AFRICAN GOVERNMENTS AND E-SOCIETY: THE CHALLENGES OF ACTIVELY PROMOTING PRIVATIZATION, DEREGULATION, E-HEALTH, E-LEARNING, AND UNIVERSAL INCLUSION AND JOINING THE INFORMATION REVOLUTION

ABSTRACT

The mobile phone revolution currently sweeping Africa is an exciting development. The continent boasts the highest mobile telephony growth rates in the world, and opportunity for investment abounds. There can be no question that Africa is well on its way to experiencing a communications revolution, yet much remains for African governments to do. While a limited number of governments have liberalized their telecom sectors, the remaining states must follow suit. Those that have liberalized now must shift their focus to regulation and tax reduction. In addition, governments must promote universal access, particularly to rural areas, as well as e-learning and e-health initiatives: such provisions for the common good are seldom—if ever—provided by an unfettered market. They must also focus on making a second revolution happen within their societies: an information revolution, for across the continent, access to information available over the Internet remains at extremely low levels. Fortunately, Africa's governments can take advantage of the availability and affordability of new technologies—satellite and VoIP, for example—as well as learn from the experiences of other developing countries, to take full advantage of the promise of the e-society.

KEYWORDS

Sub-Saharan Africa, deregulation, Voice over Internet Protocol (VoIP), e-health, e-learning, digital divide

1. INTRODUCTION

For at least the past decade, scholars of information communications technology (ICT) and business analysts alike have been predicting that, due both to the absence of land-line infrastructure in Africa and to the new wireless technologies available for ICT connectivity. By adopting the newest, cutting edge, high-speed technologies, the continent would be able to leapfrog the traditional ICT development trajectory and usher in the ICT revolution. These predictions have been partially right: Africa is experiencing an explosion of mobile phone sales, and currently is the world's fastest-growing wireless phone market—the boom has exceeded all expectations. However, the predictions that foresaw the continent racing towards the information age, with millions of computers and laptops across Africa connected to low-priced, high-speed Internet provided by satellite or fiber-optic cable, have been far off the mark. Currently, less than one percent of Africans have access to broadband services, due to a lack of international connectivity and unwieldy state telecom monopolies. Further reasons for the stark difference in mobile phone and Internet adoption rates include the difference in hardware and technology requirements for each technology: computers are far more expensive than mobile phones, require a steady supply of electricity, as well as a reliable source of connectedness to the Internet—which also requires a stable source of electricity. Surfing the Internet or writing emails with ease require literacy and typing skills. In many parts of Africa, these requirements simply are not met. In contrast, mobile phones cost much less, require electricity only long enough to charge the phone (which nowadays often can be achieved through a solar powered charger) and require the bare minimum in terms of numeracy and literacy to be able to use in a meaningful way. Given the fact that humans have a need and desire to communicate with others, the explosive adoption rates of mobile phones witnessed throughout Africa and the entire developing world—as soon as they were available and marginally affordable—should come as no surprise.

Still, much remains for African governments to do in order to take advantage of the promise that the ICT revolution holds; simply leaving the revolution to the unfettered market will not bring about the hoped-for results, and will leave behind a large proportion of their populations. Tasks these governments need to address include de-monopolizing the telecom industries and promoting competition, and in many cases lowering taxes with an eye to promoting longer term growth in economy-wide industries. Governments must also promote the use of ICT-enabled information and communications technology in schools and health centers, and ensure connectivity for rural areas.

Though a number of scholars have addressed one or more issue areas covered by this paper, the specific contribution herein is to bring them together into a comprehensive, overall analysis. In addition, in the penultimate section, which addresses challenges facing rural area, the paper presents original evidence based on relevant case studies taking place elsewhere in the developing world that is highly applicable to Africa's rural areas.

The paper proceeds as follows: After a discussion of the need for good governance, covering the issues of privatization, deregulation, competition, the lowering of taxes, and the promotion of positive externalities due to telecom sector growth, the paper discusses the importance of African governments taking a pro-active approach to promoting e-learning and e-health initiatives in their countries, and provides examples of successful small-scale initiatives throughout the continent. The particular challenges facing the underserved rural areas are next addressed, with evidence provided from successful case studies undertaken in other parts of the developing world presented as a possible solution. The paper closes with a discussion of general benefits accruing to a state and its citizens from the existence of an information society, and then presents a concluding summary.

2. PRIVATIZATION AND DEREGULATION IN THE TELECOM INDUSTRY

As of late 2006, more than one-third of Africa's state-run telecommunications companies had been privatized, with several more set to undergo privatization in the near future. While this is a positive step, governments that have not yet privatized need to do so, while those that have already taken that step need to promote not only competition (which drives down prices), but also to shift their focus to regulation. State regulation of the telecom sector must be independent, effective, and transparently managed, in order to inspire investor confidence. In addition, governments must not be too hasty to make concessions to foreign investors, but must also contractually ensure that profits will remain or be reinvested in the country, or must search for local investors. If they do not do this, they risk allowing telecom investment to be yet another form of neocolonialism, as Western multinationals rush in to take advantage of the high profits available due to the extraordinary growth rate, and then ultimately repatriate these profits abroad.

In addition, regulators should not be so enthusiastic at the prospects of investment that they compromise social objectives, the development of infrastructure, or consumer protection, quality and service. In fact, sound and strict regulation and a well-trained staff running a well-funded regulatory body will inspire confidence in investors, which will increase the level of responsible investment and will benefit all involved. A visibly open, transparent, and even-handedly run telecom industry will have a spillover effect—some even claim it will have a multiplier effect—on other sectors across the economy in two ways: it will encourage technology transfer as other industries take advantage of telecommunications for business operations (which they currently are not, see below) and the government's efforts at effectiveness and transparency in the telecom sector will be rewarded with investor interest and confidence in other sectors. (A fine overview of telecom industry regulation in developing countries, as well as a case study of Ghana, is provided by Bodammer et al., see references.)

Deregulation in the telecom sector must also address compatibility and interoperability issues. In most sub-Saharan countries, rival telecom companies do not allow customers to place calls to competitors' networks, with the result that many people find it necessary to carry multiple phones on separate networks, which is highly inefficient and unnecessarily expensive for consumers. This could easily be changed with regulation. In addition, governments can regulate lower roaming fees and tax rates—both of which in Africa are among the highest in the world. Doing so would promote economic activity. African governments can look to Kenya, Tanzania and Uganda, where Celtel has provided the world's first borderless mobile phone network, one that serves a region experiencing a high degree of border-crossing for work-related activities. Also, the Deloitte consulting group recently released a study claiming that the high tax rates on mobile phone services in sub-Saharan Africa are short-sighted, economically-speaking. Deloitte calculated that by cutting taxes on mobile phone services, the governments would see their overall economies grow at a higher rate in the long term, and that as a result, their overall tax receipts would actually rise in the medium- to longer term. In other words, consumers, private enterprise, and governments would all benefit from a cut in mobile specific taxes, as the indirect benefits to the economy of affordable access to telecom services far outweigh any short-term benefits to the budget.

One unique aspect of the telecom industry is that it enables other industries to perform their own functions more efficiently, promoting growth and productivity in nearly all sectors—yet across Africa, as mentioned above, businesses are not yet taking advantage of this aspect of telecom services. Fewer than 10 percent of the region's businesses provide mobile phones for their employees, and over 80 percent of mobile phones purchased in sub-Saharan countries are for personal—not business—use. Governments are understandably eager to tout the rising employment rates and incomes experienced by those working within the telecom sector and in complementary service jobs (such as vendors who sell prepaid cards or minutes on their own mobile phones). Yet, much more could be done to promote telecommunications-related development in other sectors, as well as the savings of disposable income that results from the increased wages that have accompanied the telecom boom. As it stands, most street vendors and "minute-sellers" are still living hand-to-mouth, despite the significant rise in their incomes. They could be saving for future business opportunities, but perhaps they lack vision, or confidence of future economic (or political) stability. The governments could actively promote savings programs as well as take steps to make the economy friendly for small business entrepreneurship.

3. E-HEALTH AND E-LEARNING INITIATIVES

E-health and e-learning are two areas in which African governments can take an active role in ensuring that their citizens benefit from the ICT revolution in more ways than just through interpersonal communication. There have been sporadic attempts at such initiatives across the continent, but a concerted effort promoted by governments would help more programs get off the ground, and these would ultimately reach more citizens. African citizens often perceive their governments as being paternalistic in nature; they are seen as responsible for socially-oriented programs in areas such as education and health. Governments that play a leading role in the championing of information and communications technology within these social programs will see greater ICT adoption rates by the populace, which will lead, in turn, to healthier citizens and better prepared students. And once again, it bears mentioning that there will be positive spillover effects for the entire economy.

In the field of e-health, applying new technologies has the potential to benefit countless Africans. A limited number of exemplary programs exist as examples for what could eventually serve the entire continent. Dr. Teresa Peters in Cape Town, South Africa, for example, came up with the idea of sending SMS messages to patients, reminding them to take their medications. This is extremely important for patients diagnosed with tuberculosis or HIV/AIDS, as the treatment programs for these diseases require patients to take medications at certain intervals throughout the day, and missing a dose can necessitate recommencing the entire expensive treatment program.

Doctors and medical students in Uganda and Kenya participated in a pilot program wherein they were equipped with hand-held Personal Digital Assistants (PDAs) that helped with diagnoses, medication dosage recommendations, contra-indications, drug interaction information, and even drug availability in the region, all in real-time. The doctors who participated in the program were very enthusiastic about the PDAs, with more than 90 percent claiming they would spend their own money to buy their own; after the program they felt they could no longer function efficiently without one. Governments across the continent could ensure that every doctor within their state had such a device, or had access to real-time information over the Internet.

The adoption of mobile computers and wireless technology has been slow in hospitals, clinics, and health-care centers across Africa, but the potential for increased productivity and quality of service is great. In addition to the above-mentioned access to information, and of doctors being able to collaborate with other specialists around the globe with the aid of images available in real-time, patients will also benefit from having their health history information readily available at any hospital or clinic they come to for care.

In terms of e-learning, there is significant overlap with the field of e-health. Medical students can benefit from having medical texts available online, and from being able to communicate with their professors. Yet the benefits of e-learning extend far beyond the field of medicine. All students can potentially benefit from online information, books, and lectures. Students' future job prospects are further enhanced by the ability to navigate the web and from computer-literacy in general; this is becoming a basic requirement for employment in the information age. Other e-learning initiatives have included sending SMS messages to students who live in rural areas and do much of their work through correspondence and only occasionally travel to the city to take exams. Messages alerting them to changes of test venues or of the necessity to register increased the numbers of those who showed up for and took exams. Messages that informed students of correspondence assignments sent to them through the mail resulted in a higher number of packages picked up at post offices, instead of being returned to the school, unclaimed.

4. THE CHALLENGE FACING RURAL AREAS

The growth in Africa's mobile phone adoption rates has been staggering, but the numbers do not always paint a realistic picture. Though it is true that Africa's average annual mobile subscription growth rate is at a world-beating 65 percent, and 85 percent of African telephone subscribers are mobile users, in fact, the mobile penetration rate still hovers around just 15 percent, and the Internet penetration rate is between one and three percent (mostly on dial-up connections). Yet even these numbers do not tell the whole story, for they do not reveal that the vast majority of connectivity takes place in the major cities across the continent. In rural locations, connectivity is still virtually nonexistent. It is not an exaggeration to say that the rural areas of Africa, and indeed, those of much of the developing world, are still at risk of being left behind, as the digital divide continues to widen between the haves and have-nots.

Making matters worse, the subject of connecting rural areas rarely makes it into the agendas of global or regional policy summits on telecommunications. Neither the declaration of the *World Summit on the Information Society* (WSIS) nor the African regional initiative *New Partnership for Africa's Development* (NEPAD) addressed rural communications connectivity as a tool of development nor suggested measures for improving the situation.

Wireless companies tend to concentrate their services on urban markets, claiming that rural areas will not provide them sufficient profit to take the risk of investing there. For their part, governments could either provide the connectivity themselves, or make agreements with providers that required the provision of rural services, but across most of the developing world, and particularly in Africa, this simply has not happened. Governments may be loath to risk investor unhappiness, or they may claim that they simply do not have the funds to provide the necessary infrastructure, maintenance, or ongoing subsidies required to ensure that rural areas become and stay connected.

Fortunately, new technology is available that can make ICT leapfrogging a reality for rural areas of developing countries as well. This involves using satellite-provided Internet technology and Voice over Internet Protocol (VoIP) to bring communication capabilities to rural areas. As a result, both Internet connectivity and voice-related communications are enabled with a single technology deployment. This combined provision of Internet and voice in a single technology minimizes both short term and long term costs, as VoIP presently represents the least-expensive method of communicating over long—and even short—distances. It also addresses the provision of a service that is currently the most in-demand in the developing world—voice communications—while simultaneously providing Internet connectivity, for which demand will increase over time. When these projects are implemented to be locally-run and self-sufficient, there is no need for continued governmental subsidies. The modems can be run on solar power, and VoIP can be supplied even through old-fashioned analog telephones, obviating the need for either electricity or expensive computers for communication. Additionally, because the technology is wireless, one access point can provide telephony (as well as Internet connectivity) to an entire village, over a 35-mile radius. Utilizing VoIP technology means that placing a call to a next-door neighbor costs the same as placing a call across the world—fractions of a cent. Every home can be connected, provided they have a telephone, while a village

Internet kiosk or café may be set up with (more expensive) computers; a local entrepreneur can run this small business. Successful projects utilizing this technology have already been implemented in Vietnam and Mongolia, and there are plans to undertake similar projects in numerous other countries. In the cases where these projects were implemented, a few phones and computers were donated to the villages and training was provided so that minor system repairs could be performed by local residents. Further, local teachers and health care providers were instructed in the use of information technology in their classrooms and health centers. It is also anticipated that the villages will be able to use the communications technology for emergency alerts, such as in the case of natural disasters. (For detailed case studies of these projects, see Fife & Hosman, 2007, in references.)

5. THE BENEFITS OF AN INFORMATION SOCIETY

An information society can help promote a culture of openness, greater accountability, and even democracy. If information is not expected, it will not be made readily available. In most African nations, a culture of secrecy currently exists, wherein business and political information is rarely made public, data archiving and reporting is poorly performed, and accountability to a larger public is not a widely-held expectation. If the technology existed and the expectations changed so that all of these notions became commonplace, both businesses and politicians would be held to higher information standards. Corruption would decrease as transparency was demanded. Demographic data, educational information, and business reports would be more accurate and easier to collect, making research, planning, and budgetary allocations more efficient.

Finally, in a society with greater communication abilities and access to information, democracy has a greater chance of flourishing. The 2000 presidential elections in Senegal provide a good example of telecommunications being employed to ensure fair voting conditions. Senegalese citizens armed with radios and mobile phones manned the individual ballot stations, reporting fraud as well as phoning in results to local radio stations. In the event, it proved difficult for the 19-year incumbent to alter the results, and he peacefully abdicated power to the electoral winner. This may be just the tip of the iceberg vis-à-vis citizens reporting the news in Africa, as countries around the globe are witnessing the phenomenon of individuals having the ability to instantly report what they see to a wider, even global, audience. However, for this to take place, African countries need to move beyond being merely a society experiencing the benefits of interpersonal communication to one in which information is created and shared—an information society.

6. CONCLUSION

This paper presented a comprehensive overview of the challenges facing African governments as they become members of the e-society. There remains much room for future research on the particularities facing individual states and regions of the continent, as well as a more thorough discussion of each of the issues addressed above. However, this paper's summary form contributes to the scholarly body of knowledge in that a general overview of the subject is currently missing from the literature.

Africa's governments face numerous obstacles in the integration of ICT into their economies and societies. None of these difficulties is insurmountable, and for each an example of a successful program or initiative was provided. Though the challenges for the governments may be many, the rewards for their citizens will be great.

Africa has witnessed its share of revolutions, windfalls and transformations over the years. The difference with the ICT revolution is that, for the first time, the potential exists for ordinary African citizens to benefit in their day-to-day lives. It is essential that governments take active steps to make sure that this revolution brings about the hoped-for possibilities, and that all citizens can participate in and benefit from this revolution, to join the e-society.

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