



In 1994, Ghana was the first West African nation to be connected to the Internet...

...this white paper will take a look at the state of technology in Ghana.

# 2012

Information Technology  
Project Initiative Ghana

*By: Edwin W. Nichols, CEO  
Cedric D. Gay, EVP*

CORP  net

## Table of Contents

|  |    |
|--|----|
| Ghana Economy .....  | 1  |
| Private Sector Development .....                                     | 1  |
| Ghana Economic Outlook .....   | 2  |
| Connecting Africa to the World .....                                 | 4  |
| African Development Bank .....                                       | 6  |
| Access to Information Technology: Africa in the World Rankings ..... | 8  |
| Ghana: The Technology Hub of the West .....                          | 9  |
| Outreach: Corpnet's Ghana community Approach .....                   | 10 |

*Note: Contact your Corpnet Consultant for more details.*





## GHANA ECONOMY



Ghana is well endowed with natural resources and agriculture accounts for roughly one-third of GDP and employs more than half of the workforce, mainly small landholders. The services sector accounts for 40% of GDP. Gold and cocoa production and individual remittances are major sources of foreign exchange. Oil production at Ghana's offshore Jubilee field began in mid-December, 2010, and is expected to boost economic growth. Estimated oil reserves have jumped to almost 700 million barrels. Ghana signed a Millennium Challenge Corporation (MCC) Compact in 2006, which aims to assist in transforming Ghana's agricultural sector. Ghana opted for debt relief under the Heavily Indebted Poor Country (HIPC) program in 2002, and is also benefiting

from the Multilateral Debt Relief Initiative that took effect in 2006. In 2009 Ghana signed a three-year Poverty Reduction and Growth Facility with the IMF to improve macroeconomic stability, private sector competitiveness, human resource development, and good governance and civic responsibility. Sound macro-economic management along with high prices for gold and cocoa helped sustain GDP growth in 2008-10. In early 2010 President John Atta MILLS targeted recovery from high inflation and current account and budget deficits as his priorities. Ghana's primary development objective is to accelerate economic growth while maintaining macroeconomic stability, based on the Growth and Poverty Reduction Strategy (GPRS II). The GPRS II Medium Term (2006-09) Strategy is meant to put the country on a path to middle-income status by 2015.

## PRIVATE SECTOR DEVELOPMENT



Ghana's effort to improve its business environment continues to yield positive results. Private sector response to the government's program has been positive. In 2009 the change in political administration and the associated uncertainty regarding the direction of economic policy were largely responsible for a dip in Ghana's business climate with a slip of five places on the World Bank's *Doing Business* ranking. The situation, however, reversed in 2010 with a position change by ten places to 67th out of 183 countries. The improvement in the country's *Doing Business* ranking

in 2011 was largely accounted for by improvement in access to credit where the country's ranking improved to 46th. Other improvements were in the areas of starting a business, paying taxes and enforcing contracts. Ghana, however, slipped in the areas of registering property, trading across borders, closing business, protecting investors and dealing with construction permits.

Ghana's commitment to enhancing private sector development is enshrined in its new Medium Term National Development Policy Framework dubbed "Ghana Shared Growth and Development Agenda" (GSGDA), for 2010-13. Among the key thematic considerations is the enhancement of international competitiveness in Ghana's private sector. The framework proposes to initiate measures to improve the investment climate and transform the economy from factor-driven to a

more competitive, efficiency-driven economy. Towards this end, the country is committed to improving all aspects of doing business. In 2011 the government proposes to design a transparent, simplified and client-friendly business application process and provide support to strengthen public-private dialogue.

The government has made the provision of support to small and medium-sized enterprises (SMEs) a cornerstone of its recent private sector development effort. In 2010 the Ministry of Trade and Industry provided support for micro, small and medium-sized enterprises (MSMEs) in the form of training as well as finance in their operations. Through the Business Development Services Fund the ministry helped over 140 MSMEs to acquire technical assistance to address issues of low productivity, access to markets, product development and access to finance.

The banking sector's support for private sector development has been growing. In 2010 the banks extended more financing to the private sector. The banks allocated significant proportion of deposits to long-term investments, which is a good sign of their commitment to long-term development. Access to credit by SMEs improved in 2010, culminating in improved overall credit conditions from the banking sector. However, the credit delivery of the banks continues to be constrained by high cost-to-income ratios and deterioration in the quality of their loans books.



The Ghana Stock Exchange (GSE) continues to develop with improved market turnover and market capitalization. The Africa Investor based in New York ranked the GSE the most innovative African Stock Exchange for 2010. Market turnover, in terms of number of shares traded, increased by about 224% with 94.4% improvement in shares values. Market capitalization also improved by about 25% in 2010. Stocks in the banking and

finance sector, agriculture, food and beverage, and energy sectors largely drove the improved performance of the stock market in 2010. The improved performance of the stock market in 2010 could also be explained by a possible shift of funds from the money market in favor of the capital market on account of the lowering of the Treasury bill rate in 2010. However, the fact that there were no new listings on the GSE in 2010 raises questions about the depth of the exchange. The outlook over the next few years hinges strongly on the improvement in the macro fundamentals.

## GHANA ECONOMIC OUTLOOK

Ghana's economy has been in focus since the country began commercial oil production on December 15, 2010, and different predictions for growth are being made. Seen as the fastest growing in the world, the World Bank in January this year, projected that the country's economic growth rate will be around

13.4% in 2011. The International Monetary Fund (IMF) said with the start of oil production, it expects Ghana's economic growth to exceed 13% in 2011.

"Ghana's economy has recovered strongly since the start of the IMF-supported program in 2009. Economic growth is expected to exceed 13% this year, boosted by the start of oil production as well as strong activity in other sectors of the economy," said Ms Christina Daseking, IMF official, in a statement September 2, 2011.

According to the African Economic Outlook (AEO), a product of the African Development Bank, the OECD Development Centre, the United Nations Economic Commission for Africa and the United Nations Development Program, the country's economic growth has remained strong with real GDP growth reaching an estimated 5.9% in 2010 compared to 4.7% in 2009 with projected growth of 12% in 2011.

Growth prospects are even brighter as real GDP growth of 12.0% and about 11.0% are projected for 2011 and 2012 respectively, largely on account of the start of oil production in commercial quantities in December 2010.



The government of Ghana through the Ministry of Finance and Economic Planning on September 15, 2011 issued a statement saying the economy will grow 14.1% this year. However on September 14, 2011 report by the Bloomberg news service cites the World Bank making another projection for the Ghanaian economy. According to the World Bank, Ghana's economy may expand by 20% this year as the start of oil production for export, along with high prices for cocoa and gold, boost revenue.

In yet another development, Standard Bank, mother-company of Stanbic Bank Ghana has projected a 16.3% growth for Ghana's economy. The bank says in it latest report titled "African Markets: navigating slowing global growth currents", that almost half of the 20 African economies included in the Africa outlook are expected to grow in excess of 6.0% in 2011, "with growth in the fastest growing economy in the world, Ghana, reaching 16.3%." The South Africa-based bank indicated that growth will slow down to 8.25% in 2012 but will be doing very well by global standards. The World Bank however forecast a 10% drop in Ghana's economic growth in 2012.

The reason for the 16.3% growth acceleration, Standard Bank says is "The fundamental equity story for Ghana remains appealing: the economy is arguably the fastest growing in the world and fiscal and monetary policy continues to promote a relatively stable backdrop for future growth."

Ghana's entire share equity index has dropped 2.0% taking the year-to-date performance to a positive

12.5%. This compares with downside of 12.2% and 11.2% year-to-date for the MSCI Emerging Markets index. The Ghanaian cedi has basically traded sideways against the dollar in a 1.50-1.54 range since the sharp move in January 2011 and core scenario is for this range to persist in coming months and probably into next year.

## CONNECTING AFRICA TO THE WORLD



Sub-Saharan Africa has the highest Internet prices in the world. According to International Telecommunication Union (ITU) and World Bank estimates, the average price of a broadband connection in Sub-Saharan Africa is about USD 110 for 100 kilobit per second. In Europe and Central Asia the price was USD 20 while in Latin America and the Caribbean it was USD 7. Middle East and North African

countries also pay below USD 30.

But there is huge potential demand. A 2006-2007 study of 16 Sub-Saharan countries found that in Cameroon, Kenya, Nigeria, Senegal and South Africa more than 10 per cent of the surveyed population use Internet. There is a large potential for growth since Internet awareness remains very low. In Burkina Faso, Tanzania, Ethiopia, Rwanda, Uganda and Mozambique, less than 10 per cent of the surveyed population knew what Internet is. In Namibia, Ghana, Botswana, Benin and Côte d'Ivoire, less than 30 per cent knew what Internet is. The telecommunications industry is investing in international bandwidth to meet this potential demand and has currently reached annual growth rates of 96 per cent, compared to a global average of 51 per cent, according to the Telegeography 2008 survey.

The low Internet penetration rates and high tariffs stem mainly from a lack of high-capacity international networks (see Figure 4). This allows operators to charge prices far above the marginal cost of the service. There is currently only one submarine fiber optic cable off the West Africa coast, SAT-3, that provides a high quality international service and access is limited to members of the consortium which built the link in 2002. Since mid-2007 operators can purchase capacity at tariffs that have been as high as USD 25 000 per mega bit per second (MBPS) each month and now range between USD 2 000 and USD 10 000 MBPS per month as the cable operators anticipate new competition. Depending on the volume of traffic, South Africa's wholesale prices are lower while Cameroon and Gabon pay the highest tariffs. Except for Ghana and Benin, it is often impossible to buy a link to SAT-3 and so it has unused capacity.





Africa relies on satellites and Very Small Aperture Terminal (VSAT) earth stations for most of its connectivity. This results in high prices — though tariffs often of USD 3 000 – USD 5 000 is often lower than SAT-3 — and the applications are slow compared to other technologies. A web page request can take up to 16 seconds to complete. Intelsat, the world's largest commercial satellite service provider, provides full coverage in Africa. Thuraya, which has Middle East and North African telecommunications and investment companies as shareholders, gives coverage to North and Central Africa.

Moves are being made in west, east and southern Africa to increase the international networks. But for now, East and Southern Africa relies on satellites and has just 0.07 per cent of the world's international bandwidth capacity. The 10 000 kilometer long East Africa Submarine Cable System (EASSy) was to connect 21 countries from South Africa to Sudan by 2008. Prices were expected to fall to USD 500 - USD 1 500 per Mbps/month under an open-access scheme where every service provider could purchase at the same price, whether or not they were investors. The USD 263 million project has suffered delays largely due to disagreements over management of the consortium.

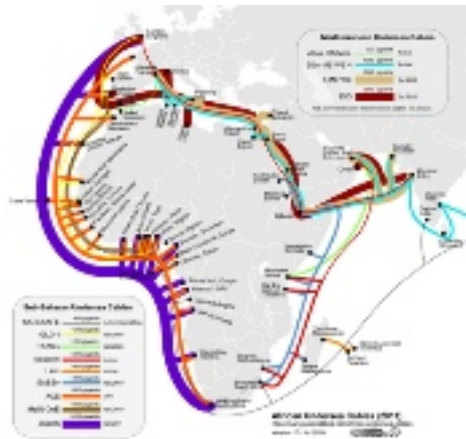


The World Bank has allotted USD 424 million to boosting regional networks in eastern and southern Africa under the Regional Communications Infrastructure Program (RCIP) which it hopes will increase traffic by at least 36 per cent a year and cut bandwidth costs by one tenth. Kenya, Burundi and Madagascar are involved in the first phase of RCIP, involving USD 164.5 million. By the end of the program, it is expected that all capitals and major cities in

eastern and southern Africa would be linked to competitively priced high bandwidth. The RCIP accounts for more than 10 per cent of total World Bank support to Africa. The African Development Bank (AfDB) is also helping infrastructure development.

On the West coast, Ghana, Nigeria and Senegal have the most significant potential demand for international capacity. Up to seven investment groups have said they would add international capacity in the region but only a few will succeed. Globacom, the second oldest operator in Nigeria, is expected to lay a 9 500 km fiber optic link to Lagos later going to Accra, Ghana and Dakar, Senegal. The GL01 project, costing USD 150 million, is risky, as the operator's current traffic volume in Nigeria, Benin and Ghana does not justify the investment. MaIN One is another Nigerian

project implemented by Mainstreet Technologies to link Portugal with Lagos and Accra with USD 200 MBPS/month wholesale prices. The link is ultimately expected to go on to South Africa and cost USD 865 million. The West African Cable System (WACS) is supported by the largest operators in South Africa, MTN, Neotel, Telkom and Vodacom, which have traffic along the West coast. Only landing stations in Lagos and Accra are planned.



The Africa Coast to Europe (ACE) project supported by France Telecom and 14 African operators is expected to connect France to Gabon in 2011. A France Telecom-managed consortium will build the cable. The Other Three billion (O3b) satellite, costing USD 750 million, is expected to be in service with prices around USD 700 MBPS/month. It will be able to download web pages in 4 seconds. NEPAD's Uhurunet plan for an undersea fiber optic link around Africa does not have much support. Finally, Thales Alenia Space is constructing the first pan-African

telecommunications satellite, Rascom. Originally planned for the 1990s, it is now only expected to provide services after 2010. The West African Feroon System (WAFS) aims to connect countries along the west coast from Nigeria to Namibia. It is expected to have the same governance structure as the SAT-3 cable and also be managed by Telkom SA so WAFS might not offer open access.

Some alternative networks operate with mixed success. More than six electricity companies have received a license to sell capacity directly or through another company. A 2 000 km fiber optic cable is owned by Société Nationale d'Electricité (SNEL) in Democratic Republic of Congo. These have been badly hit by the country's war. The World Bank is spending USD 315 million in Democratic Republic of Congo, including USD 33 million on a fiber-optic cable network. This could be expanded to other members of a proposed Southern African Energy Pool. Escom in Malawi will soon have fiber-optic cable links to Mozambique and the Tanzania Electric Supply Company (Tanesco) says it will build a new national grid with spare capacity used for telecommunications.

## AFRICAN DEVELOPMENT BANK

The African Development Bank (AfDB) Group's mission is to help reduce poverty, improve living conditions for Africans and mobilize resources for the continent's economic and social development. With this objective in mind, the institution aims at assisting African countries – individually and collectively - in their efforts to achieve sustainable economic development and



social progress. Combating poverty is at the heart of the continent's efforts to attain sustainable economic growth. To this end, the Bank seeks to stimulate and mobilize internal and external resources to promote investments as well as provide its regional member countries with technical and financial assistance.

The institution's greatest assets are its human resources, which come from a wide geographic area. The Bank is an equal opportunity employer and firmly believes that recruitment from a wide geographical and cultural spectrum enriches the institution with varied talents, experiences and skills that will enhance the quality of human resources management and ultimately the realization of the Bank's mission of reducing poverty across the continent.

Over the years, the Bank Group has continued to pursue its institutional reforms aimed at maximizing its development effectiveness and the quality of its operations, supporting efforts by its regional member countries and building their capacity to strengthen their economies. The Bank has also consolidated its role as the continent's premier development finance institution, knowledge and research centre and the preeminent voice for African development issues. For purposes of accountability and efficient management, the Bank has adopted the following structure comprising six vice presidential complexes.

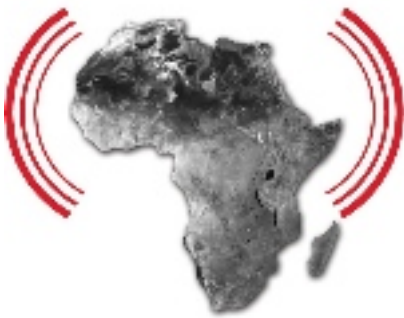


In 2006, the African Development Bank (AfDB) became the first supranational borrower to issue a bond denominated in Ghanaian Cedis. This two-year bond, worth USD 45 million, was hugely successful, and given the strong demand, the AfDB was able to raise the issue by 50 per cent. The AfDB is also in the process of issuing cedi denominated

bonds in the Ghanaian market: this would facilitate long-term local currency financing to support development projects through direct project lending or lines of credit to financial institutions. These transactions will help to deepen the bond market in Ghana. The successful entry of Ghana into the Eurobond market is another first for the country. Ghana raised USD 750 million international capital funds on its sovereign bond issue. About 40 per cent of the bond was placed with US investors, 30 per cent with UK investors, with the remaining going to the rest of Europe. The 10-year bond would yield 8.5 per cent at par. The oversubscription of the bond, together with the wide range of international investors, is an indication of confidence in the Ghanaian economy.

## ACCESS TO INFORMATION TECHNOLOGY: AFRICA IN THE WORLD RANKINGS

Africa has the lowest Internet penetration rate in the world. In Sub-Saharan African countries, for Internet users the penetration rate is below 7 per cent and for broadband it is under 1 per cent. In Latin America and Caribbean, and East Asia and Pacific countries, the figure is around 20 per cent for Internet users. North African countries are relatively better off than Sub-Saharan counterparts with a rate of 40.4 per cent. However, even in North Africa the penetration rate for broadband subscribers is only 2 per cent. In Europe, in contrast broadband penetration is about 15 per cent. In Africa most Internet is by low speed dial-up connections, which are concentrated in Egypt, Kenya and South Africa. Faster speed broadband connections through Asymmetric Digital Subscriber Lines (ADSL) are found in South Africa, Egypt, Morocco and Algeria.



The penetration of fixed-line services varies significantly. In some North African countries there is a penetration rate of up to 32 per cent, while in Sub-Saharan Africa it can be as low as 3 per cent and this is a major cause of the current difficulties of fixed-line operators. In other regions of the world, fixed-line operators had a strong base when mobile penetration arrived. In Africa, the low penetration rate and limited availability of fixed lines made it easier for new mobile entrants to make an impact.

Africa had the world's fastest growth in new mobile phones in 2008. In some Sub-Saharan countries there was growth of about 40 per cent yet overall penetration rates remain low. North African countries, on the other hand, are reaching mature levels with an average penetration rate of 93 per cent, so their average annual growth rate is down to 19 per cent. There are also significant differences between Sub-Saharan countries, with penetration rates in resource rich and resource scarce coastal countries at about 50 per cent, compared to 15 per cent in resource scarce landlocked countries.

Among the big coastal African nations, Nigeria (60 million), South Africa (47 million), Egypt (37 million), Algeria (31 million) and Morocco (24 million) had the biggest number of subscribers in 2008. Among the landlocked countries, Sudan, Congo and Uganda share the first three places with 10, 8 and 7 million subscribers respectively. With Tunisia's market of 9 million subscribers, four North African countries are among the largest mobile markets in Africa.

But when using market penetration as the measure, Libya, Cape Verde and Comoros have the highest coverage among coastal countries, having reached levels above 100 per cent in 2008. Similar levels have also been reached by Gabon, Algeria and Tunisia. In contrast, in the landlocked countries, the three best performing nations, Lesotho, Sudan and Mali, barely average penetration

rates of 25 per cent. At the other end of the scale, Ethiopia, Eritrea and Somalia with a combined population of 92 million people have a penetration rate of just 3.4 per cent. Burundi, Central African Republic and Rwanda have between 5 and 10 percent.

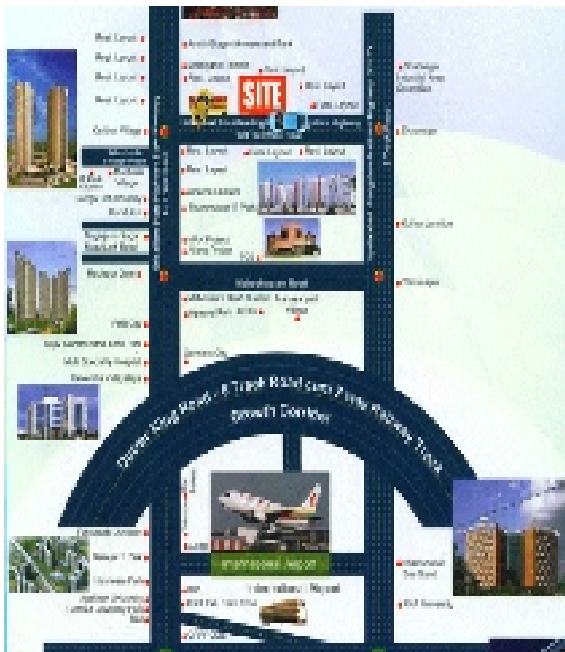


Operators have concentrated investment on second-generation networks in Africa and they will now probably recover this money before getting into third generation high-speed networks, even if licenses are being granted. As of early 2009 there were only 5 million subscribers — 2.3 per cent of the total subscribers in Africa — for services with Wideband Code Division Multiple Access (WCDMA) and WCDMA High Speed Packet Access (HSPA). The heaviest investment has been in South Africa. The country has three WCDMA and two WCDMA HSPA networks that in 2008 accounted for 45 per cent of third generation network connections in Africa. South Africa, Libya and Egypt make up to 82 per cent of third

generation connections in Africa.

Second generation Global System for Mobile (GSM) communications account for 96 per cent of subscriptions. Code Division Multiple Access (CDMA) technology is only used by 1.5 per cent, but some operators such as Expresso in Sudan have adopted CDMA because it requires less capital investments.

## GHANA: THE TECHNOLOGY HUB OF THE WEST



Ghana Cyber City is a technology cluster on a 36-acre technology park being built in Accra. It is setting the stage for work between SMEs to encourage outsourcing to come to Africa. According to Gartner, Business Process Outsourcing (BPO) was a USD 128.8 billion market in 2005 and is forecasted at USD 191.3 billion market by 2010 with the offshore ICT industry growing at 21 per cent. Ghana's BPO could create 37 000 jobs with revenues of USD 750 million over 5 years.

The \$40 million Ghana Cyber City (formerly Ghana Technology Park) is designed to facilitate incubation of innovative firms,





manage offshore IT and business process outsourcing ventures, and seeks to create 5,000 jobs in 5 years. GCC will also provide high tech office space and a Tier IV data center. We were planning to start on a small-scale basis but it our prospective partners encouraged us to scaled it up right from the conceptual stage.

It has been quite challenging putting together a consortium of financial partners for the “bigger” project (slated for a prime location within the campus of the University of Ghana), after securing the seed capital from the Washington-based Xalles Limited. Expanding the project meant delaying the groundbreaking schedule, TBA.



GCC will be established on land owned by the University of Ghana in Accra, Ghana. GCC will position itself as the leader in promoting the IT and BPO industry in Sub-Saharan Africa, as the region competes for a niche market in the \$550 billion offshore outsourcing market.

There is currently a \$40 million investment opportunity available related to construction of the first 3 project Phases.

On completion, it would bring together experts from across the scientific, technological and industrial disciplines for collaboration and nurturing of ideas for the growth of companies and firms that would reside at the Park. Additionally, it would enhance technology-based industries with development capabilities and training while partnering with industry leaders. Facilities provided for include incubation, research and development centers.

#### **OUTREACH: CORPNET'S GHANA COMMUNITY APPROACH**



Corpnet creates business, government, and organizational technology communities. Corpnet can create a Ghana technology community, which would be a community of leaders and citizens that cross government, corporate, organizational and social lines to collaborate on a common cause while maintaining individual goals. The main barrier to these communities is effective collaboration, which is based on getting the right information, at the right level of detail, using the right language, at the right time, in the right context, to the right people. This requires an intricate level of networking, coupled with advanced sharing and tracking programs with synchronous and asynchronous chat ability, to allow the free flow of information while allowing access at the proper level of security to the appropriate people. Corpnet can build an effective solution for Ghana starting with a technology research park.



The problems of the world, and even those small marketing problems a company has been working on, all have a very complex solution and the best way to find that solution is to gather all of the resources available to you and set them to work finding the answer through the use of intersections, or crossovers in different fields, i.e., a botanist presenting a solution to an engineer. Our company helps create those intersections by allowing people to gather people together (including those that you never had access to before) to pursue a common purpose and find solutions that are unprecedented in your industry. Welcome to Corpnet and the world of technology communities.

Corpnet is a global management consulting and technology services company. Committed to delivering innovation, Corpnet collaborates with its clients to help them become high-performance businesses and governments.

Our "high performance business" strategy builds on our expertise in consulting and technology to help clients perform at the highest levels so they can create sustainable value for their customers and shareholders. Using our industry knowledge, service offering expertise and technology capabilities, we identify new business and technology trends and develop solutions to help our clients.



[www.CorpnetInc.com](http://www.CorpnetInc.com)  
[management@CorpnetInc.com](mailto:management@CorpnetInc.com)

Corpnet's mission is to serve corporate, small to midsize businesses and government institutions in achieving effective and efficient solutions to the challenges they face in the millennium.

