

DEVELOPMENT GOES WIRELESS

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This paper examines how the introduction of mobile phones has helped to alleviate poverty and improve the lives of the people of Botswana. Economic efficiency has been improved through lower communication costs, increased labour mobility, and wider access to both banking facilities and information on market prices. Liberalisation of the telecommunications market is needed to ensure that the sector remains responsive to end-user needs.

Introduction

Botswana is a semi-arid landlocked country in sub-Saharan Africa with a land area of approximately 582,000 square kilometres (225,000 square miles), about the size of France or Texas. The population is estimated to be about 1.6 million (2006), making Botswana one of the most sparsely populated countries in the world. Approximately half the inhabitants live in the towns and cities and the other half in rural areas, some at great distances from the nearest urban areas.

Until recently, communication was a vexing problem for the people scattered across this arid land. The greater part of the country falls within the vast and dry Kalahari (or Kgalagadi) grasslands, which extend across the borders into neighbouring South Africa, Namibia and Zimbabwe, and are home to the hunter-gatherer San people, about 45,000 of whom live in Botswana.

People working in urban areas, far from the rural villages where they were born and raised, might see their families once a year during their annual vacations, after long, arduous and expensive trips home. Between such visits they previously depended on postal communication or messages carried by friends and family. Technology has come to their rescue. The mobile cellular telephone has given them everyday access to their families, as it has done for millions of people across the length and breadth of the African continent.

This study describes how mobiles have helped to alleviate poverty and improve the lives of the people of Botswana. An unassuming, ubiquitous handheld device has become an indispensable part of the lives of discerning business people residing in town houses in the capital, the majority of their employees, including the lowest paid among them, as well as low-income rural dwellers carrying out

subsistence farming and other activities in areas beyond the reach of fixed-line telephones. In February 2006, two members of the *Enterprise Africa!* team, Susan Anderson, a PhD student in economics at George Mason University, and Jasson Urbach of the Free Market Foundation, conducted a series of interviews in Botswana with a number of entrepreneurs. The results of that fieldwork inform the comments that follow.

Some aspects of poverty that reduce the quality of life of the poor are well known and easily identifiable. The poor generally have inadequate shelter, insufficient food and a lack of appropriate and dignified clothing. Many do not have heating and cooling facilities and they have limited access to transport. However, the advent of the mobile phone has revealed that one of the greatest demands of the poor is frequent communication for business purposes and with friends and family.¹ The lives of families have been enriched by the fact that people can stay in regular contact. The urge to stay in touch means that individual spending on mobiles is displacing spending on essentials, even part of what may otherwise have been spent on food.²

This paper is organised as follows. The next section provides a brief summary of the institutional environment in Botswana to contextualise the analysis that follows. An introduction to cellphones and mobile public payphones in Botswana is then provided. Anecdotal evidence is introduced which describes how the advent of cellphones in Botswana has assisted its people in their everyday business lives. The paper then examines the poverty-alleviating aspects of cellphones in Botswana and how they have improved the lives of the poor Botswana.³ The penultimate section deals with the policy implications of the recent amendments to the Act governing mobiles in Botswana. Finally, some concluding thoughts are offered.

Botswana's institutional environment

'Botswana has Africa's oldest continuous, multiparty democratic system of government, dating back to independence in 1966' (Miles *et al.*, 2006). The country's market-led economy has had one of the world's highest average growth rates during the past four decades.⁴ As a result of its sound economic policies, Botswana was rated Africa's freest economy in *The Wall Street Journal's 2006 Index of Economic Freedom* (ibid.). The positive impact that Botswana's economic policy has had on development serves as an example for the rest of Africa to follow.

Botswana's relatively advanced level of economic freedom is also supported by the index published in the *Economic Freedom of the World: 2006 Annual Report* (ibid.). The index measures the degree to which the policies and institutions of countries are supportive of economic freedom. According to the index, the foundations of economic freedom are personal choice, voluntary exchange, freedom to compete and security of privately owned property. One of the key objectives in compiling the index is to establish whether relationships exist between economic freedom and economic growth and wealth. The findings in the report unambiguously support the fact that economic freedom is strongly related to prosperity and growth; countries that are economically free tend to grow faster and be more prosperous.

'World-renowned economists Adam Smith, Milton Friedman, and Friedrich Hayek all maintained that freedom of exchange and market co-ordination provide the fuel for economic progress. Without exchange and entrepreneurial activity, co-ordinated through markets, modern living standards would be impossible' (Gwartney *et al.*, 2006). Recognising the importance of creating strong trade links with neighbouring countries Botswana has established a regional trading bloc along with Lesotho, Namibia, South Africa and Swaziland called the Southern African Customs Union (SACU). The trade agreement allows for the free movement of goods and services between the member countries as well as adopting a low common external tariff regime.⁵

To facilitate foreign investment Botswana's government has abolished all exchange controls and has instituted low personal and corporate tax rates. Together with a stable macroeconomic environment and a commitment to transparency, Botswana has actively encouraged and received a significant amount of foreign investment. Although the majority of this investment has occurred in the mining sector, Botswana has actively sought to create an enabling investment climate in alternative sectors.

Indeed, the country's ability to attract foreign investment in alternative sectors is demonstrated by

the foreign-owned banks in Botswana.⁶ The fierce competition amongst the foreign-owned banks has provided the population with one of Africa's most advanced banking systems. But given the fact that a large proportion of the population continues to reside in rural areas, access to commercial banks continues to be an issue for many of the inhabitants, resulting in a relatively large percentage of the population being unbanked.⁷

However, as we shall discuss below, mobile cellular technology has once again come to the rescue of people residing in rural areas located far from city centres. Mobile banking has brought the safety and security of banks to places located far from the halls and walls of the traditional commercial bank providing previously unbanked populations the conveniences of modern-day banking.

Another point to consider is that Botswana's sound legal system enables businesses to conduct secure commercial dealings. Indeed, individuals who have suffered real property losses through theft have the appropriate recourse in Botswana's courts. However, despite Botswana's sound legal system and relatively good judicial system the country continues to suffer from a low level of protection in the area of intellectual property rights.⁸ An entrepreneur who foresees that thieves will probably steal their output has little incentive to actually produce anything. The lack of adequate protection in this area was evidenced during our visit to Botswana. The ineffective protection of property rights has devastating effects on the growth potential of poor developing countries.

The lack of adequate protection of intellectual property is particularly prevalent in the music industry in Botswana. However, the introduction of mobiles to Botswana has resulted in a serendipitous benefit to local musicians. A local entrepreneur who produces, buys and sells ringtones for mobile phones, keeps accurate records of the number of ringtones downloaded, and pays a royalty to the local musicians responsible for producing the ringtones, making it possible for them to receive the fruits of their labour. The manner in which Botswana's musicians have gained from the introduction of mobiles and the recognition of their intellectual property rights by a private entrepreneur is described in the section entitled 'Unexpected benefits' below.

The burden of complying with formal business requirements has in large part prompted many entrepreneurs to remain in the informal sector.⁹ For many of these small businesses cellphones have become a central part of their everyday business operations. The role that mobile phones have played in assisting small and medium-sized businesses is raised later in this paper.

Mobiles in Botswana

The first transcontinental telegraph system was established over 140 years ago.¹⁰ Yet, in 1994, more than 100 years after the invention of the telephone, less than 2% of Africans had telephones (Gray, 2006). Although the spread of communication to the African continent was slow to catch on initially, the rate of growth in recent decades has been extraordinary. Indeed, during the past five years Africa has been the fastest-growing mobile market in the world (International Telecommunications Union, 2004).

The first mobile telephone call in Africa was made in Zaire (now the Democratic Republic of Congo) in 1987. Since then mobiles have spread across the region at a phenomenal rate. In 2001, Africa became the first region where the number of mobile phone subscribers exceeded those using fixed lines. Presently there are more than 52 million mobile users on the continent compared with about 25 million fixed lines (*ibid.*).

The proliferation of cellphones throughout Botswana has been a remarkable and unexpected occurrence, particularly when one considers that a large proportion of the population is poor.¹¹ But as C. K. Prahalad notes in his landmark book, *The Fortune at the Bottom of the Pyramid*, a low level of income does not make the consumer any less demanding about the functionality and value of their purchases (Prahalad, 2004). Indeed, the rural poor are a lot more technology-savvy than many would expect.

In 1998, the Botswana Telecommunications Authority (BTA) issued calls for tenders on two wireless network licences. Five companies submitted bids, the winning bids coming from Mascom Wireless and Vista Cellular (now Orange). Although the industry was liberalised, the two new companies were not going to operate in an entirely free market. Two conditions were set by the BTA. Firstly, to ensure that the country was working towards universal access, and secondly, to recover infrastructure costs incurred by the Botswana Telecommunications Company (BTC).¹²

The first condition allowed the BTA to set price limits on per-minute calling rates and required that each company fulfil an obligation to cover certain geographic areas before expanding their services.¹³ The second condition required both companies to use existing BTC infrastructure for international calls. This continued a *de facto* monopoly by the BTC. All international calls made by mobile phone subscribers have to be routed through the BTC, unless the BTC is unable to provide the connection. Mascom and Orange currently pay the BTC around 90% of its retail price for delivery of outbound international calls and the BTC receives a portion of revenues on all international calls inbound to the two mobile operators.

The number of mobile subscribers jumped from zero in 1998, to 250,000 in 2001, to 823,070 as of March 2006, reaching roughly half of the population. Compare this with the 132,034 fixed lines provided by the BTC as of March 2006 (BTA, 2006).¹⁴ The number of mobile subscribers increased phenomenally from 2005 to 2006 with the number of subscribers increasing from 563,782 as of March 2005 – representing an increase of more than 45%. In contrast the number of fixed-line subscribers decreased from 136,463 as of March 2005 – representing a marginal decline in the subscriber base.¹⁵ Mobile phones were an immediate success even in areas that already had access to landlines, because they offered services like itemised billing, prepaid or contract options, and other value-added services.

The preference for using mobile phones rather than fixed lines is revealed in the market share. Mobile providers have captured over 85% of the total phone-using public. Orange and Mascom sought the business of the average individual by offering better deals and easier service conditions. While over 95% of mobile subscribers use a pre-paid service, fixed-line revenues are predominantly generated by businesses and relatively well-off residential users on post-paid services.¹⁶

The addition of two mobile phone companies also helped consumers by introducing competition. With no competitors, funding provided by the government, and a government mandate for universal service that was not financially feasible, the BTC had little incentive to improve service. It sometimes took years to set up a service and customers complained of billing problems and poor customer service. With the introduction of two competitors, the BTC has lost a lot of business and holds on to less than 14% of the subscriber market, but has also been spurred into action.

The BTC has restructured prices to more accurately reflect the market, customer service has improved according to customer satisfaction surveys, and value-added services have been introduced, such as caller identification, call waiting and voice mail. By allowing two licences instead of only one, competition between mobile providers has also benefited consumers as the two compete with coverage area and price.

Consumers who do not own phones or subscribe to services have also benefited. Before 1998, only about 2,000 public phones were provided by the BTC (about one for every 880 people). A government mandate to provide public phones in rural areas brought phones to many remote areas,¹⁷ but customers reported that these were often vandalised or not working for long periods of time.¹⁸

The number of fixed-line public payphones has continued to decline from a high of 2,964 in 2002 to 1,600 in 2005. The figures suggest that the number of access points for the public has decreased by a

massive 46% over the last three years. However, while the number of public fixed-line payphones has been decreasing, the number of informal mobile payphone operators has been increasing.

The mobile public payphone network can be found in almost every rural village where mobile coverage is available. Mascom introduced wireless payphone packages in 1999, consisting of a wireless network receiver preloaded with minutes, and a minute counter. Many people invested in these, hooked up a handset, and started a business providing public payphone services. This has changed the lives of these micro-business owners, and also brought an affordable phone service to every area of the country.¹⁹

The introduction of cellphones in remote rural villages where there was previously no immediate access to outside contacts, has also provided people with more options in times of emergency. An emergency number for all vital services exists on both networks. The services typically allow for access to medical, home and road assistance seven days a week, 24 hours a day, anywhere in Botswana.²⁰

Mobiles as a tool for business

In July 2005 it was estimated that approximately four-fifths of Botswana's population did not have access to electricity.²¹ However, enterprising village entrepreneurs have utilised the opportunity created by the lack of electricity to fill the resultant niche in the market for the recharging of cellphone batteries. These entrepreneurs have overcome the problem by utilising the novel idea of offering to recharge mobile phone batteries for a small fee using their automobile batteries to do the charging. When the car battery runs low the owner simply returns the battery to the automobile and drives around the village until it is recharged – then it's back to business as usual.

Among the many groups that have benefited from mobile phones, women are perhaps the largest. Because mobile phones allow small businesses to flourish, women have been able to start their own businesses and gain a measure of independence. We visited Ms Stadile Manthe who runs a small retail 'tuck shop' and phone service in the village of Mmopane, a short drive from the capital, Gaborone.²² Ms Manthe started her business in 1998 and slowly expanded her inventory. She thought that if she could start her own business, maybe she could 'get something'. She certainly has got something, and mobiles and their associated services have greatly assisted her in achieving this.

Every day she opens her small shop at about 7 am and closes at about 9 pm. In 2000, she began to offer mobile phone services. Ms Manthe decided to incorporate mobile phone services into her business after seeing a Mascom advert in the local

newspaper. She decided that it would be a good idea because the mobile public phone service was a new concept in Botswana. Shortly after seeing the Mascom advert in the newspaper Ms Manthe approached the Women's Finance House (WFH) of Botswana for a loan in order to purchase a mobile cellular unit. When she was granted the loan she purchased a mobile public phone and the service provider taught her how to operate it. She now sells airtime scratch cards, and provides battery recharging and mobile public phone usage services.

Despite the small size and location of Mmopane, Ms Manthe was able to earn an additional P200 (\$32.42) a day with the introduction of the various mobile public phone services. With the profits from her tuck shop business Ms Manthe was able to build several rental houses. She now has five such houses and is in the process of building the sixth. She used local people to help her build the homes, providing work for local artisans. Ms Manthe told the team that, '[she was] very pleased with her decision to become an entrepreneur'.

Although the success of Ms Manthe cannot entirely be attributed to the introduction of mobile cellular services that she provides, the mobile phone has enabled her to place orders for her tuck shop, increased her efficiency and provided her with regular additional income. The additional money that she now earns as a direct result of the advent of the mobile phone is by no means insignificant. It has raised her capacity for saving and investment and helped her to become the proud owner of half a dozen rental cottages.

Furthermore, not all the benefits of mobiles are necessarily measurable financially. The fact that they have assisted ordinary business people to stay in contact with their customers is easily quantifiable. However, the value of a life saved by the new-found capacity to call an ambulance in an emergency is priceless to the person saved as well as to their friends and family.

In an effort to gain some perspective of the value that mobiles confer on small businesses, we spoke to Ms Grace Maoramaba about the benefits of cellular technology in her business. Ms Maoramaba commented: 'Mobile phone is number 1; it's very good for everyone.'

Ms Maoramaba has owned and run her own clothing business from home for over 20 years. She left a steady government job to start and run the business full-time. Ms Maoramaba travels to South Africa and Zambia and flies out to Thailand, Dubai and Hong Kong to buy clothes. She buys second-hand clothes in the African countries and new clothes in the Asian countries and in Dubai. She told us that mobile phones are a real help.

With the aid of mobile technology she is able to keep in close contact with her clients, calling them to let them know when clothes are available that she

knows they might like. She is also able to schedule deliveries and pick-ups more efficiently than before. Much of her business comes from referrals by satisfied clients, and prospective clients are always able to reach her on her mobile and arrange a place to meet. She said cellphones are 'very, very, very helpful'.

Suppliers from overseas can call her, even when she is out seeing clients. She told us that she had a landline before and that was okay, but now everything is very 'fast' and so you need to be moving and mobile and the cellphone makes it easier to do business in this fast world. Importantly, she told us that having the cellphone allows you to use your time carefully: 'In business if you don't use your time carefully, you run at a loss', she said.

Ms Maoramaba is a mentor at the WFH and said that she encourages the other ladies in the WFH group to use cellphones, as they're good for business. Sometimes these women call her for advice and help about the business, sometimes for more general advice. She said that, 'Life for her has really changed since she became an entrepreneur'. Now that she is in business, she makes a lot of money, but to make this money you have to work. This is unlike her experience in government, where you got paid even if you were doing little. She said in business, 'You don't have to talk, you have to work, physically, mentally and emotionally.'

Ms Maoramaba told us that nowadays, 'Business is tough'. But, this teaches her how to survive in tough times. She said that, '[she has] learned how to manage her finances in a way that she didn't understand before'. She needed to do this because the market is flooded. She then told us that, 'In a tough market you have to look to identify what's different that your customers might like.' She tries to do this. And, she said, 'You must always concentrate on quality not quantity.' She gets her customers by word-of-mouth and therefore has developed a reputation for good quality clothes. She also provides her clients with personal attention. For example, she told us that she only sells clothes to women she has seen, so that she has a good sense of their body size, what colours would look good on them and what styles would suit them.

Mobiles making the lives of the people of Botswana simpler and better

Approximately one out of every four working-aged adults in Botswana is unemployed.²³ Considering that half the population reside in rural areas, people often need to travel vast distances to urban centres where there are typically more jobs available to increase their chances of finding employment. However, this journey is far from costless, as many of the unemployed have to pay a significant proportion of what little money they have for this

journey into town. Travel money is usually borrowed from family and friends but when it turns out that the borrower is unable to find employment the loan becomes a gift. This puts an increasing strain on relationships.

However, with the introduction of cellphones, distances from rural areas to urban centres have effectively been reduced. Unemployed people no longer have to make unnecessary trips into town to search for employment. They can now simply contact a friend or family member who is already in town to see what jobs are available. Mobiles have therefore reduced the distances between individuals since they provide a network that friends and family can use. A simple phone call or text message keeps people in touch. Mobiles have increased the chances of finding employment and reduced the time and money costs associated with job search.

The urge to stay in contact has also given rise to the practice of beeping. Beeping occurs when a person phones a number but hangs up before the call is answered in the hope that the other party will call back and shoulder the cost of the call. In response to this practice, cellphone service providers have introduced a type of generic text message that can be sent from a person's phone in order to alert the recipient that you would like them to call you. Subscribers on pre-paid packages receive a limited number of free call-me-backs per day provided that they have less than a certain level of remaining credit on their phones.²⁴ The call-me-backs are particularly useful for people on pre-paid packages who find themselves stranded, in emergency situations, or just in desperate need of communication, but have run out of airtime.

Botswana has the second highest rate of HIV/Aids infection in the world with 37.3% of the adult population infected. As a result, life expectancy in Botswana has plummeted to a mere 38 years. To a large extent one of the main reasons for the continued burden of the disease is the stigma attached to HIV. A number of support groups have been set up in order to overcome and assist those living with HIV/Aids. BONEPWA+ is one such organisation that we visited. The organisation currently has 104 support groups. The majority of support group members are women and BONEPWA+ usually contacts them via cellphone in order to schedule a meeting. The head of BONEPWA+, Mr Prachandra Man Schrestha, told us that, 'support group members help each other while they are sick, while they are in the stage of being stigmatised'. By being a member of a support group, they overcome the isolation that can follow a diagnosis. The support groups accommodate both infected and affected people.

The organisation either sends out block messages to inform the organisation's members of the forthcoming meeting or they contact them

directly via a phone call. The support groups draw members from great distances and some of the group members do not possess personal landlines or have regular access to landlines. According to Mr Prachandra Man Schrestha, 'Cellular telephones have definitely made the organisational aspect much easier.' Botswana's two service providers have assisted BONEPWA+ by occasionally providing free text messages to enable the organisation to inform members of upcoming events.

We discovered that nurses in isolated rural areas occasionally use their personal mobiles to make calls to doctors.²⁵ These calls are made in their personal capacities and the nurses currently have to foot the bills.²⁶ However, with the help of a new type of software for mobiles which is currently proliferating through the developing world, nurses and doctors will soon be able to feed information about their patients into their phones. The data are then transferred to a central database. The software will allow medical practitioners to order medicine, send alerts, and download treatment guidelines, training materials and other appropriate information. This new form of technology is ideal for countries with isolated rural clinics and areas where communicable diseases are prevalent. The technology will assist health authorities to track the diseases as they spread. Indeed there is enormous potential for mobile telephones to transform the efficiency of healthcare provision in poor countries.

Rural farmers benefit from access to communication

Farmers, previously isolated by the long trips they had to make to reach markets, services and supplies, on foot or donkey-drawn carts, are now able to keep in touch with loved ones, schedule appointments and deliveries, request help for medical emergencies and access news. Indeed, farmers in rural areas are among the groups receiving the greatest economic benefit through mobile phones, largely because there was previously no access to telecommunication. With access to information about markets in villages and larger cities, farmers are able to increase productivity and expand their businesses.

The Bikas are one example of this phenomenon. They own a vegetable farm in the village of Gakuto, a short distance outside of Gaborone. The Bikas began their business in 1997, growing peppers, onions, spinach, maize, tomatoes and cucumbers. Prior to mobiles, the Bikas had no access to a telephone and developed their business by supplying small buyers who came to the farm to purchase vegetables.

Since then the business has expanded to include five full-time employees, and bigger customers. Mobile phones are their main form of

communication. They can receive orders through their mobile and also keep in touch with customers about deliveries and other needs. The farm now supplies grocery retailer Spar, Fruit & Veggie stores, along with street vendors and other small buyers. They also keep pigs that are fed on surplus vegetables. Future plans for the farm include expansion into the chicken business. The Bikas currently have four chicken houses built and are raising their first batch of 800 chicks. However, when we visited the farm, Mrs Bika was away trying to raise a loan to cover the cost of rotating lots of 800 chicks, so that every lot that was marketed would immediately be replaced by a new batch of day-old chicks. According to Mr Bika they had underestimated the amount of money required to put their rotation plan into operation.

While we were being shown around the vegetable gardens Mr Bika's mobile phone rang. After completing his conversation Mr Bika explained that the call had been from a buyer looking for vegetables. Having a mobile meant that he could stay out in the fields all day and still be in instant contact with buyers, a facility that has contributed a great deal towards making the expansion of their business possible.

Mobiles bringing banking to the previously unbanked

The fierce competition amongst the foreign-owned banks in Botswana has provided its people with one of Africa's most advanced banking systems. In their efforts to improve their services Botswana's banks have used the ever-present power of cellphones to extend their services. Mobile banking has brought the safety and security of banks to places located far from the halls and walls of the traditional commercial bank providing previously unbanked populations the conveniences of modern-day banking.

The service allows anyone who has a mobile phone to access modern-day banking facilities such as balance enquiries, statement requests, transfer of funds, payments to third parties and, of course, the ability to purchase pre-paid airtime. With instant notification of activities in your bank account people are better equipped to monitor changes in their accounts. Banks also provide people with mortgage quotes based on information given by the potential client. Cellphones have the potential to make the traditional bank branch obsolete. The ability to use mobile technology for banking requirements effectively removes the need for people to carry large sums of cash that could be at risk of theft.

For people residing in rural areas far from the city centres where commercial banks are usually situated this service is vital – it saves them time and money by avoiding long trips into town.

Unexpected benefits

We travelled to a small suburb of Gaborone to track down the studio of one of Botswana's most astute new IT entrepreneurs. We arrived at what looked like an ordinary house from the outside but when Solomon Monyame²⁷ opened the front door to us we found ourselves in a recording studio with state-of-the-art sound equipment.

Expansion of the market for ringtones is one of the unexpected benefits that have resulted from the rapid spread of mobiles. This has enabled local musicians to profit from and promote their work. The ringtone business is big worldwide and this is no different in Botswana. Mr Monyame told us that, '[mobiles] are a very personal item and people want to be seen to be different from others'. It is for this reason that ringtones have become 'big business', since they provide a means to differentiate individuals.

Mr Monyame emphasises that, 'records are kept for each of the items downloaded and in the case of ringtones, the original artists receive a percentage of the profits'. Furthermore, Mr Monyame says that, 'In a country where intellectual property rights are loosely enforced, this is a major economic benefit for the local artists and provides an incentive for them to continue to produce and record their music.'

Policy recommendations

Like most good ideas for alleviating poverty, the expansion and effectiveness of mobile telephony in Botswana depends to a large extent on the policies adopted by the government. Although Botswana's telecommunications policy supports full liberalisation, the BTC continues to have a *de facto* monopoly on certain segments of the market.²⁸ These include all international calls and it remains the single provider of fixed telephony. As was noted previously, mobile operators are required to route their international voice traffic through the BTC.

Accordingly, regulators have recognised the need to further liberalise the market. But the Act governing the BTA has recently been criticised by the Botswana government, which has stated that it gives the regulator, 'too much independence'. However, a report released by an independent consultancy group in early 2006 proposing the further liberalisation of the telecommunications market has met with a positive response from the government. It was agreed that by the end of 2006 no company will be compelled to use BTC infrastructure, or the BTC international gateway to route calls. Companies will be allowed to provide their own transmission links and backbone infrastructure, or continue to hire from the BTC. If these policies are adopted this move should be welcomed by the general telecommunications-using

population and particularly subscribers to mobile phone services.

Both wireless and fixed-line providers will be allowed to apply for any type of telecommunication service, whether wired or wireless, voice or data. This is a key part of liberalisation as it opens the door for the BTC to provide mobile phones, and for all companies to begin offering television and internet through phones. In addition, VoIP (Voice over Internet Protocol) has been made legal, which may provide some competition to both fixed and mobile providers, at least in areas with reliable internet connections.

By the end of 2007, the BTC will be on task to finish restructuring rates to reflect costs (currently large customers and long-distance phone calls cross-subsidise local calls), and 40% of the company will be sold.

Dr Chuma from the University of Botswana says, 'Competition is the best vehicle to reduce prices and increase quality. The pula is relatively strong, which means that Botswana typically have the purchasing power to purchase cellphones. This means that virtually everyone in Botswana has a cellphone and it is no longer a luxury good, but rather it is a necessity for everyday life.'²⁹ 'BTC is currently unable to fulfil its obligations as the national operator without significant financial assistance from the Botswana government' (BTA, 2002).

The further liberalisation of the telecommunications industry will improve the environment in which communications operate in Botswana by making the industry more efficient, innovative and responsive to end-user needs.

Conclusion

Technology that has long been taken for granted by people in rich countries has made life easier, safer and more prosperous for many, including poor people, in developing countries. The rapid spread of mobile phones in many African countries has been a remarkable phenomenon, particularly when one considers the high levels of poverty and social turmoil in many of these countries. The result of the rapid diffusion of this technology is that a significant number of jobs and enterprises have been created, which has enabled many Africans to escape the so-called poverty trap.

The people of Botswana are amongst the many Africans that have gained from the spread of mobiles throughout the continent. A number of benefits have resulted, including increased communication with family and friends, increased efficiency of business communication, reduced costs involved with job searches, having more options during emergency situations, enabling farmers to check prices in different markets before selling produce, providing nurses in remote areas with

options to contact doctors, and increased access to banking facilities. The Botswanan case has been particularly intriguing since the country has a relatively small market and there are significant numbers of people living in poverty.

Despite the absence or intermittent access to electricity in large parts of rural Botswana, the use of mobile telephony has not been significantly suppressed. This is in large part due to the growth of small business ventures offering recharge services by means of generators or car batteries for a small service fee. People residing in rural areas have benefited both socially and economically from the introduction of mobile phones.

The Botswanan government has played an important role in establishing the two multilateral service providers, through its pro-market liberal policies. To this end it is important that the government continues to allow competition in the market. However, mobile phones are no panacea for poverty. As has been pointed out earlier in this paper, it is necessary to have a solid institutional environment that fosters economic development.

Although the market for ringtones does not explicitly address the underlying problem of the lack of protection of intellectual property rights in Botswana, there has been some recognition and reward given to local musicians. If, however, the local music industry and all the other business activities that benefit from intellectual property protection are to take off, there needs to be a strengthening of this area by Botswana's government.

Finally, it is imperative that the BTA remains autonomous and continues along the path of liberalisation. The telecommunications environment of Botswana has made, and continues to make, substantial progress to the benefit of all the country's people.

1. 'A significant indicator of the value placed on communications is the more than 15% of individuals earning less than P500 (US\$197.63) per month who had a working phone, and the nearly 40% ownership amongst those earning between P501 (US\$198.02) and P1,000 (US\$395.26)' (Sebusang *et al.*, 2005, p. 43).
2. The *Enterprise Africa!* team visited the local newspaper, *Mmegi*, to speak with one of the journalists. The team met with Kabo Mokgoabone who said, 'Often the newspaper needs to meet deadlines and in order to achieve these deadlines it is necessary for employees to work overtime. The newspaper gives each of its employees a small meal allowance of 20 pula.' But Kabo said, 'Most of the journalists and employees at *Mmegi* prefer to spend this money on scratch cards for their cellphones.' Scratch cards are unique to pre-paid subscribers, which allow an individual to load a predetermined amount of money on his/her cellphone, commonly referred to as airtime.
3. Inhabitant of Botswana.
4. According to the World Bank's Africa Database, *African Development Indicators* (2004), Botswana grew at a phenomenal 11.6% during the period 1975–84. This rate slowed to 8.9% during the period 1985–94. More recently the country has experienced slower growth rates of 5.5% (2005). See <http://www.cia.gov/cia/publications/factbook/geos/bc.html#Econ>.
5. The World Bank reports that SACU had a weighted average common external tariff rate of 3.6%.
6. Botswana has five commercial banks, all of which are foreign owned.
7. According to the World Bank, approximately 43.2% of Botswana's population has a bank account. See http://info.worldbank.org/etools/docs/library/232696/KumarEllisChidzero_HHIndicators_paper-final.doc.
8. According to the EFW index Botswana received a low rating of 4.2 out of a possible 10 in the area of protection of intellectual property.
9. According to the World Bank's *Doing Business 2006* annual report, starting a business in Botswana requires 11 different procedures on average compared with six in Organisation for Economic Co-operation and Development (OECD) countries. As a result it takes an average of 108 days to start a business compared with the OECD average of 16.6 days, and the cost of starting a business in Botswana expressed as a percentage of gross national income per capita is 11% compared with the OECD average of 5%. See <http://www.doingbusiness.org/ExploreEconomies/?economyid=27>.
10. The first successful transatlantic telegraph cable was completed on 27 July 1866. See http://en.wikipedia.org/wiki/Electrical_telegraph.
11. Forty-seven per cent of Botswana's population live below the national poverty line. See <http://www.unbotswana.org/bw/undp/poverty.html>.
12. Universality is recognised by the 1995 Telecommunications Policy (Policy) of Botswana and access to basic telecommunications services, e.g. basic telephony, is accepted as a citizen right comparable with the right to basic education and primary healthcare (Botswana Telecommunications Authority, Consultative document, August 2002).
13. Under the terms of their licences, both mobile operators were required to provide coverage in the area between Lobatse and Francistown. In addition, Mascom was required to provide coverage in the north-northwest of the country from Francistown to Shakawe, Orapa, Kasane and Maun. Orange was required to cover the Trans Kgalagadi to the Namibian border.
14. Coyle (2005, p. 3) notes, 'Access to mobile telephony in Africa is almost certainly far more extensive than the subscriber figures suggest, as each handset and subscription has many users'.
15. Due to the astronomical growth in mobiles telephone density in Botswana increased from 41 telephones per 100 people in 2005 to 55 telephones per 100 people in 2006 (BTA annual report (2006) available at <http://www.bta.org/bw/pubs/AnnualReport/BTA%20Annual%20Report%202005%20-%202006.pdf>).
16. BTC generates approximately 85% of its revenue from business customers (BTA annual report, 2006).
17. The BTC's Nteletsatsa project was initially established to reach the goal of bringing telecommunications to 120,000 people situated in 150 small villages and settlements in the southern and northeastern rural areas of Botswana. See www.btc.bw/News/News_nteletsatsa.asp.
18. According to the BTA approximately 60% of all telecommunications complaints pertain to fixed-line services. See BTA annual report (2006).
19. It is estimated there are now more than 10,000 of these privately run public phones. However, because the street traders are informal businesses, it is difficult to get an accurate estimation of the numbers of public cellular phones available.
20. According to Mascom the scope of services includes, 'flat tyre service, plumbing service, medical transportation, health information and advice, fixtures and fittings and repatriation of corpse etc.'. See http://www.mascom.bw/what/first_call.htm. All calls are charged at a flat rate of P2.00 per minute and the subscriber is responsible for services received.
21. See <http://www.eia.doe.gov/cabs/sadc.html>.

22. A tuck shop, or spaza shop, is a small shop specialising in the sale of daily consumables such as bread, soft drinks, toilet paper, sweets and occasionally beer.
23. Unemployment in Botswana was 23.8% in 2004. See <http://www.cia.gov/cia/publications/factbook/geos/bc.html#Econ>.
24. If pre-paid subscribers have more than a certain minimum threshold level of credit on their mobiles they pay a small amount for the call-me-back text message. The minimum threshold and fee for the text message vary between the competing service providers.
25. Personal interview held with Dr Chuma at the University of Botswana on 02-03-2006. Dr Chuma is a telecommunications lecturer.
26. See <http://allafrica.com/stories/200610240304.html>.
27. Solomon Monyame is the managing director of Small House records and Mud Hut studios. Personal interview held 07-03-2006.
28. The telecommunications policy in Botswana is considered to be one of the most progressive in Africa and is cited by the International Telecommunications Union as a case study on the best practice (www.itu.int/treg).
29. Dr Chuma is a telecommunications lecturer at the University of Botswana. Personal interview held 02-03-2006.

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