

State of Fiber Infrastructure in Africa

GhanaConnect

www.ghanacconnect.org.gh

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"Towards making broadband **Accessible** and **Affordable** in Ghana"



GhanaConnect

www.ghanaconect.org.gh

- GhanaConnect is a platform for stakeholders in the ICT industry with the aim of ensuring broadband growth by means of public seminars, workshop and implementation of mechanisms to ensure accessibility and affordability of broadband connection for all. GhanaConnect seeks to help with policy and strategy development and implementation.
- The current effort is to help develop a Broadband Strategy based on the Telecom and ICT Policies, geared towards making broadband accessible and affordable.



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Empirical Evidence

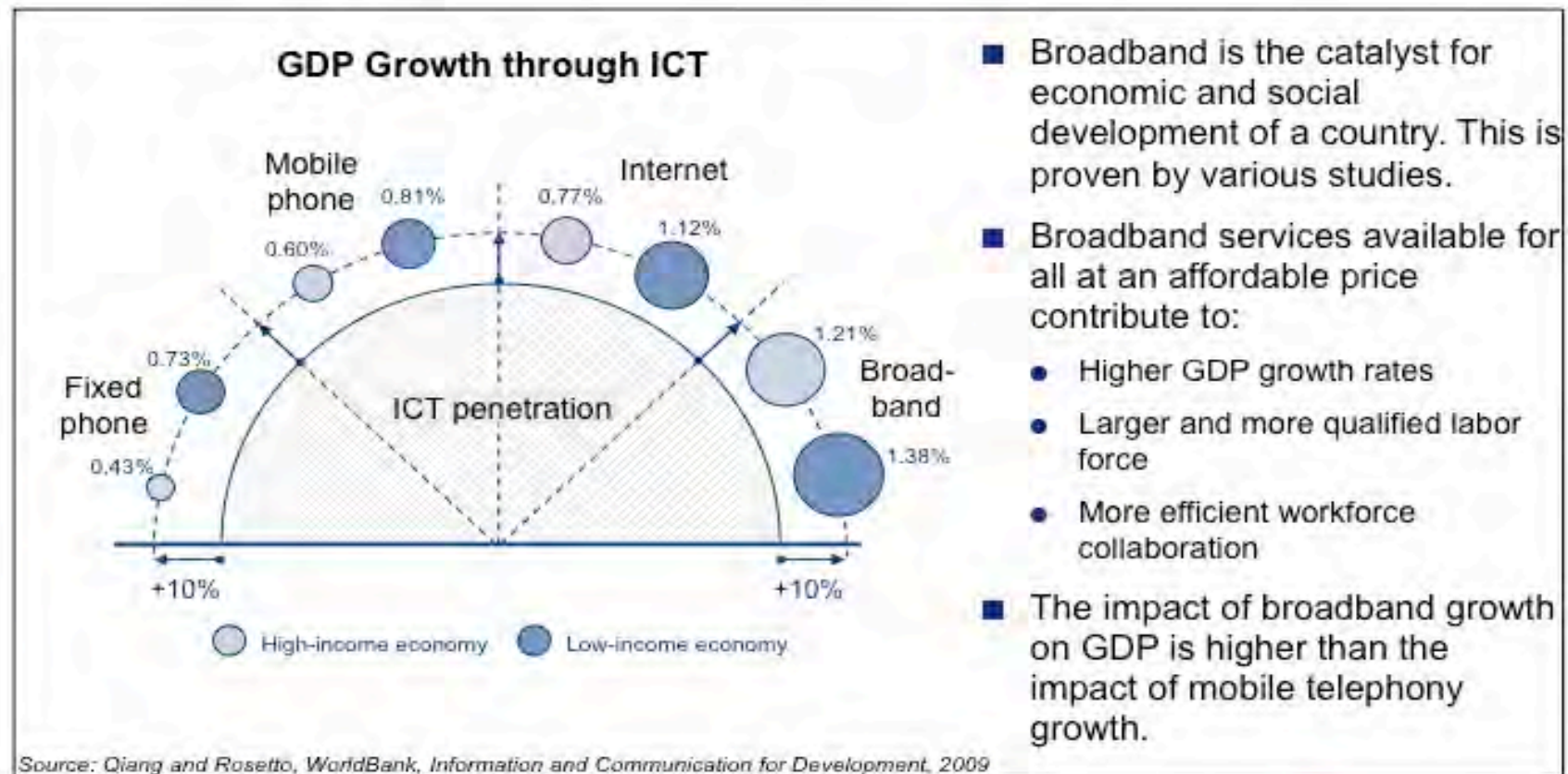
- A 2009 World Bank Information and Communications for Development report analyzed the impact of broadband on growth in 120 countries from 1980 to 2006, showing that each 10 percentage points of broadband penetration results in 1.21% increase in per capita Gross Domestic Product (GDP) growth in developed countries, and 1.38% increase in developing countries, Broadband has more impact in developing than developed countries
- Figures recently released by the Ministry of Communication Technologies show that the ICT sector in Tunisia has posted a growth of 17.8% in 2008. Its contribution to the country's Gross Domestic Product (GDP) amounted to 10% in 2008 against only 3.9% in 2001. It is expected to reach 13% by 2011
- Average GDP growth of 5% across Africa over the last decade which witnessed the Mobile Revolution on the back of which is an eminent Broadband Revolution

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Impact of Broadband

Voice services have a limited impact on a country's economic growth, while data services still contribute significantly. The benefit for low-income economies is huge.

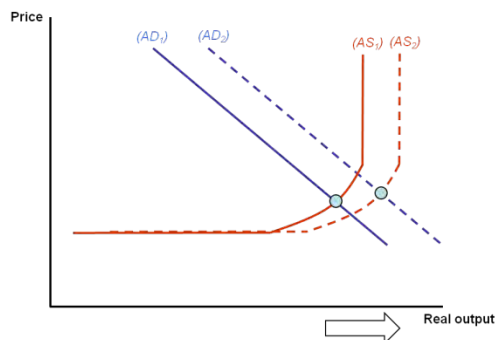


Broadband Economics

- Investments:
 - can be initiated relatively quickly (slack)
 - are labour-intensive
 - can minimize economic leakages
 - are a key foundation for commerce
 - may provide stronger marginal impacts on supply and productivity than investing in established networks such as electricity, gas, water and transportation.

Demand

Supply



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Infrastructure Components

- International Fiber
- Regional Fiber
- National Fiber
- Last Mile Bandwidth

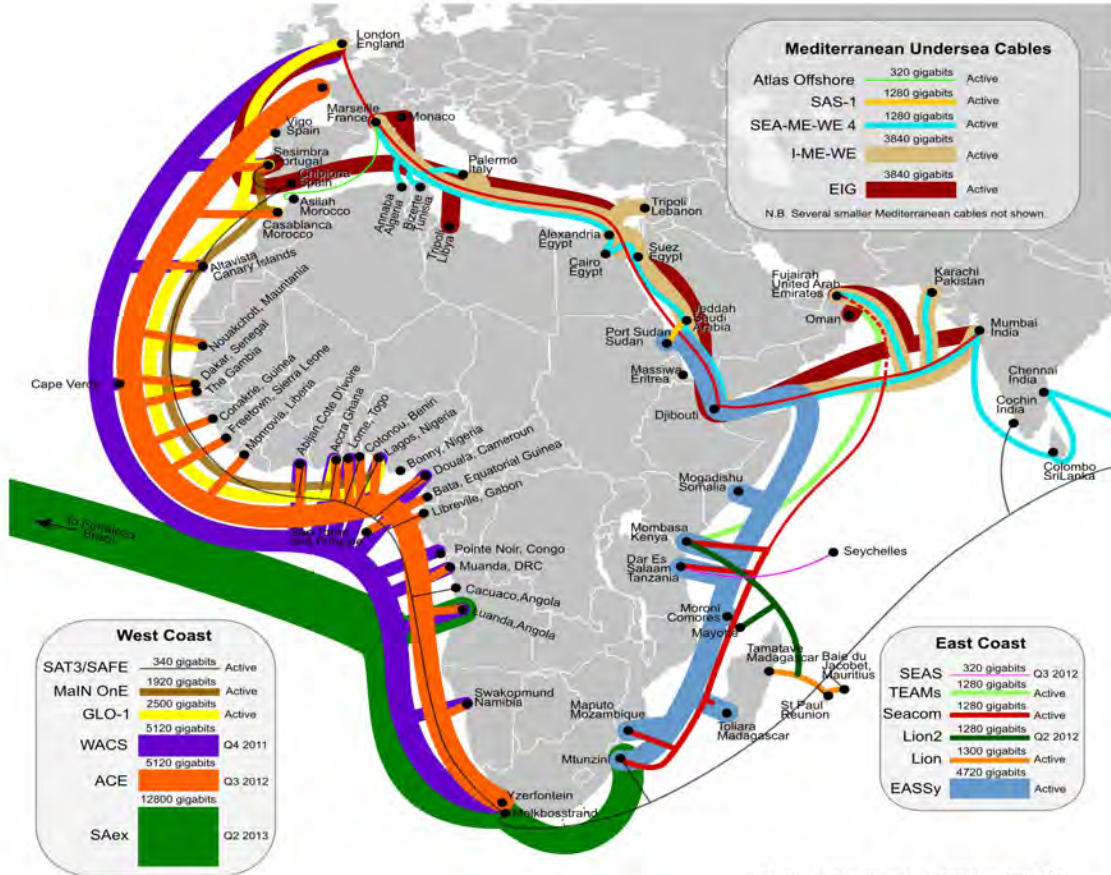
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Fibre as a foundation

- Investment in high-capacity fibre optic lines is the foundation for all types of broadband Internet access
 - Wired: DSL, cable, power-line communication
 - Wireless: Mobile, WiMAX, satellite
- Investments in targeted fibre infrastructure can be structured to benefit all network providers (wired and wireless)

International Bandwidth



African Undersea Cables (2013)
<http://manypossibilities.net/african-undersea-cables>
 Version 31 - Oct 2011

SAT3 - \$4500 – e1
 - \$1200 – e1

Main1 - \$500
 - reduc/c.l

GLO1 – \$400

WACS - \$400

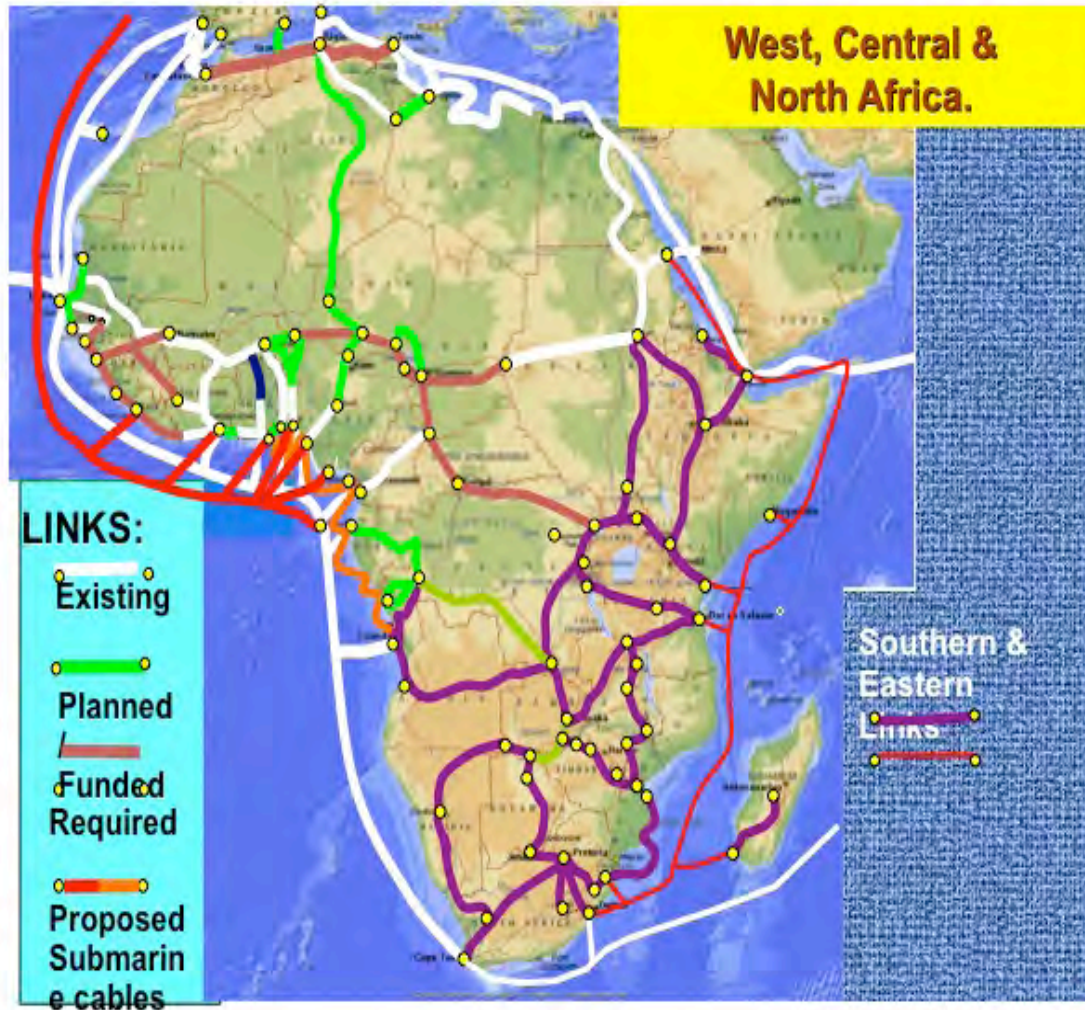
TEAMS - \$500

SEACOM - \$500



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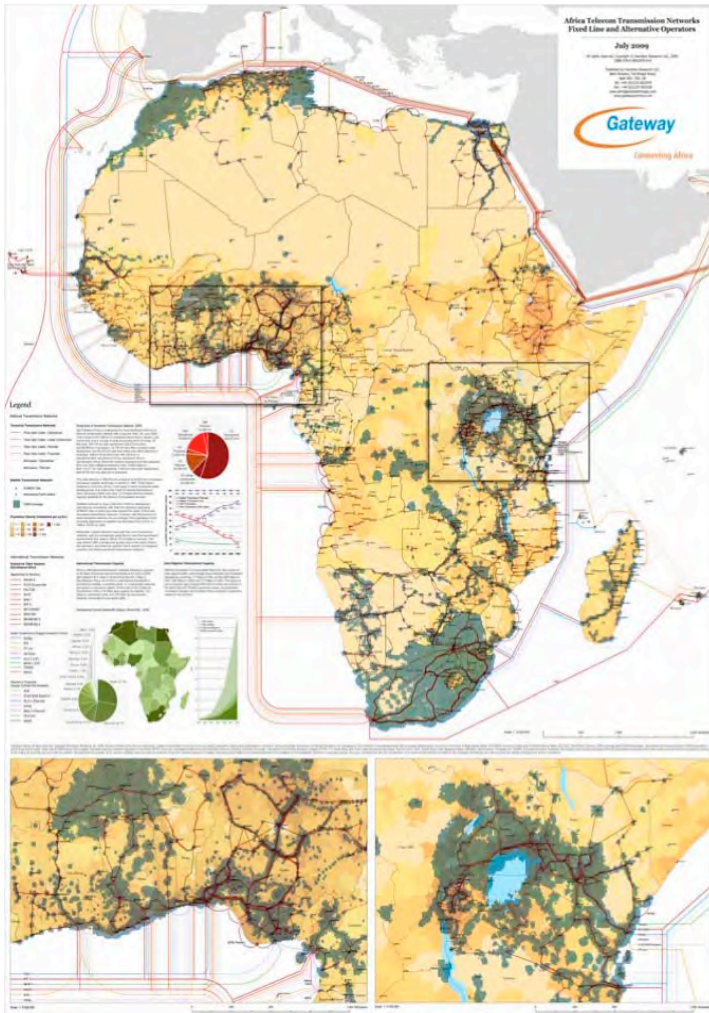
Africa Vision



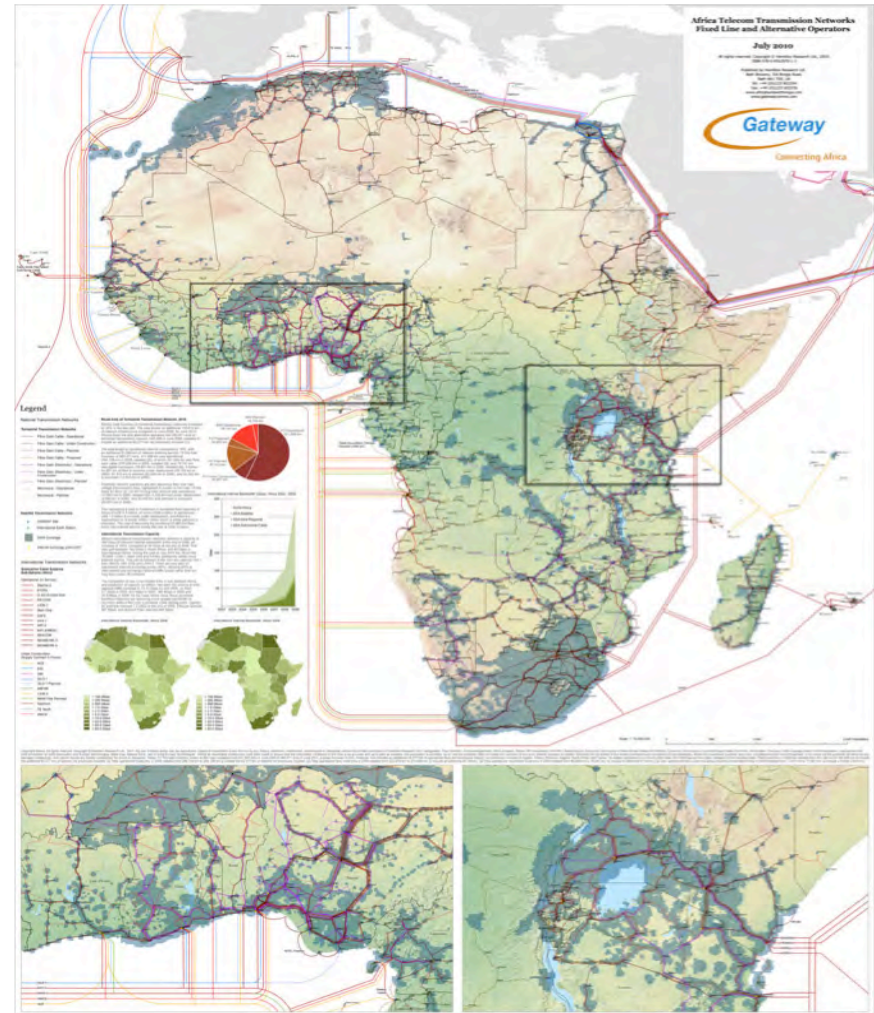
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Africa 2009 and 2010



Source: © Hamilton Research, 2009. www.africabandwidthmaps.com

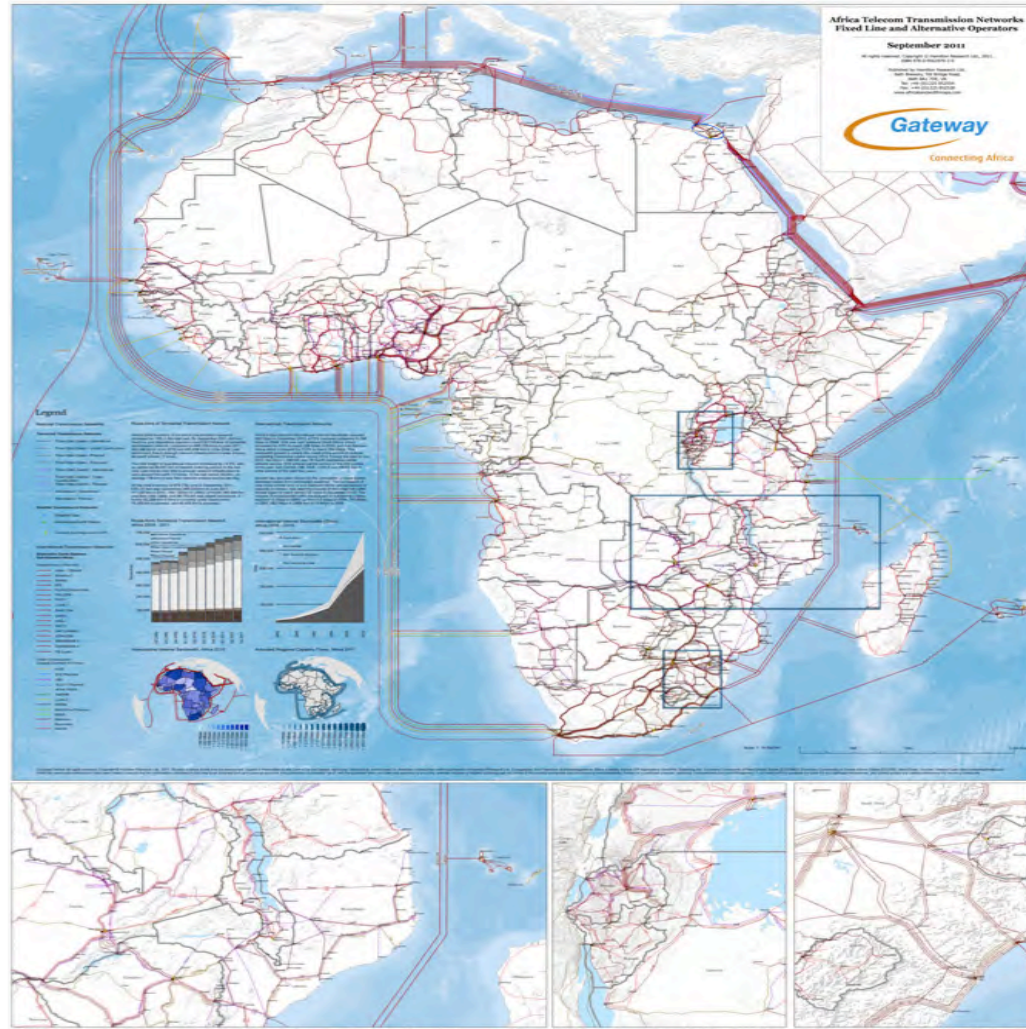


Source: © Hamilton Research, 2010. www.africabandwidthmaps.com

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Africa 2011



Source: © Hamilton Research, 2011. www.africabandwidthmaps.com

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Regional Fiber – West Africa



- WABco, Suburban Telecom, Phase3 Telecom

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West Africa - Others



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Regional Fiber – East Africa

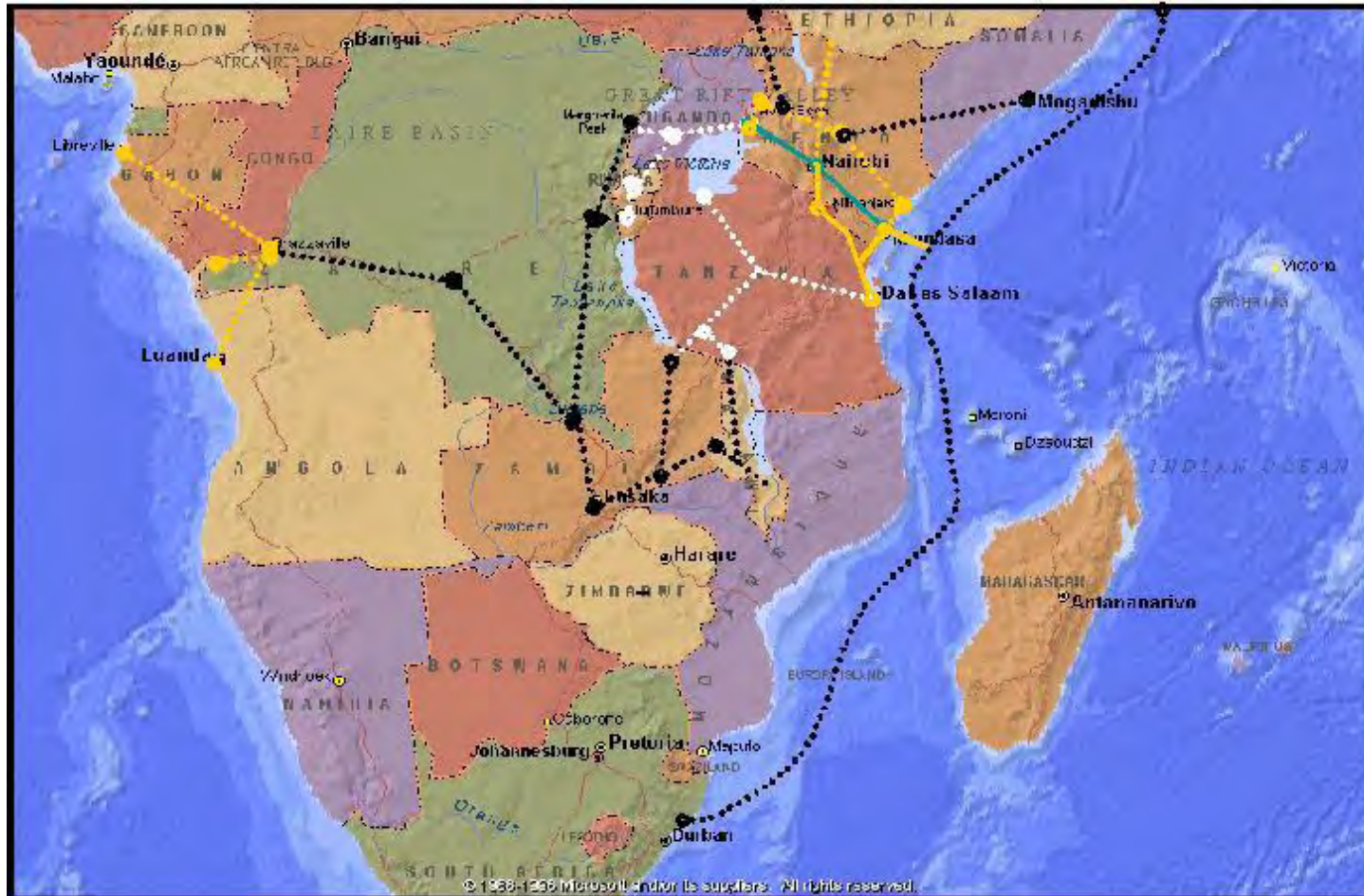


- KDN, SIMBANET, WANANCHI GROUP

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East Africa - Others

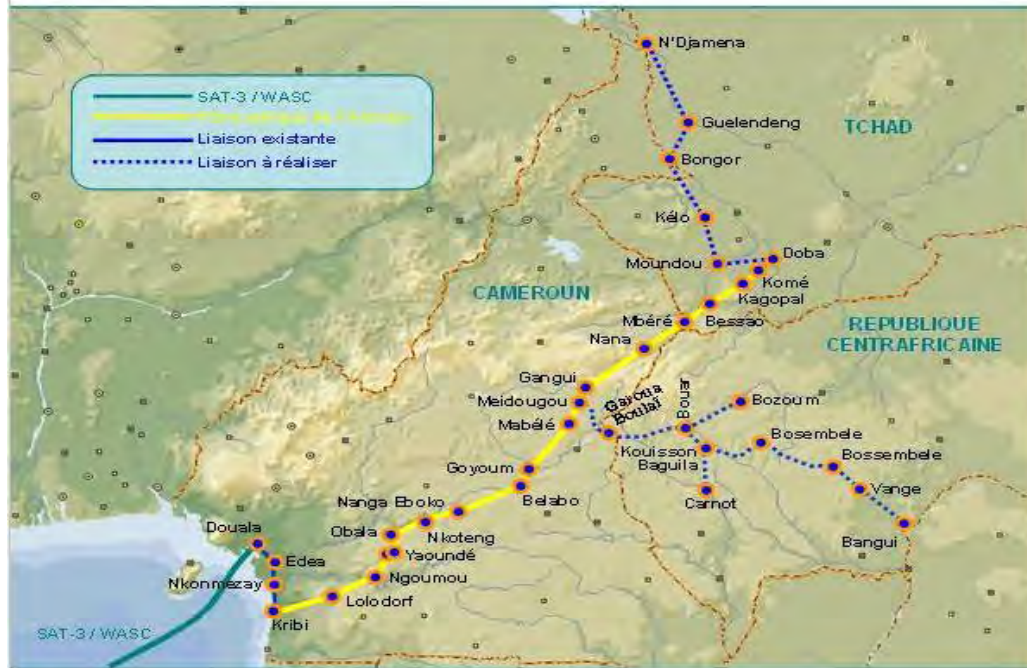


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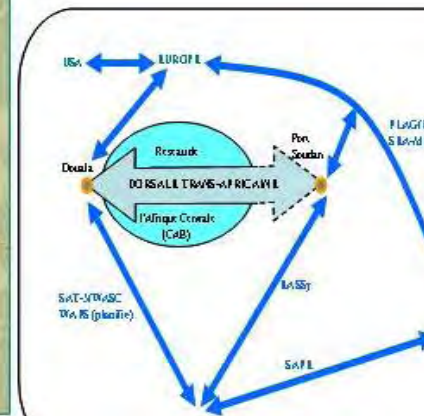


Regional Fiber – Central Africa

LE CAB EN GROS



- 2660 km au total
- 1000 km d'infrastructure existante
- 1660 km de câble à installer

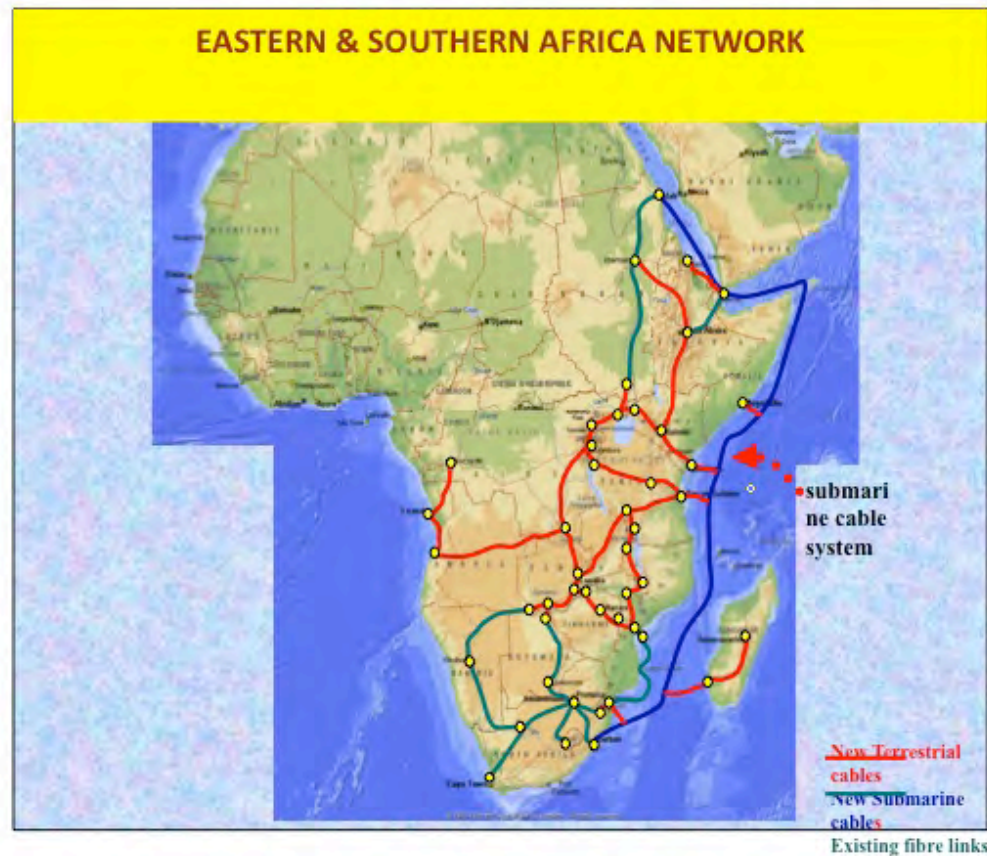


- CAB Backbone Company

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Regional Fiber - Southern Africa



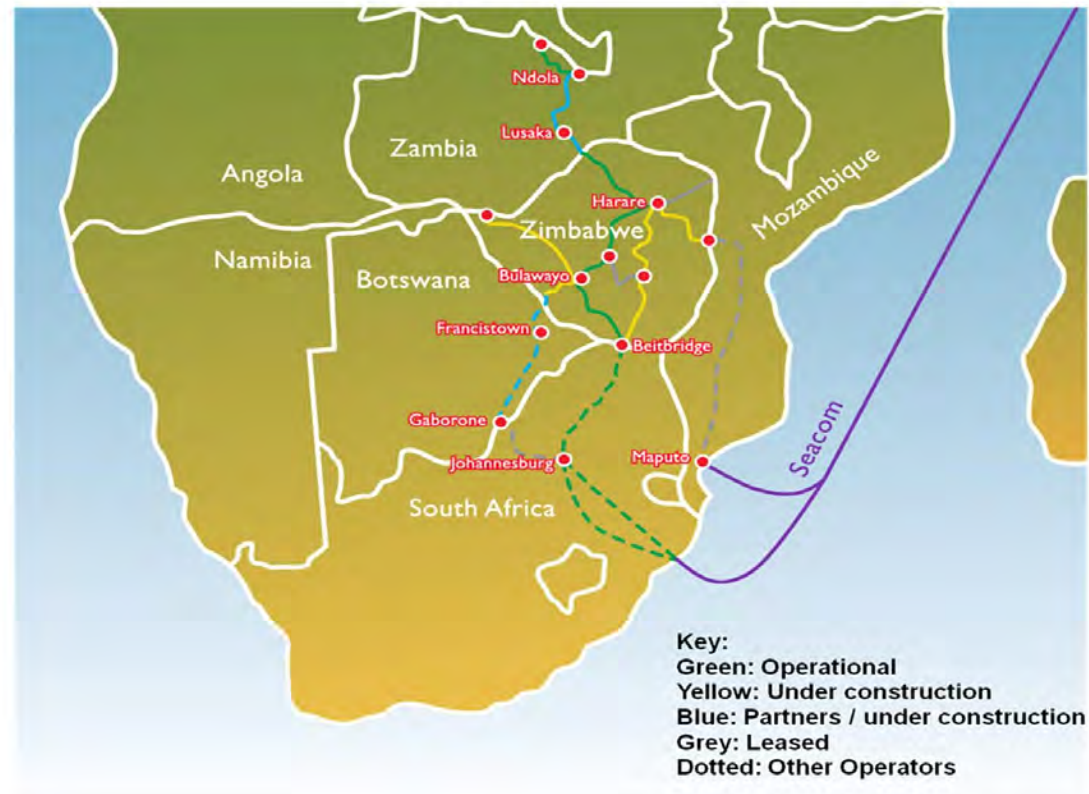
1

- DFA, INFRACO

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Southern Africa - Others

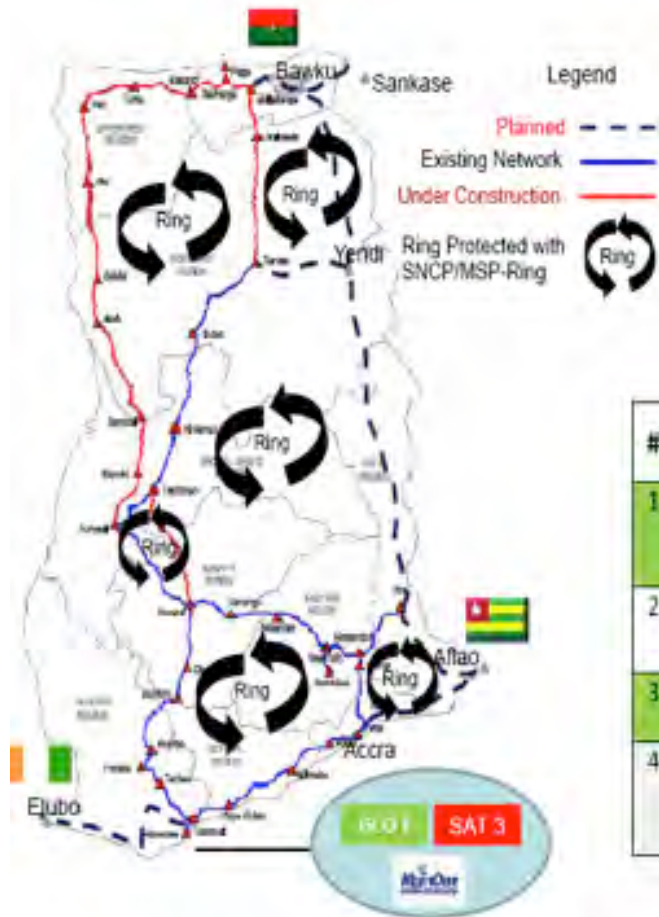


- LIQUID TELECOM

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National Fiber - Ghana



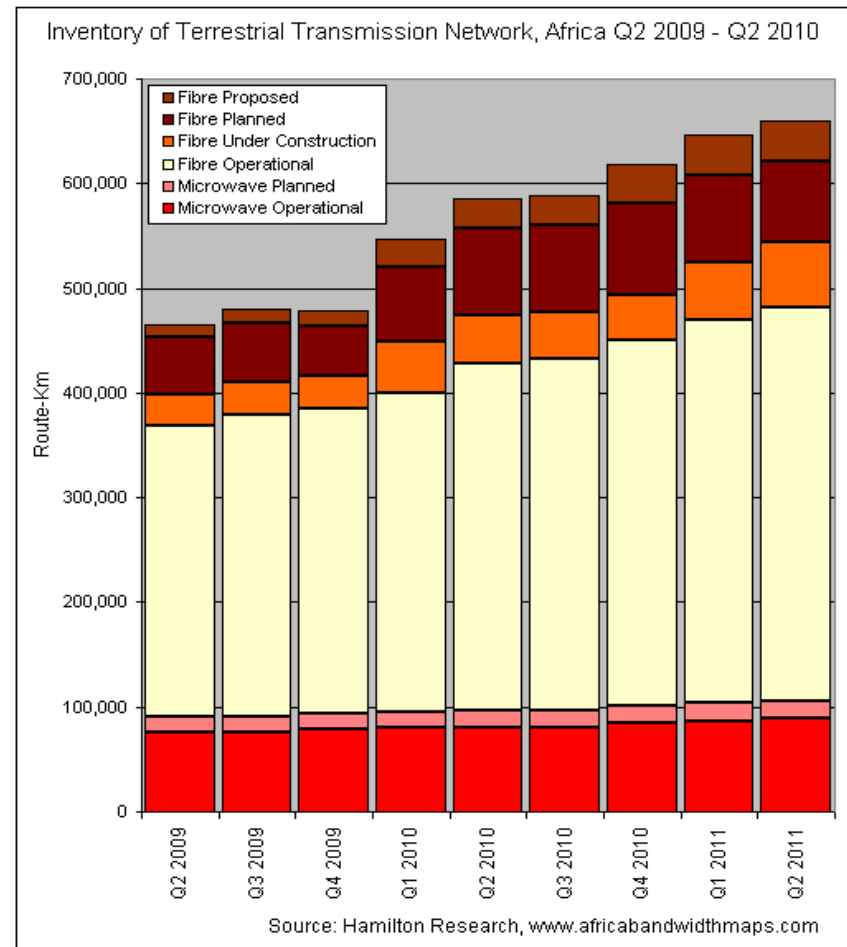
#	Task	Delivery Date	Status
1	Complete and Activate 2 Rings with Protection	Jun-09	Accomplished, ensuring 99% Uptime
2	Construct Middle and Northern Rings	Jul-10	Commenced as Planned
3	Construct International Links	Dec-10	As Planned
4	Eastern Volta Redundancy Link	Aug-11	Under Consideration

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Inventory

- Total inventory: 660,230-kms (June 2011). 585,468-km (2010), 465,659-km (2009)
- Laid end-to-end, that is enough to wrap around the earth 16.5 times.
- In the last twelve months, on average 125-km of new fibre network entered service per day.
- In addition, a further fibre currently under deployment increased by 15,975-km during the last year, from 45,391-km in July 2010 to 61,365-km in July 2011
- Deployment costs have fallen considerably, whilst capacity increases.

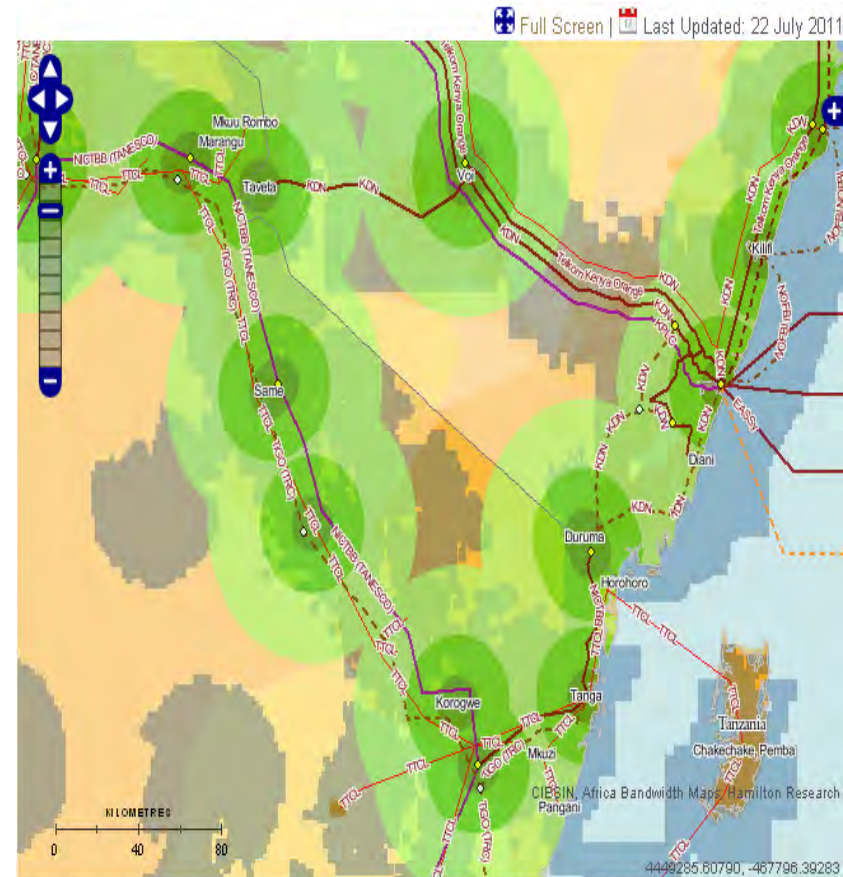


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Reach

- Submarine cables: 37.4 million people (4.4%) within 25-km reach of submarine cable landing point June 2011 (SSA).
- This will increase to 46 million (5.5%) once the WACS, ACE, LION2 and SEAS cables enter service.
- Terrestrial fibre: 313.2 million people (36.3%) within reach of operational fibre node (June 2011). This was an increase of 53.9 million compared to June 2010.
- Almost half this increase was in East Africa: an additional 25.7 million within reach of fibre networks in Ethiopia, Kenya, Malawi, Rwanda and Tanzania.
- More under construction: 1,300-km Burundi Backbone System will bring > 90% of the popn within reach of a fibre node.



Source: Paul Butler, Facebook. 33.5 million Facebook users August 2011 (source: Socialbakers)

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Balancing policy and investment

- Policy
 - **Unbundling** of the local copper loop to enable market competition
 - Ensuring sufficient **spectrum** is available to support high-speed wireless applications
 - All investments in telecommunications networks using public funds should be accessible to competitors via **open access** rules on transparent, cost-based terms
- Technology
 - **Push fibre closer** to end users to support higher-speed wired and wireless use
 - Invest time in developing the most **efficient network routes** for fibre investments
 - Make use of copper, coax, fibre and wireless technologies for the last kilometre as appropriate
 - **Balance** backhaul and last-kilometre investment

AXIS – Africa Internet eXchange System

- **Vision:** African Internet Backbone
- **Strategy:** Establish connectivity between African IXPs
- **Tactical:** Create opportunities for the establishment of Regional Carriers

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AXIS Strategy

- Establishment of National Internet Exchange Points
- Create opportunities for the emergence of Regional Carriers facilitating regional peering/continental transit
- Promote the development of cross-border links and inter-country infrastructure
- Emergence of fiber infrastructure across borders etc

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Internet eXchange Points

- Johannesburg Internet Exchange
- Kenya Internet Exchange Point
- Mozambique Internet Exchange
- Uganda Internet Exchange Point
- Tanzania Internet Exchange Point
- Kinshasa Internet Exchange
- Egyptian Internet Exchange
- Zimbabwe Internet Exchange Point
- Ibadan Internet Exchange
- Rwanda Internet Exchange
- Swaziland Internet Exchange
- Ghana Internet Exchange
- Botswana Internet Exchange
- Mauritius Internet eXchange
- Lusaka Internet eXchange
- Grahamstown Internet eXchange
- Namibia Internet eXchange *
- Blantyre Internet eXchange
- Lagos Internet eXchange
- Abidjan Internet eXchange
- Bamako Internet eXchange
- Angola Internet eXchange
- Arusha Internet eXchange
- Accra Internet eXchange
- **Benin Internet eXchange**
- **Lome Internet eXchange**
- **Yaounde Internet eXchange**
- **Dakar Internet eXchange**
- **Banjul Internet eXchange**
- **Bangui Internet eXchange**
- **Gabon Internet eXchange**
- **Brazzaville Internet eXchange**

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Your Questions

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