ICT Infrastructure
AFRICA 2020~

Introduction

The lack of infrastructure in Africa has been calculated to cost around 2% of annual growth (Calderón 2008) and 40% in lost business productivity. Africa has seen remarkable advancements in telecomm network connectivity, internet subsea cables, social initiatives that use tech platforms and commercial data centres. With still so much to do a huge opportunity awaits organisations committed to address the challenges.

We've chosen to focus on digital infrastructure, defined as the conglomerate of hardware, software, network resources and services required for the existence, operation and management of an enterprise IT environment. The appetite for fast, rich data will accelerate with deployment and spread of 5G, fibre, satellite and other communications infrastructure, accompanied by large capital investments.

Opportunity

Africa has the highest internet prices in the world, indicating a huge potential and demand for alternative options.

According to International Telecommunication Union (ITU) and the World Bank the average price of broadband connection in Sub-Saharan Africa is about USD110 for 100 kilobits per second; compared to America's average broadband price of USD35.

Digital First

Policymakers have a critical role in developing National Digitization Plans that apply to all sectors and segments of society. To tackle both the positive and negative effects will require collaboration with stakeholders across industries, civil society, educators and international organisations to bring benefits to all.

Snapshot

Africa's top 8 countries ranked on attractiveness to business and investment

Country*	GDP billion USD (2018)	GDP Growth (2015)	Internet Penetration*	Price USD (per GB)	Speed (Mbps**)
1.Botswana	18.62	29.0%	47.5%	14.12	1.92
2.South Africa	368.30	16.0%	63.0%	7.19	8.40
3.Ghana	65.56	33.3%	37.8%	1.56	3.20
4.Rwanda	9.51	15.0%	46.2%	0.56	3.34
5.Kenya	87.90	37.3%	87.2%	2.73	7.62
6.Senegal	24.13	36.0%	58.2%	3.28	2.25
7.Ethiopia	84.36	31.8%	15.4%	2.91	0.80
8.Nigeria	494.58	24.0%	61.2%	2.22	1.56

* percentage of the population connected to the internet
**"According to the UN Economic Commission for Africa, downloading a five-gigabyte film in Ethiopia can take between 12 and 14 hours, versus just over 11 minutes in Singapore." - Source, Financial Times 4th July 2020

Regulatory landscape

"Only nine African countries [out of 54] have data protection legislation and another 22 have draft regulations pending," says Bob Kayihura, of counsel at Covington & Burling in South Africa. Compare data protection laws around the world

Botswana

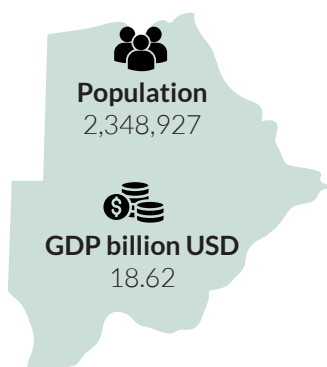**Trading Blocs:** Southern African Development Community (SADC)

Botswana Telecommunications Limited (BTCL), Mascom Wireless Botswana (Pty) Ltd (Mascom) and Orange Botswana (Pty) Ltd (Orange). Botswana Fibre Networks (BoFiNet) entered the market in April 2013.

Talent & Economy

Top 3 universities:

- Botho University
- Botswana Accountancy College
- Botswana College of Agriculture

Botswana is the third largest diamond producer globally and has the second largest coal reserves in Africa. Agriculture contributes only 2% of GDP (World Bank, 2018).

Population
2,348,927

GDP billion USD
18.62

South Africa

Trading Blocs: Southern African Development Community (SADC)

ESSAy is a submarine fiber-optic cable from South Africa to Sudan connecting 10 countries along its path. The project has been developed in partnership with more than 20 telecommunications entities and includes the International Finance Corporation, European Investment Bank, African Development Bank, Agence Française de Développement, and Kreditanstalt für Wiederaufbau.

Talent & Economy

Top 3 universities:

- University of Pretoria
- University of CapeTown
- University of Witwatersrand

According to South African job search site Careers24 the Information Technology sector outweighed any other, with an average of 6,264 new listings on the site each month - next was sales, with 1,976 listings per month.

Population
59,261,335

GDP billion USD
368.3

Ghana

Trading Blocs: The Community of Sahel-Saharan States (CEN-SAD); Economic Community of West African States (ECOWAS)

In 2008, Parliament approved a $30 million loan by the government of China for the construction of a nationwide e-Government infrastructure. Huawei Technologies (GH) S.A. Ltd. is the contractor for the project.

Talent & Economy

Top 3 universities:

- University of Ghana
- Kwame Nkrumah University of Science & Technology
- University of Cape Coast

The agricultural sector is a primary industry and employed 53.6% of the workforce in 2013. Another key sector is renewable energy. Ghana generates electricity from varied renewable sources and generated about 49.1% of its power in 2012.

Population
31,031,439

GDP billion USD
65.56

Rwanda

Trading Blocs: Common Market for Eastern and Southern Africa (COMESA); East African Community (EAC); Economic Community of Central African States (ECCAS)
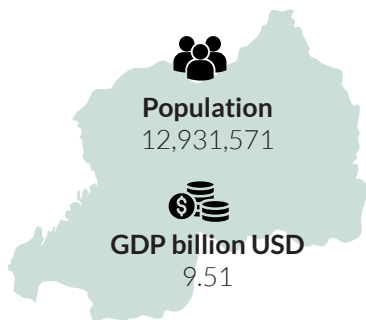
Korea Telecom (KT) signed a US$40 million partnership with the government of Rwanda for the development of a national backbone project which targets to connect the country via a fiber-optic network. KT will install a wireless broadband network accessible to 10,000 people in Kigali, Rwanda's Capital City.

Talent & Economy

Top 3 universities:

- University of Rwanda
- Université Libre de Kigali
- University of Global Health Equity

The Rwandan government estimates that more than 90% of the country's labor force was involved in the agricultural sector, coffee being Rwanda's most vital commercial crop. Although Rwanda is a landlocked nation, the Rwandan government also estimates that the fishing industry employed more than 200,000.

Population
12,931,571

GDP billion USD
9.51

Kenya

Trading Blocs: Common Market for Eastern and Southern Africa (COMESA); East African Community (EAC); Intergovernmental Authority on Development (IGAD)

The Government has laid 6,000km of fibre Backbone Network covering all 47 Counties. Kenya is a 1 billion (USD) dollar tech hub which has birthed 200 digitized services offered through Huduma E-Centers throughout the country. The country's policymakers have created a favorable regulatory environment evidenced by the successful M-PESA digital payment system.

Talent & Economy

Top 3 universities:

- University of Nairobi
- Kenyatta university
- St. Paul's University

80,000 new graduates enter the market every year and because of competition many students opt to enroll in post graduate courses. The most popular courses in Kenya are Science, technology, engineering and mathematics (STEM) and business. 49.1% of its power in 2012.

Population
53,695,386

GDP billion USD
87.9

Senegal

Trading Blocs: Economic Community of West African States (ECOWAS); The Community of Sahel-Saharan States (CEN-SAD)

The Senegalese government announced its two year partnership with the Spanish telecom infrastructure company <u>Liteyca</u>. The PASSANT project (Projet d'Appui Structurel a la Strategie d'Amenagement Numerique du Territoire) is worth approximately USD84.7 million and has committed to expand the country's backbone network by nearly 340,000 kilometres; improving backhaul links with the deployment of over 75,000 kilometres of fibre.

Talent & Economy

Top 3 universities:

- Université Cheikh Anta Diop
- Université Gaston Berger
- MIT University Dakar

Agriculture employs 32% of the workforce and contributes to 16.6% of the GDP. Fishing is also an important source of revenue. The industrial sector contributes to 25.8% of the GDP and employs 14% of the workforce. The service sector contributes 50.4% to the GDP and employs 55% of the workforce.

Senegal's recent discovery of oil and gas off its coasts, has prompted the country to draw up a blueprint to shape the good governance of this sector.

The first gas and oil barrels productions are planned for 2021 (2023 by the latest).

Population
16,715,494

GDP billion USD
24.13

Ethiopia

Trading Blocs: Common Market for Eastern and Southern Africa (COMESA); Intergovernmental Authority on Development (IGAD)

Ethiopia's telecoms sector is regarded as an untapped market with the lowest rates of smartphone ownership and the lowest internet penetration in the world. In 2019 the Ethiopian government accepted the legislation to open the market to competition and accept foreign investment.
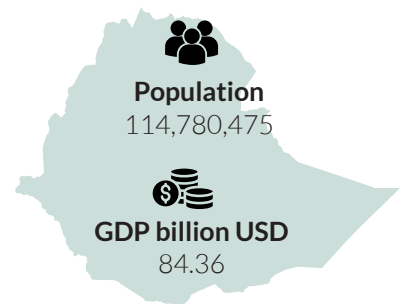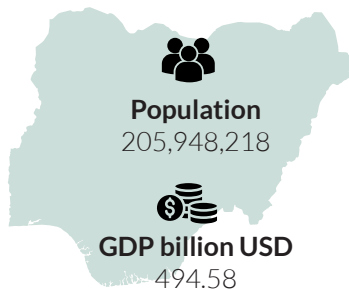
Talent & Economy

Top 3 universities:

- Addis Ababa University
- Jimma University
- Mekelle University

The agriculture industry in Ethiopia contributes to over 50% of its GDP, employing over 60% of Ethiopia's working population.

Ethiopian farmers grow coffee which is among the most traded products globally. The construction sector in Ethiopia has recorded 11.6% annual growth and the sector employs over 1.8 million.

Population
114,780,475

GDP billion USD
84.36

Nigeria

Trading Blocs: Economic Community of West African States (ECOWAS); The Community of Sahel-Saharan States (CEN-SAD)

Galaxy Backbone built and operates the National Information and Communication Technology Infrastructure Backbone (NICTIB), an optical fibre that is country wide. Its first phase, which has been completed covers a distance of 1484 km, covering 13 states.

The Backbone Transmission Network (BTRAIN) Project is designed to facilitate the connection of the unserved and underserved areas to the National Transmission Backbone Infrastructure via deployment of hybrid technology infrastructure (underground/aerial/wireless fibre connectivity). The project will be delivered through Public-Private-Partnership (PPP).

Talent & Economy

Top 3 universities:

- University of Ibadan
- University of Nigeria
- Covenant University Ota

Nigeria is the largest economy in Africa with high economic potential due to the size of its domestic market, as well as its human and natural resources.

The official unemployment rate for the working age population is 7.5%. The service sector contributed 52.01% to the country's GDP.

Population
205,948,218

GDP billion USD
494.58

Digital Initiatives

MasterCard Lab

The MasterCard Lab for Financial Inclusion was set up 2015 in Kenya and in 2017 saw the launch of 2KUZE, a digital platform developed to connect smallholder farmers, agents, buyers and banks in East Africa.

Express Wi-Fi

Facebook announced a partnership with Cell C and Cambium Networks to launch its Express Wi-Fi service in South Africa. The initiative which aims to increase access to high bandwidth and affordable Wi-Fi offers to subscribers.

Google Station

Google Station is a free public Wi-Fi hotspot programme launched in South Africa to provide free, fast, open access internet and serves 125 of Cape Town's marginalized areas.

Independent tower operators

HTSA Towers, a joint venture with Vulatel, agreed to buy 65 wireless telecommunications sites from Eagle Towers SA and has a portfolio of 7000 towers in five countries in Africa, including Tanzania, the Democratic Republic of Congo, Congo-Brazzaville and Ghana.

2Africa

Facebook has collaborated with global telecoms giants, incl. China Mobile, Vodafone Group and MTN Group to build a giant subsea cable to help bring more reliable and faster Internet across Africa. The initiative costs approximately US$1billion to develop a 37 000km-long cable which will connect Europe to the Middle East and 16 African countries.

DARE

Kenya has announced plans to connect to the Djibouti Africa Regional Express (DARE) submarine fibre optic cable system at a cost of US$59-million.

BRCK (Sub-sahara Africa)

BRCK is a Kenyan company and the largest public WiFi network in the Sub-saharan region committed to bringing internet access to East Africa.

Nokia and Angola Cables trial

SACS is owned and managed by Angola Cables and connects between Fortaleza, Brazil and Luanda, Angola and the AngoNAP Datacenter. The consortium-owned MONET connects Santos/Fortaleza with Florida/USA.

Google's first Artificial Intelligence lab in Ghana

Google's first AI centre in Africa aims to provide developers with research facilities, tools and computing power to tackle issues facing Africa across all sectors.

Kepple Africa Ventures

Established in 2018 by Japanese social innovators and entrepreneurs, Kepple has offices in Nairobi and Lagos. The VC has invested in 52 startups in Kenya, Ghana, Cameroon, Morocco, Nigeria, Uganda and Tunisia.

REFERENCES