The Botswana National Information and Communication Technology Policy and Economic Diversification: How Have We Fared Thus far?

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Abstract

The main objective of the paper is to determine, using Information and Communication Technology (ICT) data from the World Bank and the World Economic Forum's Global Information Technology Report, how Botswana is doing in terms of achieving its domestic ICT milestones. An assessment of domestic ICT sector progress, as per the Botswana National Policy on ICT, reveals a substantial improvement in the quality and access to ICT. For instance, as far as quality is concerned, fixed broadband subscriber (as a percentage of total internet subscribers) has substantially increased from none in 2000 to 89% in 2008. On the issue of access, the most significant outcome is the fact that mobile phones are a default ICT tool among the general population, with coverage of about 99% of the population. The results of the paper are important as they will help the government of Botswana determine whether ICT can be one of the sectors that can lead Botswana to be a more diversified economy.

Introduction

According to Central Statistics Office (called Statistics Botswana since 2011), Botswana has been one of the fastest growing economies in the world since the country attained independence from British colonial rule in 1966. Much of the impressive growth is attributed to extensive diamond mining which currently accounts for 70-80% of exports and 50% of government revenue (CSO 2010: online database). However, the impressive growth contracted to below 5% in 2007/08 and further contracted to a negative figure in 2009 (CSO 2010: online database). This decline in growth performance was mainly due to heavy reliance on diamond exports that contracted with the 2008 global financial crisis or recession. Evidence suggests that this decline is not an anomaly as countries in a similar position to Botswana that are not diversified are susceptible to economic shocks, in particular, fluctuations of world prices for 'mined' commodities (Bakwena 2010:19). Hence, Botswana's current pattern of heavy reliance on diamond production is not sustainable in the long run.

Raul Prebisch's 1949 work through his affiliation with the Economic Commission for Latin America (ECLA) led to the general belief that industrialisation was key to economic growth and that it could only be achieved through reducing concentration of exchange between primary resource exports and manufactured exports. Given that at the time minerals were a major primary export of Latin America, this belief led to a bias against mining activities. Likewise, even the opponents of industrialisation, such as Bauer and Yamey considered agriculture a better primary sector for guiding economic growth than mining (Bakwena 2010:13). Consequently, there is consensus that industrialisation provides long term growth than the mining sector. For conformity, efforts to promote industrialisation in Botswana were proposed through the Industrial Development Act of 1968. Sekwati (2010:81) asserts that this act is the foundation for subsequent policies, the most recent being the 1998 Industrial Development Policy aimed at encouraging highly productive and effectual export-oriented industries. The policy identified Small Medium and Micro Enterprises (SMMEs) as one of the key drivers of industrialisation—hence the birth of the SMMEs Policy of 1998. Through the policy, several enterprises have been established. Among these are the Botswana Investment and Trade Center (BITC) which came into effect on 1 April 2012 as a result of a merger between International Financial Services Center (IFSC) and the Botswana Export Development and Investment Authority (BEDIA).

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BITC is designed to become an integrated Investment Promotion Authority (IPA) intended to promote investment, develop the export sector and deal with issues of branding Botswana. BEDIA was established in 1997 to act as an accelerant in the quest for diversification and to seek international markets for locally manufactured commodities. IFSC was established in 2003 in order to establish and develop Botswana into a world class hub for international financial and business services into Africa and the Southern African region. As well as putting in place policies to encourage foreign direct investment, the government also seeks to promote increased participation of local entrepreneurs in the market. Efforts in this regard, included the establishment of the Citizen Entrepreneurial Development Agency (CEDA) in 2001. CEDA was introduced to overcome the weaknesses and the difficulties encountered under the Financial Assistance Policy (FAP) and other programmes. FAP was the first major economic incentive for industrial development. It failed mainly because, as a grant, it was open to widespread abuse and poor monitoring, amongst others (Sekwati 2010:81). Other programmes include Central Tenders Board Preferences, Citizen Contractors Fund as well as the Small Medium and Micro Enterprises policy.

CEDA is mandated to give assistance to citizen entrepreneurs by way of subsidised interest rate loans, sharing risk, monitoring and mentoring, entrepreneurial and management skill training. The assistance programmes are intended to create more employment, diversify the economy away from mining and traditional agriculture, and encourage economic activity (such as small enterprises) in rural areas as well as citizen participation in the economic activity. There are other more recent initiatives such as the Local Enterprise Authority (LEA) that is mandated to encourage and support entrepreneurship in Botswana. The other one worth noting is the Selebi-Phikwe Economic Diversification Unit (SPEDU) set to ensure that the economy of Selebi-Phikwe and surrounding areas can be sustained even after closure of the Bamangwato Concessions Limited (BCL) mine that forms the backbone of the town's economy.

For CEDA to achieve its mandate, the government has been encouraging foreign investment (e.g. administered by Venture Partners Botswana, CEDA has a P200 million venture capital fund for assisting citizen owned companies or those jointly owned with foreign investors). As recent as 2010, the government initiated the Economic Diversification Drive (EDD) which is geared towards fast-tracking diversification of the economy. With the new initiative, all diversification efforts can now be synchronised, consolidated and integrated by one body—the Ministry of Trade and Industry. The strategy is deemed different from the previous initiatives (strategies) because it stresses an assimilated approach, with execution at a national level. The primary objective of the EDD is to build enterprise capacity, support local production, boost competitiveness, promote private sector-led growth, product and market expansion.

In spite of these initiatives, the urgent need to broaden the economic base is challenged by a small population of about 2 million and therefore, a small local market. In instances where the local market is small, the international market is an alternative to providing the necessary market as well as international competitiveness among others. Robust infrastructure plays a vital role in ensuring competitiveness of export potential of domestic entities across all sectors of the economy, including Small Medium Enterprises (SMEs). Indeed, limited access to infrastructure has been identified as the second most obstacle, after lack of finance (OECD 2013:114). In order to market and sell the products in the international market, the ICT sector needs to be improved. ICTs provide access to global markets, improved technologies for delivering goods and services as well as opportunities for gaining global knowledge. As a result, an economy expands due to its openness to technology, ideas and markets for trade.

What is ICT?

OECD (2005:11) defines ICT as not only the newer types of technology (e.g. phone and internet) but also older types (such as radio and TV). The justification for such a definition stems from the fact that

with digital convergence, the items that are used nowadays combine both the older and newer types' technologies which are gradually distorting the distinction between old and new. The major benefit of ICT is to make processes more cost effective through business automations (knowledge systems), and overpasses the geographic differences between communicating/relating entities. Therefore, the current paper defines ICT as any tool (whether old or new) that may be used to close the physical distance between two relating entities, and enable the processing and transmission of data. In this way the entities do not have to travel long distances in order to make contact and hence costs (including time) are substantially reduced.

Why ICT?

ICTs potentially make a contribution to economic growth by supporting growth in specific sectors or contribute to specific processes that lead to economic growth. Furthermore, ICTs have the potential to contribute to Botswana's economic diversification mainly through two channels:

> They can enhance efficiencies in specific sectors, such as the private sector, infrastructure, and hence economic growth.
>
> They complement economic diversification activities, such as giving support to SME entrepreneurs. One of the key areas that the Botswana Government is committed to is the development of SMEs. Local Enterprise Authority (LEA) and CEDA are mandated to take care of this aspect. LEA offers, among others, development and support services to the local requirements of SMEs, including training, mentoring, business plan completion and market access assistances. In the quest for economic diversification, LEA's primary objective is to encourage and support entrepreneurship in Botswana. The agency focuses on leather, piggery, horticulture and dairy (OECD: 79).

Apart from these two main channels, ICTs are also capable of increasing efficiency and delivery by influencing the following:

- Reduce transportation costs—they reduce both consumers and business transportation costs. This is possible because an individual is able to transact with someone who is kilometers away without having to physically be at the place or even meet face to face.
- Ensure that processes are faster, cost effective and increase their production levels—increased productivity could be achieved via steady and rapid improvements in ICT performance.
- Save money—by using e-mail, online banking and e-commerce businesses, individuals cut down on physical transportation related to sending mail, banking and buying goods.
- Reduce transaction costs and combat risk. Transaction costs and risk retard investment, a force behind economic growth. ICTs enable vulnerable groups in market transactions to coordinate, voice their concerns and lobby against exploiting groups. This implies that ICTs may encourage justice system reforms, hence boost and sustain growth.
- Stimulate the much needed rural area activity. A 2005 research in Mozambique revealed that in instances where rural farmers, wholesalers and traders had phones, the markets were dynamic. This may be a sign of product diversity because products move more quickly (OECD 2005:20).

The Botswana National ICT Policy

The 'Maitlamo' policy was developed in 2004 with the aim of outlining Botswana's national ICT policy vision and objectives. The national policy is to ensure that Botswana will be a universally competitive, knowledge and information society where developments in social, economic and cultural development are achieved through effective use of ICT (Republic of Botswana 2004). The objectives of the policy include the following:

- Establishing an environment that is conducive to the growth of the ICT industry.
- Providing widespread access to information and communications; and
- Turning Botswana into a regional hub in order to promote global competitiveness of the service sector.

The national ICT policy is broad. This paper however, only focuses on and discusses the interrelationship between the policy and economic diversification.

ICT and Economic Diversification: Prospects and Challenges

The approach for boosting the ICT sector in Botswana is intended to concentrate on additional development of the Botswana Investment and Trade Centre (BITC) and placing the country as an appealing place for Business Process Outsourcing (BPO) investment. (BPO is an agreement in which an independent entity handles business function for a client). It is further intended that, traditional sectors such as agriculture, mining, manufacturing and tourism will also gain from the establishment of ICTs into current operations. Furthermore, the policy, in unison with the 'connecting communities and government on line initiatives' programme, will concentrate on training and supporting SMEs to equip them with the essential tools for ensuring that their businesses are online and use the internet for intensifying productivity and sales. The role of the ICT and economic diversification drive is to achieve several objectives, but of relevance here, is the one that intends for the domestic ICT sector to expand.

Specially, the policy calls for the domestic ICT sector to improved based on demand from the ICT policy driven initiatives (Republic of Botswana 2004:2). Evidence suggests that achieving this objective is well under way and significant progress has been made in this regard. Recent data reveal that 'Access to ICT' in Botswana has not only substantially increased between 2000 and 2008 but also that the increase is superior to that of the Sub-Saharan African region. Table 1 illustrates this growth together with how other aspects of the ICT sector are evolving. To further support evidence given in Table 1, a 2009 study by Analysys Mason (on the Botswana market) found out that 57% of the population owns a cell phone and the figure is expected to rise to 61% by 2014 (Analysis Mason webpage).

Data contained in Table 1 reveals that mobile phone subscription (per 100 people) has far exceeded the predictions of the Analysys Mason study. Indeed, the figures reveal that the subscriptions have increased rapidly from 76 people per 100 in 2008 to 143 people per 100 in 2011. In addition, Botswana's mobile telephone penetration exceeded 150% by 2011 and 99% of the population had Global Systems Mobile Communications (GSM) exposure by 2009 (World Bank: Database). The briefly outlined outcome may strengthen the government's quest to encourage SMEs, and therefore economic diversification, in several ways, including the fact that SMEs owners are more likely to be less educated— therefore, mobile phones are desirable because their use require little training and resources. The dominance of mobile phone ICT is essential because mobile phones have the potential to act as a catalyst for SMEs development (hence economic diversification) by acting as a tool for speeding up efficiency in SMEs.

Finally, the Analysys Mason study revealed a low internet penetration which is attributed to, among other factors, the high cost of service. Indeed, internet penetration as measured by internet

users (per 100 people) has increased by a measly 0.7 from 6.3 in 2008 to 7 in 2011. However, the low internet penetration is expected to substantially improve and become more affordable as a result of Botswana investing US$37.5 million (P277.5 million) in a joint venture with Namibia to gain access to the West Africa Cable System (WACS) which transmits data and telephony services from Europe to 15 countries alongside the west coast of Africa. Both Botswana and Namibia jointly own 9.2% of the project. As a result of the launch of the cable system, Botswana Telecommunications Corporations (BTC) group announced a 59% reduction in wholesale internet bandwidth tariffs effective 1 August, 2012.

WACS is the latest initiative since the East Africa Sub Marine Cable System (EASSy) launched in early 2011. The launch of the earlier cable system brought with it lower internet and mobile costs. According to the World Economic Forum (WEF)'s Global Information Technology Report (GITR), Botswana's ranking on fixed broadband internet tariffs improved from 118th position (out of 138 countries) in 2011 to 103rd position (out of 142 countries) in 2012 (WEF: webpage). OECD (2013:117) reported that Botswana has managed to surpass countries such as Senegal, Morocco, Namibia, Kenya and Gambia when it comes to ICT competitiveness. Taking advantage of the cables mentioned here will avail high speed and cheaper internet.

A further anticipated benefit of the ventures is not only to bring with them cheaper internet, but a faster service. Mmegi (9 August, 2012:9) reported that WACS is expected to have speed of 5.12 terabytes per seconds compared to the already faster EASSy speeds of 3.8 tetrabytes per second. On the one hand, the international internet bandwidth (bits/second/person) has substantially increased from 3 in 2008 to 220 in 2009. Furthermore, fixed broadband subscribers as a percentage of total internet subscribers have considerably increased from 0% in 2008 to 89% in 2009. In short, the brief analysis here reveals that generally, the domestic sector ICT's performance far exceeds what was hoped for (i.e. to double) as a result of demand stimulated by ICT policy initiatives.

Although internet penetration is one of the areas that still lag behind, it is increasing steadily and will, hopefully, with time reach the national policy target. This outcome (low internet penetration) may be due to low ownership of personal computers which in turn may be acting as a signal of digital divide—a situation whereby access to, usage of, or familiarity with ICT is determined by economic inequalities between groups.

For the ICT sector to bear as much fruit as possible there is need for the government of Botswana to be in the lead in using ICTs since this has a bearing on the operations of the private sector and businesses. For example, some of these stakeholders may need information or to get authority/licenses to do certain things in their businesses. They need readily available information from government ministries and departments. They may also need to pay their taxes, and renew their licenses among others. As a result they need to have ease of access to such resources and it will be more beneficial if government has efficient ICT systems in place.

The government has done a number of projects through e-government which include National Identification System, e-passport, e-license and others. This area of e-government is still at its very early stages, hence there is no literature on how Botswana has done in terms of achieving its goals in this regard.

Table 1: ICT Status in Botswana

	Botswana				**Upper-middle-income group**	**Sub-Saharan Africa Region**
Access	2008	2009	2010	2011	2008	2008
Telephone lines (per 100 people)	7.9	7.4	-	-	21.6	1.5
Mobile cellular subscriptions (per 100 people)	76	95	118	143	95.3	33.3
Personal computers (per 100 people)	3.5	6.2	-	-	11.5	2.0
Quality						
Population covered by mobile cellular network (%)	90	99	-	-	94	56
Internet users (per 100 people)	6.3	6.2	6.0	7.0	-	-
Fixed broadband internet subscribers (per 100 people)	0.46	0.50	0.60	0.77	-	-
Fixed broadband subscribers (% of total internet subscribers)	0.0	89.0	-	-	81.8	-
International internet bandwidth (bits/second/person)	3	220	-	-	1,281	34

Source: **Author's summary of World Bank data (2013)**

The major challenge that may pose a threat to the development of the ICT sector is power shortages. About 93% of Botswana electricity is imported from neighboring countries, with only 7% from within the country. In 2011, 74% of the country's electricity consumption was imported from South Africa, 19% from Zambia and Zimbabwe. In fact, electricity shortage undermines diversification efforts, as they retard SMEs growth—an OECD (2013:116) report highlighted that some of the factors that stagnate economic diversification were the high costs of electricity as well as supply disruptions.

The lack of electricity also imposes negative effects on the use of ICTs in that it inconveniences and disrupts the daily operations of businesses. As a result, some businesses have to resort to investing in generators/ electricity backup systems to keep their business operations uninterrupted. Seitshiro (2013) observes that this may deter capital and undermines efficiency, productivity, hence diversification. These power cuts may also have long term effects in that there could be a loss of investor confidence in the country which may lead to these investors moving their investments elsewhere, Seitshiro (2013). This will be counter-productive to Botswana since the country has worked very hard and still does, to attract foreign investors. Moreover, the power cuts may cause some people/businesses to resort to doing things manually as opposed to using ICTs and this could undermine the objectives of the Botswana National ICT policy and all that has been done so far to ensure an increased uptake and use of ICTs to help diversify the economy. This is further highlighted by Asare et al (2012:279) who showed that repeated power interruption deters SMEs in their adoption of ICTs.

Regardless of the fact that some companies have moderately better ICT resources, Shemi and Procter (2013:24) observe that they only use their websites for marketing purposes and not for financial transactions such as placing orders, making payments and others. Despite having an improved internet speed in Botswana as a result of the EASSy and WACS internet connectivity, which Botswana has invested so much in, customers still prefer to 'feel and touch' the products, Shemi and Procter (2013:24). This confirms results of earlier studies carried out on Botswana by Duncombe and Heeks (2002:14) which showed that SMEs and rural micro-entrepreneurs in Botswana relied on informal, face to face business discussions, social and local information systems as opposed to web enabled business meetings such as video conferencing. This poses a challenge in the uptake of ICTs by SMEs in the country. Moreover, Shemi and Procter (2013:24) assert that the existing e-commerce laws are unfavourable for e-commerce to succeed.

Moreover, there exists a gap between the design and real implementation of ICT systems. The implementation phase is usually faced with some resistance because it is not easy to move people from paper-based service to e-service. For instance, evidence by Nkwe (2012:46) reveals that despite the fact that some services such as banking and payment of utility bills though mobile phones and the internet are provided through ICT, Batswana still prefer to spend so much time in queues at banks and other service providers just so that they can get service.

Regarding the issue of power cuts/lack of electricity perhaps it is time that the government creates an enabling environment for autonomous power producers. In addition, Botswana may need to expedite its implementation of the Mmamabula Energy Project which was envisaged to produce around 1200MW of electricity. This may stimulate competition in the market which can result in an improved service delivery as opposed to having Botswana Power Corporation (BPC) being the sole provider of electricity.

Conclusion

The national ICT policy has since provided a roadmap as to what needs to be done to ensure that the ICT sector grows, and plays a substantial role in intensifying the economic diversification drive. Thus far, the domestic sector ICT's performance has far exceeded what the Maitlamo policy calls for. For instance, as a result of joining WACS, internet speeds have improved and access to Broadband internet has shot up from 0.46 Fixed Broadband Internet Subscribers (per 100 people) to 0.77 in 2011, an impressive growth of 67%. The substantial improvement in domestic ICT performance is welcome. ICTs have several advantages that can enable Botswana to achieve most, if not all, all of her economic diversification initiatives. For instance, ICTs can be a gateway through which farmers gain knowledge on weather, soil, crops as well as current market and crop prices.

Hence, initiatives such as CEDA's young farmers scheme coupled with ICTs may increase efficiency and productivity in the agricultural sector. Moreover, ICTs are likely to have spill-over effect on other sectors, such as mining, tourism and others. These ICTs, especially the substantial mobile phone usage

as well as a reduction in tariff, may supplement the efforts of organisations such as CEDA, LEA by stimulating growth in SME sector by, for example, increasing efficiency by reducing transaction costs and also increasing market access.

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