base. Cayman staff then input the data from the scanned receipts into the database. The Canadian firm provides the server, firewalls and Internet security infrastructure, while Cayman provides the Internet connection and work stations in Uganda. Cayman employs five full time people for data processing and can tap into a group of 80 trained and certified professionals during “high seasons” which for Canada is from January until March. During these times there are multiple shifts, essentially ensuring that their client gets 24-hour service.

Every Cayman employee has to attend a two month training session developed by the Canadian firm comprised of three modules. The content is focused on practical skills (typing), more complex aspects of the Canadian tax system, and business basics such as time management and confidentiality. As of 2005, 80 Ugandans had been certified. While the Canadians have been more than satisfied with the work attitude and skills of the professionals employed at Cayman, the partnership has been stressed by the slow speed of data transmission caused by inadequate bandwidth. It often takes several minutes for the PDF files sent over by Canada to open on the Ugandan side. Since entering data entails opening up documents one at a time, and a typical file can have up to 1,000 documents, the turnaround time has proven to be too slow, especially during the peak months. The Canadian firm has started outsourcing its time-sensitive work to India where the prices are the same and the turnaround is much quicker. Unlike Uganda, most major cities in India have industrial parks equipped with fiber optic technology. If Uganda truly wants to make a play to operate in the BPO space on a significant scale, the country must overcome bandwidth and access challenges through targeted investments in backbone infrastructure.

Source: Interview Wall and Associates

⁹⁴ Interview with CEO of Helen IT Systems, October 12th 2004
Perception. During a recent interview with The Independent, Datamonitor analyst Ri Pierce-Grove highlighted the importance of international perception of the location companies choose to outsource their activities. “We may see prevailing stereotypes of African countries as universally unstable, corrupt, and technologically limited replaced with a more nuanced, country-specific views.” As discussed in detail in the Tourism section, Uganda’s international image is tainted by concerns of HIV/AIDS and insecurity in the North. Recent investors in the sector have noted they believe this is the largest challenge to overcome in selling Ugandan call centers to an international client base.

When considering BPO projects in Uganda, the ICT sector must ensure that investments are rigorously analyzed, and that sufficient private sector investment is in place for these opportunities to be realized. In this highly cost-driven industry, a thriving BPO sector should involve value added services, and involve a high degree of collaboration including the private sector, government efforts to overcome infrastructure challenges and educational institutions commitment to developing curricula to appropriately trained graduates.

In part to support this sector, there has been much discussion in Uganda about the build-out of an Industrial Park. At the time of this report, the development of the “Kampala Industrial Business Park” (KIBC), a 1,000 hectare site on the highway between Kampala and Jinja, is slated to begin in December 2006. The park will be built through a public private partnership, in which the government will provide land and basic services, and the private sector will provide additional investment. Facilities are geared toward businesses in a variety of sectors, including services and manufacturing. While the focus of the park is not entirely the BPO industry, there is clear hope that businesses of these types will benefit from participation.

If enough technology focused firms are attracted to the KIBC, it would have the potential to reposition itself (or a part of the park) as a Cyber Park. Successful Cyber Parks are self-sufficient “towns” of technology that encompass residential neighborhoods, shopping centers, technical universities, research centers, business incubators and technologically modern business facilities. Cyber Parks rely heavily on the sustained creation of significant intellectual capital through universities, research centers, and business incubators, all of which are costly to develop and can take years to build.

For the KIBC, the concept of a Cyber Park is still very much in the future; none of these aspects, including a roster of interested companies, is yet on the plans. KIBC should refrain from building out the infrastructure in advance of private sector interest. Nonetheless, the KIBC can start assessing the interest of the private sector and the process of recruitment in advance of any build-out.

4.4.5 ICT Core Service: Software Development Industry

While Uganda is unlikely to become a global player in software development exports, there is a domestic and regional market with some potential. According to the 2001/2 Uganda Business Register, 146 formal firms offer computer-related business services in this highly fragmented industry. A survey carried out by the Export Promotions Board discovered that 15% of Ugandan ICT companies (out of a sample of 49) are exporting services and of those non-exporting firms, about 20% consider themselves to have the potential to do so in the next five to ten years.

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Approximately three firms out of the 49 surveyed are actively exporting software on the global market.

There are a couple of firms that show potential in this space. The first, Crystal Clear Software (CCS),...
is a success story of a niche software development firm exporting products to a global client base. Crystal Clear Software sells an accounting software product for micro finance institutions (MFIs) that manages savings and loans. CCS has 170 active clients and the software, which can be tested on its website, is available in four languages and is used in 50 countries worldwide. In a few of its key export markets the firm hires local consultants to provide technical help to clients.

CCS is a locally registered company, although its website is hosted in the Netherlands so as not to be a victim of Uganda’s frequent power outages. In 2005, CCS was named the best export service company in Uganda. While there have been instances where potential clients have declined to do business with CCS due to being Uganda-based, clearly its Internet strategy has helped the company extend its reach.

Other Ugandan software companies are developing software solutions for the local market, such as Digital Solutions. Its first product was timing technology for cybercafés called Butterfly which is now offered for free and is used in 130 cafes in Uganda, Tanzania and Kenya. In exchange for offering the software for free, all cybercafé computer screens have a banner advertising Digital Solutions. Taking this model further, the company is going to begin selling advertising space to vendors as part of its software package that cybercafés use. Digital Solutions is betting that this will provide an attractive revenue stream given cybercafé usage in its client countries. One industry player estimates that on average a café has 10 computers and 100 users per day. Additional product development by Digital Solutions includes the development of an SMS technology currently utilized by Uganda’s telecoms.

Much of the software being developed in Uganda is created in part using Open Source Software (OSS) technologies. OSS has been advocated as an attractive option for developing countries on the grounds of flexibility, local adaptability and costs. By definition, OSS lends itself to creating an ICT environment of highly customized applications that cater to the needs of developing countries. With OSS the programming code used to create software is available for inspection, modification, re-use, and distribution by others96; hence software applications can readily be adapted to address local needs. In turn, the software developing process and upgrading can also help cultivate domestic talent that flows into a local computer software industry servicing both the private and public. Furthermore, local participation may also lead to reduced external expenditures on ICT.

While neither CCS or Digital Solutions success proves that Uganda has a guaranteed future in software development, they do indicate that it is possible to develop domestically technology to serve

96 Dravis (2003)

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* Distribution of products: Using ICT to innovatively distribute product or service.
the local and regional markets. Several challenges face Uganda as it seeks to expand efforts in this area:

Connectivity challenges represent an important barrier to the growth of Uganda’s small software industry. Software requires affordable internet access, at high bandwidth speeds. Improvements in this area will yield significant gains for Uganda’s ICT sector.

Distribution of software often relies on the internet and stable websites; physical distribution of CDs is unrealistic on a global level, due to the shipment costs. However, in the short-term, solutions such as primary hosting of websites in Europe or North America is one way to overcome this challenge.

Human Capital constraints must also be met. Software development relies not only on a basic set of programming skills (which students can already acquire through programs at Makerere University but ongoing training in the latest technological developments. In the short-term, Ugandan firms can benefit from participation in organizations such as the Microsoft Users Group founded in Kampala to provide software developers with a forum for sharing ideas, technology, and training.

Defining realistic market niches, particularly identifying needs in the local Ugandan and East African markets which are going unmet, or can efficiently be met at lower costs through locally produced software, will provide the best short-term opportunities for Uganda’s software firms to develop products that sell. Exporting those products to other markets in which similar products are needed then becomes more possible.

**Conclusion**

To accelerate rates of economic growth in Uganda, two sets of economic objectives must be pursued. First, Uganda must invest in developing the competitiveness of key, high-potential industries. Opportunities for innovation and growth exist in both traditional industries such as agribusiness and tourism, and in growing service sectors such as education and telemedicine. ICT can play an important role in helping Ugandan firms to improve their operations, offer increasingly differentiated products and services, and expand their reach to new markets. The double impact of key industries ‘pulling’ the rest of the economy, and business development services ‘pushing’ the capacity of the private sector to respond to more local opportunities is the kind of virtuous mechanism that Uganda needs to grow its economy.
Action in any of the areas outlined in this report need not wait for the finalization of a National ICT Policy. However, tremendous efficiencies can be gained through the organization provided by a coordinated government framework to address ICT-related issues. In addition to targeted efforts to support the development of a robust ICT platform, the government must look for broader opportunities to provide support to firms operating in key industries. The GOU has the potential to lead Uganda’s efforts to leverage ICT for economic growth and social development in two ways: as a user of ICT and as an organizer and coordinator of Uganda’s ICT platform.

5.1 The GOU as an ICT User-Segment

By striving to enhance the transparency of its processes with the Ugandan public, the GOU can use e-government solutions in a number of service delivery areas. For example technology can be used to improve the enabling environment for SMEs by eliminating bureaucracy, simplifying processes such as registering a business, and making information more widely available to help combat corruption. And technology can also be used to facilitate access to government services for the wider public in a number of areas including health, education, home affairs, or social services. Through the commissioning of a variety of ICT based solutions to government services, the GOU can foster the development of a thriving ICT providers’ industry in Uganda.

Governments can generally use ICT to improve their service delivery in three ways. First, they can improve the transparency of the business environment by making government data widely and freely available, helping to reduce corruption. Second, governments can help the business community become more efficient, make more informed decisions, and spend less time and money on bureaucratic procedures when launching businesses and transacting goods and services. Third, investments in information management and data integration within and between government agencies can significantly improve the quality of government services.

In the case of Uganda, priorities for the government include using ICT to simplify the bureaucratic processes such as those needed to start a business or register property. Innovations in this area will help Uganda improve its ranking as the 72nd most difficult place to do business. With a reputation as the 7th most corrupt country in Africa, increasing general transparency is a priority, for example in the procurement process. Important investments in e-government can also improve communication flows between ministries, to increase speed and accuracy in processing transactions.

E-government can be employed as a tool to meet these goals. According to the United Nations, there are five stages of e-government: emerging, enhanced, interactive, transactional and seamless. Countries with an emerging ICT presence have a formal, but limited web visibility in the form of independent government websites, with static organizational or

98 Transparency International
political information. An enhanced presence is defined by an increased number of government sites with more specialized information and with links to other government pages. Countries enter the interactive stage when their websites allow for formal interactions such as discussion areas and the search of specialized databases. Countries with transactional presence have government websites that allow users to complete secure transactions such as obtaining visas and licenses, as well as pay utility bills and taxes. Digital signatures can be recognized for procurement of government contracts. Lastly, seamless or fully integrated e-governments allow for instant access to any service in a “unified package.” This stage, where ministerial and departmental lines are irrelevant, has yet to be reached by any country. Uganda is ranked with Kenya, Tanzania and Zambia in the enhanced stage.

The United Nations survey concluded that Africa, at 0.84, has the lowest regional e-government capacity index of all global regions. The UN e-government capacity index measures a country’s web presence, telecommunications infrastructure, and human capital. The metrics which compare a government’s potential progress in e-government given its access to connectivity with its achieved progress, are shown in Figure 25 below. Uganda scores extremely low at 0.46, compared with neighbors Tanzania with a score of 0.83 and Zambia nearby at 0.75. South Africa is beyond the other African countries at 1.56. For context, countries such as Belgium and Denmark are in the interactive stage, averaging 2.36, and France and Spain are at the transactional stage.

Despite a relatively low score on the e-government readiness scale, the GOU has stated repeatedly that it is committed to embracing e-government solutions at all levels. In 2005, Uganda secured a grant from the US Trade and Development Agency in excess of $300,000 to fund a feasibility study for an integrated ICT network for e-government. The National Planning Authority created an inter-agency e-government planning team that has embarked on a strategy to integrate ICT into the country’s Poverty Eradication and Action Plan (PEAP), Uganda’s comprehensive Development Framework. PEAP is based on four goals: fast and sustainable growth; structural transformation; good governance and security; increased ability of the poor to raise their incomes; increased quality of life of the poor.

Initiatives to extend e-government services are underway. The Government recently deployed a Local Government Information Communication System to provide a one-stop information source for local government data. The UCC is establishing access points to these local government systems with targeted content in districts—51 are currently in place. The Ministry of Works, Housing, and Communications is developing computerized identification and drivers license systems. Innovation is happening—but investments are not being prioritized or coordinated to avoid duplication of efforts. The following initiatives might need to be considered.

Increased Strategy for Coordination

Proponents of e-government in Uganda point to the need for increased coordination and communication between the decentralized units of the government. One initiative that would benefit national and local governments alike and would entail a certain amount of collaboration between the two would be the creation of a national databank of citizens’ basic information similar to those that exist in Botswana and South Africa. Uganda loses around $200 million a year due to corruption, mainly in uncollected taxes. Enforcing accountability is difficult because no centralized system of records is in place.
to track personal information such as residence, employment, or other identifying statistics. A government cannot effectively manage a country without knowing its people.

One recent project is being hailed as a step in the right direction. In 2005, Uganda’s Ministry of Finance, Planning, and Development completed the first phase of a multimillion dollar Integrated Financial Management System (IFMS). Implemented at six government ministries and four local government bodies, the system was designed to support the improvement of public sector budgeting, financial management and accounting, and allow different government agencies to seamlessly share information. Improved access to information, tighter controls on fraud, and demonstrated accountability and transparency to donors and other constituents are among the system’s projected benefits. International providers such as Oracle worked closely with local firms including Computech Uganda, RPC Data Uganda, and MTN and UTL to develop the system. Future steps toward integration include rolling out the software to an additional 21 public sector sites and setting up a data recovery site in Kampala. The effort is being hailed as a model for other African countries in the area of e-government and financial management systems.

Focus on Digitized Services to Improve the Enabling Environment

Despite the anecdotal progress in Uganda, there is still significant work to be done in capturing the true value of digitized government service. Coordination and sustained commitment are key to moving Uganda to the next level. Through improving service and simplifying processes, the government has the opportunity to have an immediate impact on the existence of SMEs within Uganda, and help to improve a high SME failure rate.

The government must concentrate on e-government reforms that will have the largest impact on the ability of firms to compete. The value of these reforms is broad, but they will continue to fall into three primary categories of outputs: transparency (relevant data, widely and freely available), simplicity (streamlined procedures for private sector transactions), and information efficiency (seamless integration of data, within and between government agencies).

5.2 The GOU as an Organizer and Coordinator of Uganda’s ICT Platform

In its role as an organizer, regulator, and coordinator of the ICT industry, the GOU must step up its role in creating momentum by addressing three key priorities: encouraging sector-specific ICT policies to benefit important industries such as agribusiness and services; finding mechanisms to make strategic cross-cutting ICT investments to build the telecommunications infrastructure and lower access costs;
and promote appropriate ICT education. In all of these priorities, it is imperative to include the private sector in the decision-making process.

To begin with, the government must formally commit to its ICT policy. A lot has been said and written about the importance of ICT, but actions by government have been lacking. Uganda took important first steps in drafting a National ICT Policy which was published July 2002. The policy’s vision is for “a Uganda where national development, especially human development and good governance, are sustainably enhanced, promoted and accelerated by efficient application and use of ICT, including timely access to information.” While action can and will be taken in the absence of a policy, adoption of a National ICT policy will allow the GOU to prioritize investments and provide a blueprint agenda for the newly created Ministry of ICT.

Despite drafting the policy in 2002, the government has not yet officially endorsed it nor gotten it passed through Parliament. Meanwhile, a number of sub-committees have been convened to review and expand subsections of the document. The current National ICT Policy is comprehensive, covering a range of topics within ICT from providing specific infrastructure parameters to identifying the need to develop innovative financial services and promote investment in the sector. The document contains fourteen different policy areas, each of which includes up to ten different sub-components of large scale goals and actions. These policy areas are not ranked or prioritized, and the responsible parties, financial resources, and timetables are not explicit. Various policies currently sit with different sub-arm's of the government, in different levels of development and awaiting approval.

Ultimately, the final policy must achieve three things. First, it must outline how ICT-policy led initiatives can be connected to the strategies and long-term success of important industries. As discussed earlier in this chapter, e-government solutions can be employed to increase transparency and eliminate barriers to doing businesses. Strategic investments can be made to support important sectors. Second, the policy must demonstrate a commitment to developing the backbone and general infrastructure in Uganda. Ongoing efforts must seek to remedy the power crisis, which is greatly impacting the productivity of firms in Uganda. Definitive steps must be taken to adopt a model for expanding Uganda’s domestic infrastructure and representing the country’s interest in projects such as the EASSy Cable. Infrastructure investments must be prioritized to have the most impact—specifically, those that will expand the capacity of Uganda’s key sectors to reach global

Five Priorities for Intervention

As Uganda finalizes its ICT policy, COMESA’s ICT guidelines for member countries provide a good model for consideration. COMESA’s ICT strategy encourages all member nations to follow a similar development path in order to help harmonize ICT region-wide. Five priority areas of intervention have been defined:

ICT Infrastructure: Each COMESA member state should undertake interventions leading to the development of a countrywide backbone for Universal Access, and the eventual extension of this backbone to neighboring countries and others.

ICT Human Resources Development and Capacity Building: in which primary, secondary, vocational, technical and higher education institutions, research institutions and research networks should undertake adequate ICT educational, training and research programs to create the different kinds of knowledge and skills which are needed at different levels.

ICT Industry: Each country and the COMESA region should be able to rely on ICT products that are locally produced to solve local problems, in which provision of incentives for its growth is given special support by establishing mechanisms such as simplified processing of business registration/taxation, establishment of industrial development zones with attractions including tax holidays, promotion and encouragement of technology incubators.

ICT Regulation and Legal Environment: in which measures should be established for the liberalization of the ICT sector whilst at the same time addressing issues related to the protection of citizens and establishment of measures and mechanisms for data security.

ICT E-Services or Applications: in which citizens of each COMESA member state and of the region should be able to enjoy the efficiency that ICT can bring, when properly applied, in the various services at the national and regional level, including e-health, national websites, and common applications, among others.
Developing a coordinated plan for the implementation of the National ICT strategy is as important as finalizing the policy itself. Currently, national ICT policy development and implementation is a shared responsibility, formally between the Directorate of Information at the President’s Office and the Ministry of Works, Housing, and Communications. In reality, because ICT is so cross-cutting, implementation of the policy involves various stakeholders including the Ministries of Transport, Finance, Planning & Economic Development and Education, in addition to those named above. Uganda has taken a step in the right direction for coordination by announcing the creation of a full-scale ICT Ministry in late 2005, following a recommendation by the ICT Working Group of the Presidential Investors Roundtable. The vision for the ministry includes the integration of ICT activities in both the public and private sectors. Moving forward, two things must happen for the Ministry to achieve maximum efficiency. First, the Ministry must have a clear, prioritized agenda. Second, commitment of resources and strategic thinking about how sub-agencies will collaborate, in addition to investing the Ministry with the appropriate level of authority to take action will be critical to the endeavor’s success.

Efforts to promote increased use of appropriate ICT technologies in the business sector must be supported by the development of a comprehensive national competitiveness strategy. The government must identify priority sectors which have the potential for growth, many of which are looked at in this report. Further support can be given through the creation of high-level task forces charged with thinking strategically about the futures of these sectors, and identifying investments and interventions that can have the greatest impact: for example, ICT-specific interventions, business environment improvements, and support mechanisms. Models from other countries in the region and elsewhere indicate that there is also benefit to creating a national competitiveness body that can coordinate and oversee the efforts in these often divergent industries.

Successfully capturing the benefits of ICT hinges on the government’s ability to effectively facilitate an ICT platform that increases productivity for the private sector, and improves governance in the public sector. Formalizing an ICT policy and centralizing the responsibility for implementing that policy with the newly created Ministry of ICT is an important first step. Simultaneously, the GOU can promote its agenda by actively using e-government solutions to promote a more efficient and responsive public sector. The GOU has an opportunity, and a responsibility, to lead Uganda in the effective use of ICT.
Improving Competitiveness and Increasing Growth in Uganda
As this study has tried to capture, the challenges to Ugandan economic growth and competitiveness are tremendous. Uganda’s impressive pace of growth has slowed in recent years, and is further constrained by a rapidly growing population. The primary economic objective for Ugandan leaders, if the PEAP goal of sustained 7% real GDP growth is to be attained, must be to design and deliver a growth model that increases prosperity for the average citizen.

Achieving this goal will not be easy, and the strategy for realizing it must focus on both income generation and income distribution. Uganda must continue to aggressively pursue income growth, particularly in agricultural industries, while looking for opportunities to further diversify the economy into sectors such as services. Thriving industries, particularly those with an export focus, will help to build a foundation of supporting SMEs who will bring more Ugandans into the economic arena. Investments in agricultural industries, in particular, will help to bridge the vast gaps in income between citizens living in the North and South, as well as urban and rural areas. This report has specifically explored the role of ICT in facilitating these changes, with a focus on using ICT to develop advantages for key industries by increasing both efficiencies and differentiation.

Uganda’s leaders will need to focus scarce resources on where Uganda can compete internationally. A constructive public/private sector dialogue will be a first step in analyzing opportunities and evaluating the capacity of firms to compete in global markets. This study suggests that Uganda start this discussion in sectors in which it currently competes, but where expanded participation is a real possibility, particularly with targeted, relevant, cost-effective investments in ICT. Opportunities to use ICT for increased efficiency exist in flowers, fish, and coffee, while ICT could be used to create unique value for customers and increasingly differentiated products and services in sectors such as tourism, services, and vanilla.

The recommendations that follow focus on using ICT to build the competitiveness of Ugandan firms, and to help create an environment that enables stronger economic growth. Given the nature of the study, they are biased towards actions that can be implemented in the relative short-term by the government and its development partners. It is not an exhaustive list, but it strives to be a useful input into an ongoing dialogue about ICT and Ugandan competitiveness.

6.1 Address the Country-wide Power Crisis

Uganda’s current power situation is a national crisis. Access to power is limited, prices are on the increase, and businesses are increasingly turning to expensive, alternate sources of power to meet energy needs. Quantifying the real impact of the power crisis on business productivity is challenging. However, Ugandan firms recently surveyed ranked energy reliability and cost as their primary constraint to doing business.

The highest levels of the GOU are signaling commitment to address the situation. President Museveni has recently announced plans to move ahead with the construction of two dams designed to increase energy production. It is estimated that these projects will be completed within three and half years, although some believe this projection is optimistic. Additional short-term measures are being put in place to address the problem on a more immediate basis. Because much to the productive benefit of ICT is predicated on reliable electricity (e.g. a computer-based accounting system needs electricity to function, and mobile phones must be charged), solving this issue must be a top priority for Uganda’s development.
6.2 Reduce Taxes on Mobile Telephony to Drive Penetration

Despite the fact that 80% of Uganda’s territory is covered by mobile telephony networks, and despite the presence of three providers in the market, only 4.4% of Ugandans have mobile phones.

Prices on mobile telephony (airtime as well as handsets) are inflated by 30% due to government-imposed taxes, the second highest tax rate in the world after Turkey. Studies indicate that dropping the tax rate by as little as 1% could result in a 2% increase in subscribers in as little as five years. Growth in mobile subscriptions has dropped from 97% in 2003 to 29% in 2005, and tax relief could help to re-ignite the market.

6.3 Develop a National Infrastructure Backbone and Facilitate Connection to the International Backbone

Access to ICT is a critical part of building a strong competitive platform for all firms, whether they compete domestically or internationally. Increased access can lead to better coordination and communication across the value chain, which in turn drives productivity and efficiency. For all firms, but particularly those competing in international markets, increased access to ICT can also lower cost structures. Although this benefit may not translate into increased competitive advantage against firms from other countries, it levels the playing field for Ugandan companies.

One important step that Uganda needs to take is to develop a national backbone to enable cost-efficient access at bandwidth speeds meeting the needs of businesses. Uganda should explore developing its national backbone and international connection through a creative technical, regulatory, and financing approach; both public and private sector leaders have a role to play. Discussions are under way and options such as the open-access model have been put on the table, but Uganda and its partners need to evaluate every option very carefully before making their final choice. An important first step will be the commissioning of a detailed feasibility study to determine current strengths and needed areas of improvement, as well as defining which of those areas will yield the greatest impact for investment.

6.4 Use ICTs to Enhance the Competitiveness of Key Industries

Uganda’s biggest challenge to achieving sustained growth and competitiveness will be the dynamic,
non-linear process of upgrading the performance of its key industries. Uganda must be prepared to focus resources on those key sectors of the economy that will provide the majority of Ugandans the opportunity to participate in national growth. Strengthening the performance of emerging agricultural industries such as vanilla, or emerging ITES such as education, will diversify the economy and provide income to more Ugandans. Simultaneously, several of Uganda’s traditional industries such as coffee and tourism, have the potential to grow through ICT-enabled improvements in productivity. The approach to upgrading these industries must be twofold, however: developing national strategies for sustained growth for each sector, followed by industry-specific technology interventions that improve logistics, ensure quality, facilitate communication with customers, and create access to markets.

Uganda’s tourism industry is one example of this competitive potential. Despite growing numbers of visitors, overall tourism receipts remain low. Uganda must focus its resources on the particular segments that will value its unique offerings, and it needs sophisticated data to target and communicate those segments. Industries such as flowers, fish, and coffee can continue to benefit from operational improvements. Through a coordinated industry effort and the creation of Fresh Handling, Inc., the flower industry has overcome important logistical challenges by pooling resources to buy shared cooling space and incorporating ICT systems to communicate, share price information, and schedule shipments. As export volumes increase, greater levels of sophistication in coordinating activities can be achieved through ICT.

Some potential exists for ITES sectors to develop, particularly in the area of education, as infrastructure constraints are overcome. As these opportunities develop, it will be important to ensure that the entrepreneurs launching new businesses in these sectors receive targeted support.

6.5 Use ICTs to Develop Support Programs for The Ugandan Private Sector

In order for Uganda’s economy to grow, businesses must not only find ways to survive, but they must also chart a course to thrive. One approach to increasing the chance that SMEs, in particular, will thrive is through the provision of business development (BDS) and incubation services. Firms of this size must be supported generally, and with regard to ICT adoption, carefully designed programs must be implemented. The existence of well thought out business incubators and BDS that target SMEs may provide a good conduit for the deployment of these types of programs.

The business development service space in Uganda is well populated, but this activity is centralized primarily in Kampala and other major urban areas. Uganda needs more models that bring support to the rural sector, for example, programs that facilitate the use of SMS to share market prices or use radios to share technical guidance on how to grow a certain crop. These types of targeted interventions should be explored further. Future efforts to expand and improve service delivery in this critical space should focus on clearly mapping service provision to the needs of the local business community, and on setting clear performance metrics for service providers.
6.6 Develop General ICT Training Capacity Within Current Education System

Uganda must prepare its population to take responsibility for revitalizing, managing, and building its key economic sectors. The level of capacity of individual entrepreneurs and citizens to benefit from ICT and other competitiveness initiatives is a critical factor to consider before making investments in ICT and other competitiveness-building initiatives.

Continued efforts must be sustained to encourage enrollment at the primary levels. At the same time, programs at the secondary and tertiary levels must graduate students that can meet the real needs of the private sector. To this end, teaching ICT for ICT literacy’s sake will do little to improve Uganda’s competitiveness. Rather, building basic ICT skills must be paired with efforts to expose students to real business applications of ICT.

A combined approach is needed. At the basic education level, broader access to ICT must be given to primary and secondary schools, and an organized approach must be used to integrate ICT into curricula. Institutes of Higher Education and private sector training firms must focus efforts to teach both business and ICT skills that are connected to the current needs of Ugandan firms.

Action Items

- Designate a task force that can develop a unified ICT training agenda for primary and secondary schools with a special focus on integrating ICT into curricula and providing necessary equipment and training.
- Sponsor private sector leaders to hold a honorary professorship to teach courses that highlight the business applications of ICT at Universities such as Makerere, and partner the University officials on curriculum development.
- Focus on programs that teach foundation business skills such as strategy, marketing, finance and customer service.
Mental Models: An Important Challenge for Change

An important factor driving a country’s ability to transform its economy is the mindset of its people. Broad economic change and national competitiveness cannot happen in the absence of broad understanding and buy-in to the ideas and principles of competitiveness. People, sectors, nations, and societies have relied on comparative, natural-resource based advantages for centuries, and this has important implications for how individuals and governments view economic development. To complete the transformation to a truly competitive economy, individuals must understand the principles that drive global competition and increase their receptivity to innovation and change. But this is not an easy shift; in fact, creating a culture of competitiveness can be the most difficult part of the economic development effort.

Making mental models explicit, which are the beliefs, customs and values of a society, is a helpful starting point for government leaders to facilitate a dialogue on these issues. Culture is such a significant component of economic development that without understanding the beliefs and values that inform the actions of economic players, change can be extremely difficult.

Culture shifts typically begin with entrepreneurs, firms, industries and government officials committing to the idea that competitiveness is a path to sustainable growth. As they test competitive strategies in their businesses and policies, gradually the evolutionary process begins for the country’s economy as a whole.

In October 2004, the OTF Group was asked to complete a Mental Models assessment of Uganda’s leadership (including both the public and private sector).
sectors) to better understand the attitudes affecting the nation’s competitive performance and growth. A National Competitiveness Survey was administered to 185 Ugandans in Kampala, Lira, and Mbarara.

The general findings were positive in the sense that most Ugandans were optimistic about their nation’s future, viewing themselves as “masters of their own destinies.” Some 66% of respondents believed that the average citizen will enjoy a higher standard of living in five years, and 75% believed that most Ugandans are open to learning and change. This optimism provides an excellent foundation for building competitiveness in Uganda.

Overall understanding of the general principles of competitiveness was not as positive. Most respondents were still unclear about the determinants of competitiveness and exhibited a generally comparative, instead of a competitive, mindset—that is, equating competitiveness with cheap labor, promotion of easily imitated products, and presence of natural resources. For example, 84% believed that individual companies cannot be competitive under poor national economic conditions, and 66% of respondents believed that companies can enjoy sustained success by simply imitating their competitors. Meanwhile, less than half of respondents believed that growth can occur together with social equity.

Levels of interpersonal trust were another area for concern. Only 36% of respondents believed that most people in Uganda can be trusted. Only 29% felt that government officials in Uganda can be trusted. Lack of trust is a real barrier to creating the collaboration and environment necessary to foster and harness the potential of Uganda’s key industries.

Trade Statistics

The graphs that follow analyze additional aspects of Uganda’s Trade Patterns.
Distribution of Uganda’s Exports by Broad Cluster (Percent), 2004

Source: OTF Group, COMTRADE/UN Trade Statistics SITC (Rev. 3) @ 3-digit accuracy.
Note: Totals may not add up to 100% due to rounding.
Uganda’s Export Concentration by Country Export Value

<table>
<thead>
<tr>
<th>Top 5 Exports by Country Value, 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Coffee Beans, Husks, Skins</td>
</tr>
<tr>
<td>• Fish fillets, Fresh, Chilled</td>
</tr>
<tr>
<td>• Nonmon Gld Unwrt, SemiMfd</td>
</tr>
<tr>
<td>• Tea</td>
</tr>
<tr>
<td>• Cotton, Carded or combed</td>
</tr>
</tbody>
</table>

Source: OTF Group, COMTRADE/UN Trade Statistics SITC (Rev. 3) @ 3-digit accuracy.
Appendix

Distribution of Uganda’s Imports by Broad Cluster (Percent), 2004

- **Materials/Metals**
- **Forest Products**
- **Petroleum/Chemicals**
- **Semiconductors/Computers**
- **Upstream Industries**
- **Multiple Business**
- **Transportation**
- **Power Generation and Distribution**
- **Office**
- **Telecommunications**
- **Defense**
- **Industries and Supporting Functions**
- **Food/Beverages**
- **Housing/Household**
- **Textiles/Apparel**
- **Health Care**
- **Personal**
- **Entertainment/Leisure**
- **Final Consumption Goods and Services**

Source: OTF Group, COMTRADE/UN Trade Statistics SITC (Rev. 3) 3-digit accuracy.
Note: Totals may not add up to 100% due to rounding.
Uganda’s Trade Balance by Broad Cluster, 2004

Materials/Metals

Forest Products

Petroleum/Chemicals

Semiconductors/Computers

Upstream Industries

Multiple Business

Transportation

Power Generation and Distribution

Office

Telecommunications

Defense

Industries and Supporting Functions

Food/Beverages

Housing/Household

Textiles/Apparel

Health Care

Personal

Entertainment/Leisure

Final Consumption Goods and Services


Source: OTF Group, COMTRADE/UN Trade Statistics SITC (Rev. 3) @ 3-digit accuracy.
Note: Data displayed in tens of millions of US Dollars.
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About infoDev

infoDev is a global development financing program among international development agencies, coordinated and served by an expert Secretariat housed at the World Bank Group, one of its key donors and founders. It acts as a neutral convener of dialogue, and as a coordinator of joint action among bilateral and multilateral donors—supporting global sharing of information on ICT for development (ICT4D), and helping to reduce duplication of efforts and investments. infoDev also forms partnerships with public and private-sector organizations who are innovators in the field of ICT4D. The infoDev Secretariat is housed in the Global ICT Department (GICT) of the World Bank Group.

For additional information about this study or more general information on infoDev, please visit www.infodev.org/innovation or contact Seth Ayers, infoDev (email: sayers@worldbank.org or tel: +1.202.473.4868).

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