

Internet Access in Africa: A Critical Review of Public Policy Issues

Patricia K. McCormick

The Internet is, as of yet, an essentially insignificant medium in Africa with access limited to some 0.1 percent of the population. Although the number of host sites on the continent has increased rapidly in recent years, Africa, with a population of some 816 million, remains one of the least networked regions in the world with as many Internet hosts as a small Eastern European country. Africa's international bandwidth has more than doubled in the last year, but Internet growth has slowed as the bulk of users who can afford a computer and telephone have already obtained connections, and private oligopolies could supplant public monopolies in the provision of service.¹ Despite its fast growth in recent years, the International Telecommunications Union predicts that by 2005 the penetration rate for the Internet in sub-Saharan Africa will only have grown to 0.58 percent.² Furthermore, access to the Internet remains principally confined to the capital cities and large urban areas. Thus, the rural population, which comprises the vast majority of Africans, has not benefited from the deployment of new communication technologies. Despite the fact that the Internet offers a variety of opportunities and e-mail is a far cheaper form of international communication than voice or facsimile, there are several different, though related, issues that must be addressed to increase network accessibility to the majority of Africans.

Using the framework of structural constraints, this article assesses the development and growth of the Internet in African states by examining those obstacles that hinder the diffusion of the Internet. It thus outlines areas that must be addressed in the formulation of policies to facilitate networking and connectivity activities. The article also provides a critique of both telecommunications liberalization, which is advocated by multilateral and bilateral agencies to advance the use of the Internet in Africa, and the role of the Internet in facilitating sustainable development. While sharing the aim of promoting connectivity and information technology development in Africa, this article critically evaluates some of the policies that seek to achieve this goal.

A Continental Overview

At the end of 1996 only eleven of Africa's fifty-four countries had local Internet access, but by early 2000 all of the countries had secured access, at least in their capital cities. Not all states, though, have a 'host' computer, that is a computer with a permanent Internet connection.³ Of the twenty-two countries in the world with a population of more than one million that do not have an Internet host site, sixteen are in Africa: Burundi, Chad, the Central African Republic, Congo, Eritrea, Gambia, Guinea, Lesotho, Malawi, Mali, Mauritania, Rwanda, Sierra Leone, Somalia, Sudan, and Zaire.⁴ Africa boasts twelve percent of the world's population, but only two percent of the world's telephones. Furthermore,

these phone lines are unevenly distributed. Eighty percent of the lines are concentrated in just eight countries, and in some states teledensity rates are as low as one telephone line per 1,000 people.⁵ Due to such limited access to phone lines, networked computers are shared, but calculations of the actual number of users across the continent vary.

One report by the World Bank estimates eight people usually share a computer with an Internet or e-mail connection.⁶ A study by the United Nations Economic Commission for Africa suggests that each networked computer supports an average of three users, and Jensen estimates that an Internet or e-mail connection generally supports a range of three to five users, with the current number of African Internet users at around 5 to 8 million, with about 1.5 to 2.5 million outside of North and South Africa.⁷ These figures thus assert that Africa averages one Internet user for every 250 to 400 people, which compares with a world average of one user for every fifteen people, and a North American and European average of one user for every two people.⁸

Regardless of which statistics are employed, it is evident that South Africa, which boasts points of presence in more than 100 cities and towns, accounts for the majority of Internet users on the African continent and of these most are young, white males. Egypt boasts the second largest Internet market, with numerous Internet Service Providers (ISPs) and a large number of websites.⁹ The North African Internet market, like that of Southern Africa, tends to be more developed than elsewhere on the continent with Morocco and Tunisia following Egypt's lead, though the political strife in Algeria and the international trade boycott against Libya have caused these two states to lag behind their neighbours. Of the fourteen member states of the Southern African Development Community (SADC), that is, Angola, Botswana, Democratic Republic of the Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Republic of South Africa, Seychelles, Swaziland, Tanzania, Zambia and Zimbabwe, more than half now have "full" Internet connectivity, meaning they have access to the complete array of Internet services available as well as access to dedicated Internet connections via leased lines.¹⁰ These connections, though, are costly, and the waiting time for connection can still be lengthy. End user availability, too, is extremely limited.

Although most African capitals now have more than one ISP, almost all of the international Internet circuits in Africa connect to the United States. With the notable exception of local Internet links between South Africa, Lesotho and Swaziland and a link between Mauritius and Madagascar, there are no other regional backbones or links between neighbouring countries.¹¹ The high international tariffs charged by telecommunications operators discourage ISPs from establishing

multiple international links. While this state of affairs can be remedied through appropriate telecommunications policy reform, the current situation undoubtedly works against efforts at regional integration and ensures that the continent as a whole continues to suffer from a dearth of Internet accessibility.

Structural Constraints

The various issues or problems, common to most African states, which limit the use and thus the value of the Internet, can be analyzed in the context of structural constraints. Structural constraints are societal obstacles that restrict the opportunities of a critical number of individuals to participate fully and equitably in the development process and to share in the benefits of a given social system. Structural constraints can be divided into first and second-order constraints. First-order constraints concern relatively fixed resources, such as land size, the alteration of which implies major transformational social policies affecting the status quo and the power structure because they imply redistribution of resources among social groups. Second-order constraints are essentially reforms, which are intended to overcome some of the consequences of first-order constraints without forcibly addressing the underlying foundation of inequitable social arrangements. They represent other societal resources that are generally lacking, particularly in rural areas, but that can be, and often are, the object of ameliorative social policies.¹²

Although the telecommunications network is not a fixed resource, it is similar to a first-order constraint in that a fundamental policy change is required to redistribute resources in order to create an effective infrastructure that extends across classes and into rural areas. This policy platform must promote the creation of an independent regulatory authority, but a lean one so as not to entangle the evolving telecommunications industry in a new bureaucratic maze. Instituting an independent regulator is an initial step in fostering an environment in which telecommunication service providers can compete. A primary responsibility of the new regulator is to create an effective mechanism to fund universal access in order to extend both telephony and the Internet to rural areas where the majority of the African population lives. It is imperative that people who do not live in the capital cities but in rural areas are provided with telecommunication services in order to achieve sustainable development; otherwise the existing inequities in the distribution of power and wealth become increasingly entrenched.

To ensure that the Internet is not only available to the minority with the ability to pay, widespread public access must be achieved through requiring telecommunication service providers to supply community centers, libraries, schools, and telecenters with the requisite equipment and training to access the Internet. Mandating telecommunication operators to fulfill a social obligation, and stipulating such terms in their operating licenses, is essential if national connectivity is to mean accessibility and application. Countrywide access to low cost and reliable international bandwidth, local bandwidth connectivity, and network equipment must be provided as well as training and support for the development of indigenous content. In sum, each state, in conjunction with an effective regulator, needs to devise ways to address a host of second-order constraints, which diminish the Internet's potential to

narrow the growing North-South information gap.

Lack of such resources as credit and extension services, marketing facilities, education and computer skills typify second-order constraints that limit the use of the Internet. High illiteracy rates, especially among women, and the Internet's predominant use of the English language further restrict its employment, which portends numerous cultural implications that are beyond the scope of this article. Severely limited access to personal computers, especially at the household and small business level, compounded by an inadequate electricity supply correlate with largely nonexistent computer skills. Reducing or abolishing high import taxes on information technology hardware could begin to alleviate this situation. The most critical constraint that acts as a bottleneck to the Internet in Africa, though, is the poor telecommunications infrastructure with its slow connection speed, insufficient bandwidth, high unsuccessful call completion rate, and the high cost of both the telephone connection to the ISP and the ISP itself. The existing cost structure for access to the Internet is a serious impediment to its development. Although not widely available anywhere on the continent, voice-over Internet service, a cost saving substitute for voice and fax communications, will increasingly divert traffic from high revenue generating international voice communications, reducing the profits of largely state-owned African telephone companies. Consequently, investments by the state in upgrading and extending the network infrastructure could decline.

This situation could, in some instances, prompt states to privatize their state owned telephone companies, which is promoted by multilateral and bilateral development agencies as a means for states to increase efficiency and secure capital to invest in upgrading the network. Donor assistance, too, generally correlates with liberalization of the telecommunications sector, which implies private participation in the sector. Donor agencies are not concerned with altering first-order constraints, which could be addressed at least in part through debt forgiveness for Africa and aid conditionalities based on political democracy and progressive social policies, such as environmental conservation. Rather, privatization is the policy platform that African states are compelled to embrace because it is the condition of securing assistance. The United Nations estimates that more than seventy-five percent of World Bank and International Monetary Fund loans and grants for Africa are conditional on privatization.¹³ Although these policies have become virtually insurmountable, divestment of the state-owned telephone company is not necessary if the company can be sufficiently restructured to be competitive and meet the needs of its customers.

Telecommunications Liberalization: A Critique

The principal economic issue in the privatization debate concerns efficiency. The property rights school suggests that privatization in the form of a change in ownership, an alteration of the structure of property rights, will improve the incentives for productive and efficient performance.¹⁴ It recommends the privatization of public enterprises operating in competitive markets, for competition compels companies to improve their performance, that is, increase allocative and productive efficiency in order to profit. It would thus seem that an improvement in the economic performance of the public enterprise sector is more likely to result from an in-

crease in market competition than from a change in ownership. Management, not ownership, is the key to efficiency of an enterprise. Divestiture, in itself, does not lead to the creation of a competitive environment or to increased domestic entrepreneurship. Liberalization of the telecommunications sector is not merely insufficient, it is also detrimental to the interests of the citizens of a state if it precedes the establishment of an independent regulator that can ensure social efficiency through fair pricing arrangements.

African states must create effective, lean regulators to make certain that universal access and other social obligations are met, or African states could well find themselves entrapped in a new millennial mode of colonialism—telecolonialism. As the Internet, the fastest growing communications medium to date, expands in Africa and other developing countries, Northern corporations are poised to secure multi-million-dollar telecommunications contracts. This arrangement is in league with the World Bank, the United States Agency for International Development (USAID) as well as the World Trade Organization (WTO), all of which have tried to make certain that developing countries have no alternative to liberalizing the telecommunications sector, which is one of the most capital-intensive industries in the world. The Internet fosters reliance on imported technology, which is virtually inaccessible to the majority of the citizens in African states because of its exorbitant cost in relation to per capita income and the unavailability of credit. Since domestic sources of capital are too small to meet the demand for telecommunication services, in part because of high levels of indebtedness, international financial institutions and development agencies postulate that opening domestic telecommunication markets to foreign investment and competition is the only plausible option for African states. To ensure that this position is instituted, multilateral and bilateral aid agencies, as noted, have made telecommunications liberalization a prerequisite for securing economic aid, despite the lack of a strong regulator in most African states to guarantee that rural and poor urban areas are not excluded from access.

Given the absence of an effective regulator, African countries that embrace liberalization risk losing significant control over the development of the telecommunication sector and the accompanying economic rewards as they become increasingly dependent on foreign capital, technology and management expertise.¹⁵ Perceived insufficiency of private investment to meet global demands also places African countries in a weak position to negotiate favorable contracts. To attract foreign direct investment in the telecommunications sector, African states must not only commit to a high rate of return, they are also often forced to refrain from issuing licenses that obligate companies to develop rural services, resulting in uneven or polarized development within a given state. Liberalization thus not only enables investors to profit from the more lucrative segments of the market, it also contributes to the emergence and growth of an oligopoly of monolithic, transnational communications corporations that are essentially unaccountable to the citizens of the countries in which they operate.¹⁶ Furthermore, after years of international telecommunications liberalization, there is now a trend of concentration in the market dominated by three global alliances with an estimated sixty percent of all Internet traffic.¹⁷ Thus, although the policies aimed at creating an enabling

environment for private investment assist the expansion of capitalism in Africa, they do not equate to development.

International organizations, such as the World Bank, USAID, and WTO, view the opening up of the world's telecommunications markets to competition as imperative to creating an advanced international telecommunications network capable of supporting a global economy. This separation between the globalized space of capitalism's economic management and the national and regional spaces of its political and social management characterizes our present era.¹⁸ Amin, however, contends that since no economy exists without politics and a state, economic globalization logically requires the construction of a world political system, one that is principally engaged in development.¹⁹ Development is not a goal of capitalism in a global economy, for development is concerned with the orientation of production towards basic needs and the distribution of goods and services towards the poor majority, popular participation in a democratic system, as well as the incorporation of a social dimension into technological research, innovation, and application.

The Internet and Development

The debate concerning the use of the Internet to advance development goals is reminiscent of that of other media. It is essentially a question of resource allocation. Will the use of new communication technologies consume funds that are more necessary elsewhere? In August 1975, India employed the Satellite Instructional Television Experiment (SITE), an extensive educational satellite project providing in-school and adult education to 2,400 villagers across the country. Opponents argued that, rather than investing in the production of educational television programs for community viewing, the Indian government should invest in constructing buildings, supplying classrooms with educational materials, and training teachers. The debate concerning whether or not distance education can serve as a substitute for a teacher in the classroom is renewed with the Internet. Proponents such as the World Bank, which has committed funds to creating an African Virtual University, argue that the Internet can supply access to educational resources that would otherwise be unavailable.

Likewise, some health care workers extol the satellite systems and computer networks that have brought them access to medical information. Others, however, denounce the proclaimed advantages of tele-medicine, since no new knowledge about typical diseases that afflict Africa, such as diarrhea, tuberculosis, and cholera, can be derived from the consultation of medical databases.²⁰ Most diseases in Africa are caused by malnutrition, inadequate housing, and generally poor, unsanitary living conditions, problems that the Internet cannot solve. Nor can the Internet provide desperately needed antibiotics, vaccines and syringes. It is essential to be ever mindful of the fact that the provision of information, while useful, even crucial, for many rural poor people is inadequate; conditions and resources for the implementation of such information into practice must also be provided.

Moreover, much of the information on the Internet is irrelevant to the needs of the people in rural African communities and its commercial character embodies a culture that, too, is not germane to the African environment. As Northern, mostly U.S., businesses move onto the Internet, the values of

a socially conservative free-trade capitalism are expounded. The main argument for connecting African companies to the Internet is to improve their ability to react to changes in export markets. This argument is negated by the mono-commodity nature of most African economies, which have no influence on world market policies. Since inadequate telecommunication services translate into high administrative costs in terms of time and transport, some suggest that connecting to the Internet would be highly beneficial. This recommendation does not, however, account for the necessity of a well-developed transportation infrastructure for moving goods and services. Most roads on the African continent are in appalling condition and postal services often only deliver to post office boxes.

To propose the use of the Internet as a means to facilitate democracy is also a fallacy. Not only have the vast majority of Africans never made a telephone call or used the Internet, a fully functioning democracy must be based on the participation of all citizens, but most Internet users are male. The Internet can thus be viewed as an extension of historical gender inequity in a new guise. Any implication that the Internet will be the answer to long-standing political and social problems is a disturbing continuation of technocratic ideology. While the Internet can serve as a conduit for politically sensitive information both into authoritarian countries and to other countries from within a restrictive regime, the central question concerns the parties between which this information is transmitted.²¹ Since journalists can employ the Internet to evade state control and censorship of the press, some hope that the balance of information power could be shifted through the use of the Internet. Human rights and nongovernmental organizations, too, use the Internet to network and distribute information. Their increased reliance on it, though, can foster a profusion of academic and foreign solutions to perceived problems in Africa, at the expense of locally prescribed ones.

Internet Initiatives

These foreign prescriptions can be noted in some of the initiatives undertaken to enhance Internet connectivity in Africa. In 1996 the United States Agency for International Development launched the African Global Information Infrastructure (GII) Gateway Project, also known as the Leland Initiative, in honor of U.S. Congressman Mickey Leland who died in an airplane accident in Ethiopia in 1989. The five-year, \$15 million project was designed to extend Internet connectivity in twenty African countries: Benin, Botswana, Côte d'Ivoire, Eritrea, Ethiopia, Ghana, Guinea, Guinea Bissau, Kenya, Madagascar, Malawi, Mali, Mozambique, Rwanda, Senegal, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe. The Leland Initiative granted assistance to these states provisional upon an agreement to liberalize the market to third-party Internet service providers and to adopt policies that allow for the unrestricted flow of information.²²

A parallel initiative employed in 1998 was the United Nations Development Programme's Internet Initiative for Africa. Although this initiative required that states engage in policy dialogue, unlike Leland, it did not stipulate policy reform and open competition as conditions for assistance. Thus, the ten countries in which the UNDP project operated, namely Angola, Burkina Faso, Cape Verde, Chad, Ethiopia,

Gambia, Mauritania, Namibia, Nigeria, and Swaziland, differed from Leland because they did not have to meet USAID's conditions for assistance. Another difference between the two initiatives is that Leland allowed only U.S. companies to participate in the project, whereas UNDP permitted any company to apply. Also, the UNDP Initiative required mandatory cost-sharing, that is, each country was obliged to supply \$500,000. Richard Kerby, director of the UNDP Initiative, notes that although this condition delayed project implementation because governments were slow in putting the funds in place, governments did become more involved and committed to the project, which spent an average of \$1 million per country.²³ This amount parallels that of Leland, which sought to provide a national Internet gateway at an approximate cost of \$300,000 to \$400,000. Both the UNDP and Leland Initiatives required a signed agreement with the government of the state in which they would be operating. In the case of Leland, each state was required to sign a formal bilateral Memorandum of Understanding (MOU) with USAID, which established the basic policy groundwork for each country. According to section 2.2.1 in a generic version of Leland's standard MOU, the country acquiring assistance shall:

Allow access to the national Internet gateway node by public or private entities, all of whom would be competing on an equal basis with each other in terms of licensing requirements, tariffs, and reasonably priced cost-based linkages between the [telephone company's] Internet gateway node and Internet Service Providers.²⁴

After signing the MOU, USAID then developed a Plan of Action for each state, which detailed how any technology supplied by USAID would be operated, maintained, and Internet access made available to private sector Internet service providers. As in the MOU, the Plan of Action emphasized instituting a cost-based tariff structure. However, when citizens, particularly those in rural communities, are required to pay the actual cost of providing telecommunication services to those areas, services become cost prohibitive. Price discrimination, that is, lower prices for residential as opposed to business users, as well as subsidies are essential to achieve universal access to telecommunication services. In a competitive environment, though, the economic mechanisms of cross-subsidies and cost or price averaging cannot be readily employed. The Leland Initiative, while seeking the creation of multiple, private ISPs, does not specify or suggest any method to ensure that rural communities are supplied with Internet access. Furthermore, the Leland Initiative promotes non-discriminating access to the information available on the Internet.²⁵

Free Flow of Information

This position advocating the free flow of information doctrine renews the debate on issues that gave rise to the creation of a New World Information Order. Though touted on human rights principles, the free flow of information argument is a precept based on the notion of *laissez-faire* economics. This idea of freedom conveniently coincides with the commercial advantage enjoyed by the United States. Transnational corporations, the basic economic organizational unit in the modern world capitalistic economy, are not only dependent on a free flow of information to maintain their global

operations, they further their goals of securing global markets and unimpeded profitability through efforts to dominate cultural and informational space.

The distinguishing factors between earlier international communications and today's data flows are the enormous, and accelerating, volume of information traffic and the Internet as a new means of virtually instantaneous transmission. Telecommunications and computer technologies have two critical features in common. They enhance the ability of the user to exercise control functions at virtually any distance, whether the object to be controlled is a person, a machine, a company, or a market, and they reduce the scope of human or state intervention because transmission speeds coupled with the absence of strong privacy codes ensures that the information transmitted cannot be easily monitored. As the Internet renders a state's barriers more permeable, the authority and purpose of the state may be correspondingly diminished.

Of particular concern for African states is dependence on U.S. electronic databases. Information cannot be divorced from the method of its organization and system of storage. To rely on U.S. databases to organize this collective memory is to relegate oneself, one's state, to absolute dependency. Thus, the development of national and regional databases by African states is essential to maintaining some vestige of sovereignty, the ability of a people to exert control over the direction of political, economic, social and cultural change in the society, which, in turn, increasingly depends on telecommunications. The ability of states, on both an individual and regional basis, to collect, store, analyze and transmit information is a significant indicator of the degree of sovereignty with which they govern.

Conclusions

To ensure that the African continent does not suffer from increased technological and informational impoverishment, it is imperative that policies be formulated that attend to the many first and second-order structural constraints stipulated in this article, which hinder not only Internet accessibility, but also its effective use in Africa. Undoubtedly, African states must increase their investment in the telecommunications sector, but accessing the Internet, the principle concern of international Internet initiatives, is only one aspect of a broader set of public policy issues that need to be addressed. Structural change is the essence of development, and communication via the Internet and other media is a complement—after structural change has taken place. At the national or even at the level of regional organizations, structural change must, however, be accompanied by a corresponding structural alteration of the international economy.

NOTE

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¹⁹Amin, *Capitalism in the Age of Globalization*, 22.

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