Broadband Across Africa
Accelerating Benefits

Why Broadband?

Broadband is revolutionizing the way we solve problems at the individual, community, business, and societal level. Moreover, there is growing evidence of its importance to job creation, productivity, economic growth, and social inclusion. Individuals and businesses connect to broadband networks to reach experts, teachers, and other professionals; to access healthcare and education; to find employers, employees, markets, and suppliers; to enjoy entertainment; and to participate in government programs and services. Broadband also supports growth of traditional local clusters such as tourism, agriculture, and manufacturing.

Without access to broadband, many Africans will be blocked from access to and participation in many of the opportunities that those in other countries take for granted. Broadband in Africa is not being deployed far or fast enough, and access to it is very expensive, putting it out of reach for many people and businesses.

We think that governments in Africa cannot afford not to address broadband. Like governments everywhere, African governments should understand that investing in broadband capability, even if it is initially modest, represents a down payment on the future. Government is in a unique position and must play a leadership role in accelerating broadband supply and usage or risk falling permanently behind developed countries in the global economy. Many of the government intervention measures that support broadband are affordable, and much can be done through a redesign of existing programs.

It should also be noted that broadband networks are an important part of the toolkit to address many other pressing challenges that governments are facing. As well as job creation, broadband can also extend the availability of quality education, healthcare and government services and improve the safety of citizens much more cost-effectively than through extensive expansion of physical infrastructure. The same underlying broadband infrastructure can be used and reused by all sectors, thereby taking advantage of economies of scale. In addition, providing opportunities for businesses to grow on the Internet and/or reduce their costs increases both their success and tax revenues to the government.

It is important to act now. The gap between countries—and therefore the gap in opportunities for citizens and businesses—is wide and growing wider. In addition, with new international submarine cables being planned to connect in both western and eastern Africa in the next few years, there is a real opportunity for sub-Saharan

African countries in particular to take advantage of these new connections by putting a broadband policy and regulatory environment in place that supports competition and lower prices. If there is a bottleneck created in accessing these new cables, the lower prices and wider deployment of broadband and its related benefits will not be realized.

Countries in Africa have an opportunity to observe and learn from the strategies adopted by many countries that have taken an active role in encouraging broadband deployment and affordable use in their jurisdictions.

Africa's Broadband Divide

To provide a perspective on ICT development, we rely on two models—Internet stages and ICT map—developed by Cisco to derive a vantage point from which to chart a course forward toward improved network connectivity.

The purpose of the five "Internet stages"—proto-Internet, early days, familiarization, extensive, and intensive—is to focus on key thresholds toward achieving nationwide connectivity. Placing an individual country in this context provides a useful perspective on where it stands on the path to making the benefits of broadband access to the Internet widely available to its businesses and citizens.

The most advanced countries in Africa are Mauritius, Morocco, and Tunisia, and they are only in the "familiarization" stage. Out of 11 countries in the "early-days" stage, there are five (Egypt, Kenya, Nigeria, Senegal, and South Africa) that seem poised for rapid progress in addition to Mauritius, Morocco, and Tunisia—if the right investments are made while the regulatory environment continues to improve. Other African countries face even higher hurdles.

To complement this diagnostic, we use the "ICT map," which positions a country along ICT infrastructure and ecosystem coordinates that affect technology adoption. We rate each coordinate from poor to moderate to good and "best practice." Relatively few countries in Africa have even moderate ecosystem and infrastructure foundations for ICT development, and quite a number are firmly in poor ecosystem and infrastructure territory—pointing to the need for urgent attention to the formulation of remedial action plans. There is, of course, a range of situations—with Tunisia near the middle (reflecting moderate ecosystem and infrastructure) and Cameroon, Ethiopia, and Zimbabwe facing major challenges on both fronts.

Broadband is the driver of the major benefits of connectivity, hence it is useful to consider trends in broadband penetration. Trends in broadband penetration show not only very low levels of broadband connectivity in Africa, but also a widening gap between the average African countries and the more advanced countries in terms of ICT. While the more advanced countries in two years added about 7 percentage points to their broadband penetration (to 22 percent) in 2007, African countries on average still remained below 1 percent penetration.

It is worth noting that while the connectivity challenge for many countries in Africa reflects in part the income levels, experience elsewhere shows that connectivity is not solely determined by income. Policies and regulations that promote technology adoption, private investment, and competition also play a major role and position countries to take advantage of the leapfrog opportunity that ICT could represent.

Technology, fortunately, is expanding the range of options available to countries that want to promote high-speed connectivity. In addition, the good news is that—contrary to infrastructure hurdles at earlier stages in history—network infrastructure has much lower costs and the solution is not one that most countries will find unaffordable.

Formulating Intervention Plans

Government leadership, in concert with business and community leadership, is essential to accelerate broadband deployment and use across Africa. We have identified five major action areas for an effective strategy:

1. Policies and regulations affecting network market structures
   - Encourage competition and technology diversity in access to and provision of telecommunications services
2. Policies and regulations affecting content development and applications
   - Encourage multiple voice, data, and video content and service providers
   - Encourage open access to networks by content and service providers
3. Government operations and services, including spending power
   - Use broadband to support effective and efficient delivery of programs and services, including quality healthcare and education
   - Aggregate government requirements to create “demand pull” for broadband
4. Skills for information and communications technology
   - Increase number of university graduates in engineering and IT
   - Increase ICT technical training in colleges
   - Train new graduates and unemployed in basic ICT skills
   - Increase computer literacy of small-business owners, not-for-profits, teachers and community groups
5. Direct and indirect investment in infrastructure and access
   - Offer tax incentives
   - Award grants to community groups to develop plans for broadband usage and localized content
   - Provide computers to schools, community centers, students

- Provide access to rights-of-way, ductwork, towers
- Subsidize network providers to extend networks into unserved areas ahead of market demand
- Invest in underlying core network in unserved areas

Given the extent of the challenge that most African countries face, it may not be possible for governments or the private sector to extend broadband networks to all communities at the same time. Two paths forward are suggested.

If broadband is not already in place, one model is to start with the higher density areas. For example, the strategy could be to focus first on targeted development regions, likely in or near urban areas, where there is the potential to establish a "cluster" of broadband service providers, ICT-related businesses, businesses that are intensive users of ICT, and other users (e.g., colleges, universities, and researchers).

Another path forward is to deliver broadband capability to regional centers and establish community access points at these centers. This simultaneously addresses the lack of broadband to every community as well as the lack of computers and general lack of readiness of many individuals and businesses, especially those in smaller centers, to receive electronic services.

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