



The Programme for Infrastructure Development in Africa:
Transforming Africa through Modern Infrastructure

PIDA ICT VISION

A continent that is on an equal footing with the rest of the world as an information society and an integrated e-economy in which every government, business and citizen has access to reliable and affordable ICT services



Increasing Global Connectivity

Information and communications technology demand will swell by a factor of 20 before 2020 as Africa catches up with broadband. Demand, around 300 gigabits per second in 2009, will reach 6,000 gigabits per second by 2018.

PIDA will boost broadband connectivity by 20 percentage points. Increasing broadband penetration by 10%, expected by 2018, will increase GDP by 1% by strengthening connections between goods and markets and between people and jobs.

ICT Sector Status & Outlook

The Internet penetration rate in Africa is only about 6% compared to an average of 40% elsewhere in the developing world.

Africa's ICT sector will continue to grow rapidly over the coming decades, with the lion's share of investment coming from private enterprise. Those investments can have immense economic benefit, as healthy competition brings prices down and helps close the digital divide that has left most Africans without services taken for granted in much of the world.

According to the World Bank, a 10% increase in broadband penetration could raise GDP by 1-2%.

It is estimated that for every 1,000 new connections, 80 jobs are created; the doubling of connection speeds adds 0.3 percentage points to GDP; and for every 10% rise in mobile and broadband penetration, 1% is added to the GDP of a country¹.

By 2012, with the landing of two more cables on the west coast of Africa, all coastal countries will have access to at least one submarine cable, there will be hubs with four or more landing stations in all the regions. On land however, a few important gaps remain in fibre connections between neighbouring countries and between regions and these need to be filled if connectivity is to be complete.

Drivers of growth:

Increase in population from 1 billion in 2010 to about 1.8 billion in 2040

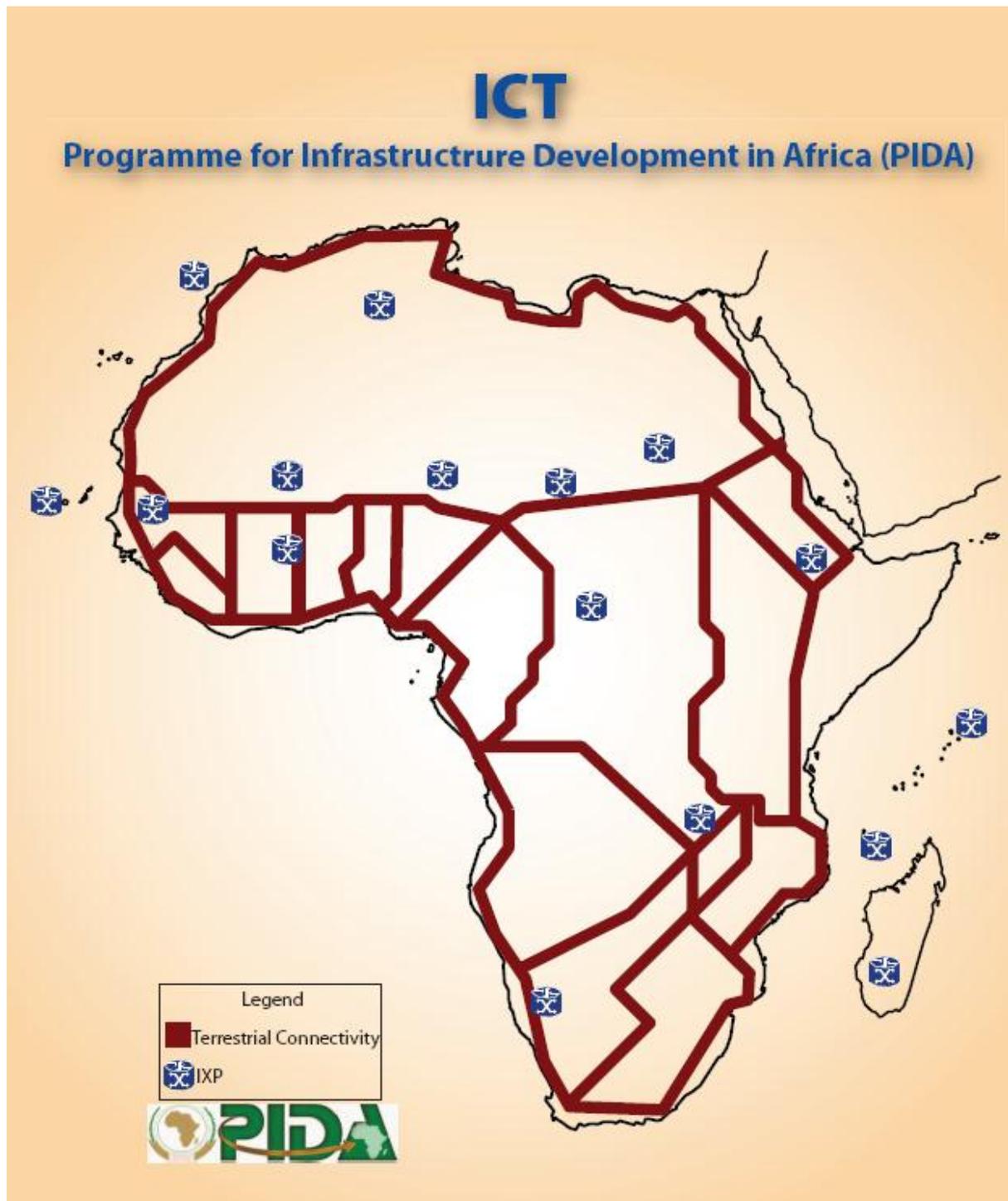
An increase in urbanization from 40% in 2010 to 56% in 2040

Average annual growth of 6.2%; multiplying the GDP of African countries six times by 2040 and per capita income of US\$10,000

International trade is expected to grow seven-fold, to 3.5 billion metric tons, over the next 30 years



¹ http://www.engineeringnews.co.za/article/ericsson-swedish-ministry-and-business-partner-to-accelerate-african-ict-development-2013-04-04?utm_source=Creamer+Media+FDE+service&utm_medium=email&utm_campaign=Engineering+News%3A+Minerals+beneficiation+a+key+%27pillar%27+of+SA%27s+reindustrialisation+push&utm_term=http%3A%2F%2Fwww.engineeringnews.co.za%2Farticle%2Fericsson-swedish-ministry-and-business-partner-to-accelerate-african-ict-development-2013-04-04



Facets of Internet demand in Africa:

- Continental demand for bandwidth is likely to swell by a factor of 20 from the 308 Gbps per second used in 2009 to more than 6,000 Gbps in 2018.
- The projection assumes that intercontinental bandwidth will be available in sufficient quantity (60 kbps per connection) in all countries at a competitive price.
- The projections are also based on the assumption that land-based backbone and backhaul infrastructure sufficient to carry national and international bandwidth reliably and economically will be in place.

- Finally, it is assumed that 3G/LTE service will be available in densely populated areas and that high-speed service will be affordable enough to attract 10% of the population, with 20-30% having at least reasonable access to the internet.
- Household traffic is becoming more important than business traffic in countries where operators offer high-speed Internet access in residential areas.
- High-speed 3G box Internet double-play plans offering VoIP access have, along with single-play plans, assumed the role of similar schemes in industrialised countries based on xDSL or cable-modem technologies, with similar usage patterns.

Africa's late entry into the internet race may prove an opportunity by allowing the continent to avoid overinvestment, bad investments and the burden of legacy infrastructure while skipping ahead to the next generation of technologies.

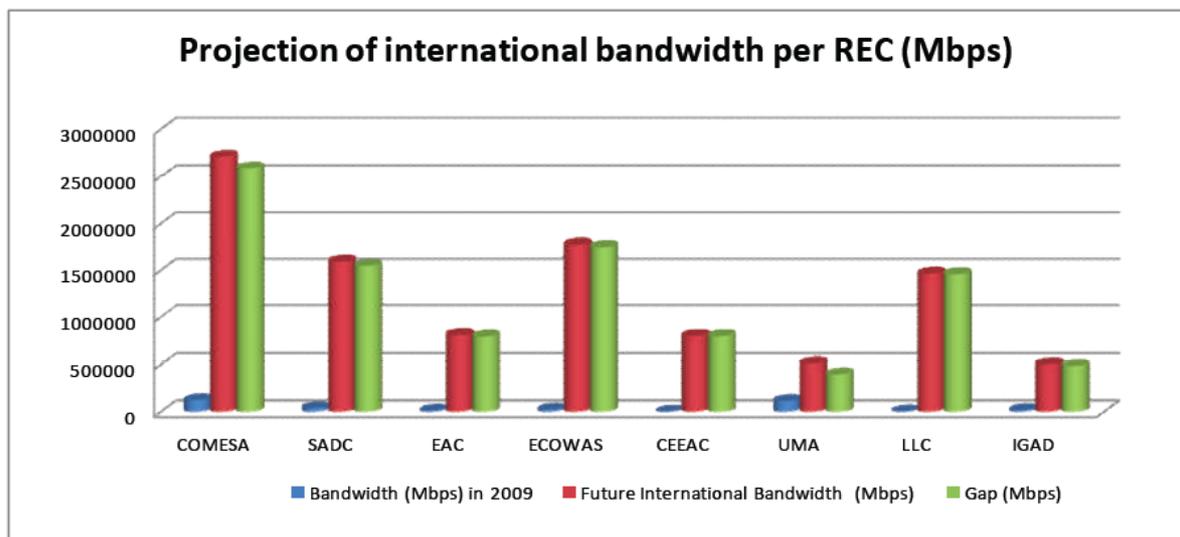


Figure 11 International Bandwidth forecast per REC

The Solution

The essential benefits of regional infrastructure is to make possible the formation of large, competitive markets in place of the present collection of small, isolated, and inefficient ones. Regional infrastructure does this by establishing connectivity so that goods can reach markets and people can exchange information and reach jobs.

With ample intercontinental bandwidth available offshore, the expansion of access to high-speed Internet in Africa will depend on (i) the degree of competition in the delivery of that bandwidth to telecommunications companies, (ii) the presence of land-based optical infrastructure capable of moving large quantities of data between the submarine cable landing stations and the 3G/LTE transmitters that serve consumers in the absence of wired networks, and (iii) governments' willingness to grant 3G/LTE licenses to competitive telecommunications operators and to make spectrum available at an affordable price.

This will require that monopoly control on land-based infrastructure and international gateways is ended, with “right of way” provisions for landlocked countries to reach submarine cable landing stations.



Taking advantage of the present opportunity to close the digital divide within Africa and between Africa and the rest of the world requires further legal and regulatory reforms in many countries, both to attract new investment and to optimize the use of existing infrastructure. Further liberalization will encourage construction of fibre-optic backbones and other cross-border infrastructure, to which all operators, including those in landlocked countries, should have free and non-discriminatory access.

PIDA ICT Projects

The ICT component of PIDA will help establish an enabling environment for completing Africa’s terrestrial fibre-optic infrastructure and installing Internet exchange points (IXPs) in countries that now lack them. It will connect each country to two different submarine cables to take advantage of the capacity newly established around Africa, interconnect countries and establish Internet exchange points.

There are three (3) ICT sector projects in the PIDA PAP at a total cost of less than half a billion US dollars.

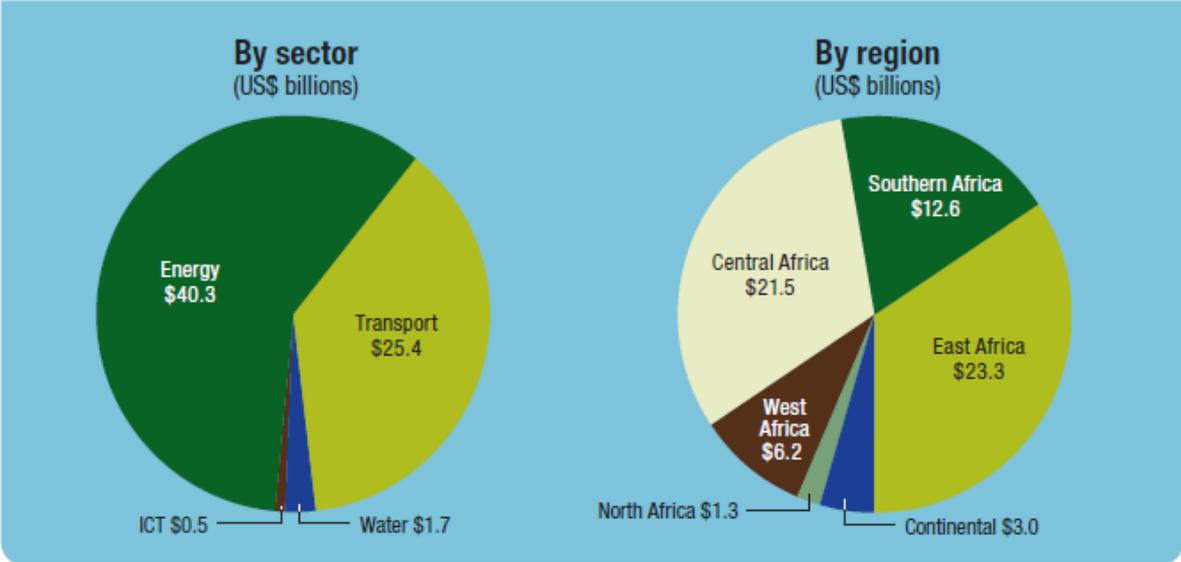
	Project Title	Stage	Cost US\$ m	Countries	Region(s)
IT01	ICT Enabling Environment	S2	25	Continental	Continental
IT02	ICT Terrestrial for Connectivity	S3	320	Continental	Continental
IT03	Internet Exchange Point (IXP) programme	S3	130	Continental	Continental

PIDA Priority Action Plan (PIDA-PAP)

US\$ billions

Sector	Number of projects	Cost	Region	Number of projects	Cost
Transport	24	25.400	Continental	7	3
Energy	15	40.300	North Africa	2	1.3
TWR	9	1.700	West Africa	16	6.2
			Central Africa	9	21.5
ICT	3	0.5	Southern Africa	6	12.6
			East Africa	11	23.3
Total	51	67.9		51	67.9

Figure 1 Total capital cost of PIDA’s PAP by sector and region: \$67.9 billion through 2020



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