

A Case for Privatization of Telecommunications in Liberia

Published July 2004

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Liberia is in an ideal position at dawn of wireless age (heavy competition, high demand, low implementation cost)

Twelve years of civil war left Liberia's landline telephone system and broadcast television network in ruins. But the need for reliable and inexpensive communication by businesses and Liberian residents led to a growing market for pre-paid GSM mobile phones, rooftop satellites to access international television broadcasts and the Internet, and the proliferation of "mom-and-pop" Internet café charging just a few Liberian dollars to send email or browse the web.

The various business enterprises that sprouted to meet the communications needs in this devastated nation benefited the enterprises and residents alike handsomely, but this phenomenon left the telecom industry in Liberia in a disorderly state characterized by a virtual monopoly in mobile phone service, susceptible to rampant fraud due to lack of regulation, higher costs than necessary, no reliable sources for business communications needs, and no long term telecommunications strategy.

Emerging from 12 years of civil war, the Liberia Telecommunications industry is now balanced at a pivotal decision point, a virtual "fork in the road". One path or another could tilt the entire industry towards the economic benefits of the wireless age or revert it to its previous unreliable and inefficient state.

The policies and decisions by Liberia's policymakers will lead the telecom industry further toward mayhem or to the promise land. To be effective, these policymakers must consider such essential factors as current national telecom trends and best practices, demand for telecom services and products, competition in the telecom industry, and the importance of communications to economic development.

Developed countries in Europe and the Americas, took the first steps in moving from a wired society to wireless, hyper-connected, societies characterized by the proliferation of mobile phones, satellites communications, broadband Internet access, and the emergence of distance learning and telemedicine. These countries are now at the saturation point for telecom service and product access per individual. Estimates are that 60 to 70% of European and U.S. residents own a mobile phone. Furthermore, one out of every two of these individuals also has access to high-speed Internet. Telecom corporations are waking up to the reality that telecom revenue growth will not prevail in developed countries and are seeking once ignored developing markets to expand telecom products and services.

Most of the projected increase in telecom users to nearly 615 million worldwide by 2005 will come primarily from developing nations in Asia and Africa. This prediction is supported by the inherent nature of wireless and satellite technology. These technologies are suited for setup in remote, developing countries considering the inexpense of implementing mobile phone and satellite networks.

Low setup cost, heavy competition among telecom providers to expand, and high demand for telecom services such as mobile phones and satellite services are factors fueling telecom growth in Asia and Africa. China now outpaces all countries in mobile phone and Internet access penetration; Algeria is replacing its outdated fix-line phone system with a totally wireless

infrastructure that is more scalable and reliable. Ethiopia's school system is benefiting from its government's decision to invest in a satellite-based network to broadcast math, science, and grammar courses to classrooms throughout the country.

"There is opportunity in every danger", notes a Chinese proverb. Liberia's telecom policymakers, have an opportunity to revamp its telecom infrastructure by adapting effective telecom policies and practices to spur economic growth. Among the necessary steps towards a better communications environment for public and private industry and residents are:

- (a) Clearer statutes and mandates for the hierarchy of agencies governing the telecommunications industry in Liberia to reduce scope overlap among agencies.
- (b) Public disclosure of licensing requirements for telecom businesses operating in Liberia or considering operating in Liberia
- (c) Development of a telecom strategy that encourages privatization of the mobile phone, broadcast television, and Internet Service Provider (ISP) telecom sectors to spur competition and reduce consumer costs.
- (d) Development of a process for sale of all regulated radio spectrums (i.e. via a competitive bid process or ensuring new providers access to existing telecom network).
- (e) Development of a telecom strategy that includes expanding telecom services to remote locations in Liberia
- (f) Development of a financial and regulatory strategy of taxes and fees on telecom products and services.
- (g) Development of an national emergency communications network
- (h) Use financial incentives to encourage private and/or foreign direct investment in rebuilding Liberia's telecom infrastructure.
- (i) Link Liberia's telecom strategy to its national economic development strategy.
- (j) Development of a emergency communications strategy with telecom providers and public security institutions.

Today's telecom market is private, competitive, and wireless.

1. What is the Ugandan government doing?

Uganda telecommunication industry's successes have made this nation a benchmark for other African nations to follow. Uganda began privatizing its telecom industry in 1995 by creating clear regulations and inviting telecom providers to establish a presence in the country. Uganda Telecommunications Limited, the state-owned telecom regulatory agency, went a step further by allowing telecom providers to determine their own method for implementing a GSM mobile or land based phone infrastructure. By 2000, the number of mobile lines stood at 188,000, far exceeding the total number of land based phone lines at 62,000 and even further exceeding targeted number of mobile lines originally set at 90,000 in 1995. Uganda's two main telecom providers attribute the rapid growth in that country's telecom market to factors which include (a) mobile phones provide a convenient link to villages for urban residents, (b) the cost of a phone call is cheaper than traveling, (c) use of prepaid phone service in a predominantly cash society, and (d) the stability, fairness, and simplicity inherent in Uganda's telecom regulations. Over 75% of the Ugandan population now have access to mobile or land based phone service, a feat attributed mainly to the willingness by competitive telecom providers to incur the cost of the expanding telecom infrastructure because of the favorable market environment.

2. Telecom innovation in Togo

With a small loan from the World Bank and a progressive initiative, a Togolese company established the first Voice Over IP (VOIP) call center in Africa. Most African countries either outright ban the practice of making phone calls via the Internet or impose strict regulations on

VOIP service. ISPs face closure or stiff fines for providing this service. The implied fear by governments in restricting VOIP is that consumers may discover it as an inexpensive and convenient alternative to mobile or land based phones. Also, regulating and taxing VOIP service has proven difficult. Togo's innovative call center is allowing its practitioners to tap into a rapidly growing and lucrative trend of call center outsourcing. The driving forces in call center outsourcing includes low labor cost in developing countries, increasing quality of Internet access, proficiency in English or French by the host country's workforce, and support at the governmental level in realizing the potential for call centers to provide jobs and hard foreign currency.

3. Telecom reform in Morocco

The Moroccan government embarked on reforming its telecom industry by developing comprehensive policies and strategies linking economic growth with national access to information and knowledge. Dubbed "e-Maroc", the reforms began in 1997 with the passage of telecommunications laws and the establishment of a National Regulatory Agency to oversee the telecom industry. Morocco's telecom laws address telecom improvements in education, governance, private sector, ecommerce, and accessibility. E-Maroc's specific objectives include increasing access to information by dispensing information in local languages, creating online portals for public service delivery (e-gov), assist in funding telecom startup businesses, close information gap through education and training, and support initiatives for providing telecommunication and computer training and education to public servants and at the primary, secondary, and university school levels.

Land or Air: Replace existing infrastructure or Go Wireless

1. Pre-War and Current Telecom Infrastructure

Prior to the start of the civil war in 1989 Liberia's telecom system consisted of a land-based phone network. Various analog exchange switches served as the backbone of the phone network. The primary phone network comprised of 3 analog and a digital exchange switch dispersed throughout the Monrovia area (Sinkor, Paynesville, and Hotel Africa) and 15 small analog switching stations situated in each of the 15 counties of Liberia. The switches intercommunicated using microwave radio signals. Wiring from the neighborhood switching location to homes, businesses and public facilities provided the final connectivity to Liberia's phone system. A satellite link from the Wehntown satellite dish provided the medium for international phone connections.

Although Liberia's phone system was plagued with inefficiencies and inaccessible to most citizens before the war, the system has been rendered nearly inoperable since. Widespread looting, arson, and lack of maintenance led Liberia phone system to its current deplorable state. Of the pre-existing 19 switching stations supporting Liberia's phone system before the war began, only a single digital switching station remains with a capacity of 8,000 connections to service a population of nearly 3 million residents. Besides the damage sustained to key switching stations, wiring and other telecom equipment were frequently shot down and sold on the black market. Spare parts are difficult to attain therefore the minimal telecom equipment now in operation is subject to frequent breakdowns. Lack of a reliable power source for telecom equipment remains a hurdle for Liberia's telecom operators. Television and radio broadcast facilities owned by the government were not spared during the war either. As of this writing broadcast television and AM radio are unavailable in Liberia.

2. Replacement Costs and Assumptions

A recent report compiled for the United Nations Donor Conference, by officials from the three Liberian telecom oversight agencies, outlines the costs and objective relevant to replacing Liberia's damaged telecom system. Liberia's three government controlled telecom agencies include the Ministry of Post and Telecommunication, the Liberian Telecommunications

Corporation (LTC), and the Liberian Broadcasting Systems (LBS). The report estimates the cost of reviving Liberia's damaged land-based telecom system to its pre-war status at US\$144 million. The bulk of this cost includes replacing switches, cables, and antennas, repairing facilities, and purchasing other critical telecom equipment. A key objective outlined in the donor conference telecom report is the need to prioritize rebuilding Liberia rural telecom network, considering that approximately 70% of the 3-million population live in rural areas. Ensuring rural access to phone and television services in such areas as mineral rich Yekepa, Tapeta, Totola, and River Cess is vital to the Liberian government's projections for attaining a reasonable return on its investment. Annual revenue projections for rural users stands at US\$19 million assuming a 25% rural subscription penetration and assuming that individual or company phone subscribers use on average 25 minutes per month, paying 40 cents per minute. The reports other assumption about achieving an 85% user penetration among urban subscribers further extends revenue estimates by US\$91.8 million for a total annual revenue projection of US\$110.8 million annually derived to the Liberian government.

3. Hidden flaws in replacement strategy

The assumptions and projections outlined in the donor conference report by Liberia's telecom industry officials appear attractive and fiscally sound, but a closer look reveals profound flaws and misjudgments. The flaws are apparent in the assumptions supporting the conclusion that a strategy of rebuilding Liberia's pre-war telecom infrastructure is the effective approach. Firstly the pre-war capacity of Liberia's land-based telecom system was limited to 85,000 subscribers due to the capacity of the equipment used. At its peak, a replaced telecom system could accommodate less than 3% of Liberia's telecom market, a figure reduced further in an age of fax lines and dedicated ISBN Internet lines. Furthermore, Liberian, now accustomed to low-cost, highly reliable wireless phone service, would cringe at the thought of regressing to an earlier age of sporadic land-line phone service disruptions, long installation waits, and the simple inconvenience of immobility. Low demand, high infrastructure maintenance cost, and better substitute in product offering by mobile phone providers would render the Liberian government's intentions for rebuilding and profiting from its own landline based telecom infrastructure a work of disastrous non-fiction.

4. The vision of a wireless telecommunications infrastructure

The vision of a wireless telecommunication infrastructure in Liberia can only be accomplished through good regulation, privatization, and including telecom accessibility in the soup of economic growth plans. The promise of good regulation and privatization is that these initiatives will attract private investment as a viable substitute for government spending on a doomed telecom nationalization effort. The promise of linking economic growth with telecom accessibility is that it ensures that businesses, individuals, and institutions have the resources to rebuild this nation.

Telecom Shuffle: reorganizing the telecommunication industry in Liberia

1. Overview of Liberian's telecom governing agencies

Liberia's telecom oversight agencies comprise of the Ministry of Posts and Telecommunications, the Liberian Telecommunications Corporation (LTC), and the Liberian Broadcasting Corporation (LBS). LTC, the second eldest of the three agencies, was established in 1973 and operates as a quasi-independent agency with monopolistic control in providing land-based phone service in Monrovia and throughout Liberia. Its capacity greatly reduced from civil war damage, this once cash cow agency still remains the de facto controller of Liberia's telecom industry. LTC's primary stakeholders are the Liberian government and a few private investors. The Ministry of Posts and Telecom has a legal mandate to provide telecom and postal services in Liberia, but operationally is limited as a telecom provider or overseer. LBS, another quasi-independent agency, was established in 1960 as a national provider of broadcast television and radio entertainment and news to the general public. Like its sister agency LTC, LBS equally suffered severe damage

during Liberia's civil war. The war's inflictions coupled with the equivalent of dictatorial telecom regulation reduced these three agencies to ceremonial status over the 13-year civil war period beginning in 1990. Private telecom enterprises such as the Lone Star Communications mobile phone carrier and other enterprises stepped in to fill the void and have retained a stronghold in their markets. A renewed sense of authority is currently creating an interesting dance for identity within these three agencies. Facing strong interest from international telecom providers aspiring to setup shop in Liberia's lucrative market, the ministry of posts and telecom is evaluating duplicate sales of mobile GSM licenses to several competing enterprises as well as the monopoly position of Lone Star Communication. Lone Star was handed a virtual monopoly on all mobile GSM licenses by the previous regime without provision requiring the company to share its mobile phone infrastructure. LTC, the once dominant landline phone provider, is rumored to be for sale to a foreign enterprise for US\$5 million. Amidst the feeding and corruption frenzy of Liberia's telecom industry, no reflection is being made on the subject of a long-term, broad reaching, strategy to bring discipline to this industry.

2. Nationalization vs. Semi-Privatization vs. Privatization

The shift from a nationalized telecommunication system to free market, privatized, telecom system is rapidly occurring across Africa. Emerging from colonial dependence in the 1960s, most African nations either inherited nationalized telecommunications systems or developed government-controlled versions. This earlier trend towards nationalized telecom systems in Africa was largely a means to securing revenue for these newly independent economies facing political unrest and poor economic performance.

Although some African nations fared well in maintaining and managing government control of telecommunications, they were typically the exception. The shortfalls in telecom services in African nations were caused by several related factors, some of which exist today. Factors include lack of state funds for investment or improvement in telecom infrastructure, reliance on foreign equipment, competing demand for food, health care and other pressing social necessities, and the bureaucratic management of most nationalized telecom providers as opposed to a market-driven, customer-oriented private telecom organization.

Liberia's telecom industry followed the nationalization trend until recently. The civil war did slow the country's shift from a government-controlled telecom carrier to allowing competing private telecom enterprises. Nevertheless, there are indications that private telecom investors are aggressively seeking entry into Liberia's telecom market. These investors are driven by the initial success of Lone Star, which remains the nation's single mobile carrier, the country's improving security situation with the presence of the United Nations, and inadequate government funding to repair and rebuild nationalized telecom institutions such as LBS and LTC.

It may be necessary for Liberia's telecom overseers to fast-forward telecom privatization plans, but, amidst the country's telecom crisis, there is also an opportunity to introduce some semi-privatization in parallel to the inevitable privatization already underway. Tele Africa, a foreign telecom investor, has made public an offer to manage and operate LTC over a 12-year period for US\$5 million. The offer stipulates an 80/20 percentage split between Tele Africa and the Liberian government with the foreign agency retaining the majority ownership. This deal, whether realized or not, implies that there is perception of a profitable telecom market in Liberia among foreign investors despite the current economic hardship. The opportunities herein are for the Liberian government to only partially divest of its interest in the state owned telecom enterprises and allow more competent foreign or local entities to rebuild and manage these enterprises. From a larger-picture perspective any steps towards semi or full privatization of telecom in Liberia unburdens the government to focus on telecom strategy and regulation and not the technicality of implementing a modern telecom infrastructure.

Policy Options

Nationalization

- Pros → Federal Control of pricing and availability
- Reliable revenue source to government
- Low improvement/upgrade cost
- Cons: → Eliminates competition
- Stifles growth (technology/service improvement)
- Government funding of telecom development is a financial burden

Semi-Privatization

- Pros → Some Federal Control
- May leverage technology know-how and funding of private sector
- Reduces federal administrative overhead
- Cons: → Government competes and regulates (conflict of interest)

Privatization

- Pros → Matches Liberia's open market system
- Allows government to focus on telecom strategy and regulation
- Leverages private sector expertise and funding
- Leads to competition, improved service, lower prices
- Cons: → High entry cost could lead to oligopoly (only a few providers controlling market)
- Lack of transparency in regulation and licensing could turn away investors

3. Reforming telecom in Liberia

With the telecom world knocking at its door, a thriving UN led economic rebuilding program, an influx of foreigners and former expatriates yearning for better phone, television, radio, and Internet communication service, Liberia's telecom overseers must revamp outdated telecom regulation or lose the opportunity to fully realized the industry's potential. Good regulation could lead Liberia to a world-class telecommunication infrastructure like neighboring Ghana. Good regulation could lead to distance learning, telemedicine, inexpensive Internet phoning via Voice Over IP (VOIP), and place foreign markets at the hands of Liberian businesses through e-commerce. Good regulation creates the legal framework for telecom providers and fair competition. Good regulation could shorten the communication distance between all Liberians.

Telecom regulation originates at the constitutional, national legislative, and international levels. Constitutional telecom regulation encompasses rights and duties of private and public individuals. Constitutional level regulation is typically broader in scope and impact then being specific to telecom. An example of constitutional regulation with wide impact but also applicable to telecom is the "privacy of correspondence" provision in Article 16 of the Liberian constitution. National regulation includes rules specific to the telecom industry and criminal penalties for violating these rules. International telecom regulation is mainly the undertaking of the World Trade Organization (WTO) and the General Agreement on Trade and Services (GATS). In the absence of clear or incomplete regulation such as the case in Liberia, telecom providers rely on the international body of regulation for their legal framework.

The evolving regulatory crisis facing Liberia's telecom overseers will lead to introspective questioning concerning why, who, and what to regulate. The answer "why regulate?" lies in potential for disputes evolving from:

- The right to place equipment or lay cable across public and private land
- The use of communication channels and the scarcity of these channels (airwaves, cellular spectrums)
- The protection of privacy during the transmission of data or voice communication
- The protection of telecommunication as a public service

Effective telecom laws should aim to regulate telecom providers, those with the ability to break into the telecom system, and those claiming access to telecom information for specific reasons (government, judicial). Telecom regulation should primary effect procedures for building, securing, and maintaining telecom infrastructure, allocation of control over channels, quality standards, fees, and costs.

For a credible telecom policy role model Liberia's telecom overseer should look no further than its neighboring nations and several policy documents specifically addressing telecom reform in Africa. Endorsed by most African leader as early as 1996, the African Green Paper remains the pivotal policy document concerning the need for telecom reform in Africa. Compiled by the International Telecommunications Union, the Green Paper provides key recommendations for reforming telecom in Africa. The recommendations include:

- Separation of regulatory and operational functions
- Creation of a separate national body charged with regulating telecommunications and the media
- Separation of postal and telecommunications functions
- Provision for financial and managerial autonomy for the telecommunications operators
- Investment in the development and management of telecom human resources

A first step forward in reforming Liberia's telecom industry is adhering to the above recommendation of creating a separate telecom regulatory agency. The ministry of post and telecommunications currently carries this regulatory burden in some ad-hoc way. But effective reform will require establishing a separate government entity specifically mandated to regulate telecom and media in Liberia. This agency would serve as the primary source of telecom regulation, licensing, oversight, penalty and sanction enforcement, and quality standards. Other subsequent reform measures would include that the government divest of all operational interests in the telecom market, hire and train competent telecom oversight personnel, and began devising a strategy for leveraging its telecom reform into economic development.

4. Implementing a new telecom infrastructure in Liberia

No telecom reform policy paper would be complete without addressing the technical implications of implementing its recommendations. As Liberia begins transforming itself from its destitute state, many technical hurdles must be analyzed and overcome in pursuit of a new telecom infrastructure. The issues of limited bandwidth, selling frequency, Internet connectivity via fiber-optic or satellite or Wi-Fi, and provider access to telecom infrastructure are all equally significant enough to influence telecom reform policy.

Radio spectrum bandwidth, as used in radio broadcast, cellular communication, and other forms of wireless communication is not an infinite resource. This bandwidth limitation is made more profound by new forms of communications technology imposing new bandwidth requirements. Radio broadcast use of the lower spectrum (80 to 100 MHZ range) poses little regulatory and contention challenges in a country with only a few radio stations. Cellular communication using mobile phone and serving thousands of users, however, poses a strategic challenge. Liberia's mobile operators are using the Global System for Mobile Communications (GSM) standard; a standard that is more prevalent in Europe. Standardizing on GSM, which operates in the 800 to 950 MHZ bandwidth spectrum, imposes several crucial limitations on the number of potential mobile carriers in Liberia and the amount of voice and data communication that can be

transmitted using this standard. Because GSM does not allow pre-assigning bandwidth for exclusive use by a single mobile provider, all providers must share the same spectrum. This reality limits private ownership of mobile telecom infrastructure to two or three, at best, legitimate providers in each coverage area. A mobile communications infrastructure includes base station receiver towers and mobile switching centers to handle connectivity and handoff between GSM mobile phone users. To ensure competition in the mobile market, Liberia's telecom overseers must require that existing providers share their telecom infrastructure with new providers through lease arrangements or other contractual means.

The absence of a reliable landline phone system made Internet connectivity via ISDN or DSL either impossible or impractical in Liberia. Satellite based Internet connectivity has assumed the role as the leading medium for attaining Internet access and gaining prevalence in Internet café' and a small number of businesses. It's high equipment cost places it out of reach of most Liberian individuals and businesses. An alternative lies is building a high-speed fiber optic ring around urban areas such as Monrovia or adapting a promising new wireless technology called Wi-Max. Laying fiber optic cable could prove to be an unfeasible option given its high cost, numerous digging, and complex technology know-how requirements.

Just as it proved to be the best alternative to eradicating Liberia's landline phone constraints, wireless Internet technology may be the solution to the country's unmet demand for Internet connectivity. Current hotspot Internet connectivity in cafes and via a few private satellite connections cannot sustain a scalable Internet infrastructure desperately needed by businesses, the education system, and the public to participate in global communication using email, the web, online learning, telemedicine, Internet radio, credit card processors, ATM machines, and Internet phone calling. But wireless Internet connectivity limit connectivity to a few yards from its immediate propagation point. This limitation renders wireless Internet systems unsuitable for a commercial Internet infrastructure with numerous users.

Wi-Max, an emerging standard for extending wireless connectivity to up to 30 miles from its propagation point is promising to revolutionize Internet connectivity in developing countries and stands as a viable alternative to laying fiber optic or cable lines across Liberia. Wi-Max, once commercially available, would be ideal as an inexpensive and easy to setup alternative for providing commercial Internet access especially in urban area such a Monrovia or Buchanan. With the promising new technology of Wi-Max only a few years away from commercial reality, Liberia's private and public sectors will have to continue to embrace and extend usage of products and technology providing Internet connectivity via Satellite or extend current commercial wireless Internet access using equipment for extending the range of connectivity. Consumer and business demand in synch with feasible technology will drive the solution to the problem of commercial quality Internet access in Liberia.

Competing priorities and a need for solutions

Telecommunications reform is by far not the highest priority facing Liberian government officials, but it is nevertheless a piece of the complex puzzle of rebuilding this nation. My recent conversations with friends living and visiting Liberia gave me some insight into the human instinct to find dignity even in the most devastating of circumstances. Despite no running water, no sewage system, no electricity, garbage in the streets, and high unemployment, most Liberians residing in Monrovia and its immediate area have access to a mobile phone and can afford the costly pre-paid charges, have direct access or know of someone with access to satellite TV, and have attained a free yahoo or hotmail email account which they frequently use at Internet café's to exchange email with relatives overseas. This phenomenon illustrate that if public needs are left unfulfilled by public entities, the public will usually find the resources to fulfill its own needs. But left to its' own commission, the public desire for certain services will succumb to private exploitation. Government institutions, public citizen, and private enterprises all have an obligation

to explore solutions and participate in rebuilding Liberia's public resources. After all, it is for our own good.