Chapter 6 Implications of Broadband Video on National and International Media Systems, Including Growth of Local Content

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Introduction

... 99.9 per cent of what Europeans know and publish about Africa is false, because they are being fed with the wrong information about the great continent that remains unique in its culture, tradition and customs (Anikulapo-Kuti African political activist musician during his classical performance in Osho S.A., 2010).

Video will be the next big thing of the Internet Industry predictions say that by 2015 more than 90 percent of web traffic will be video (Christian Kaufmann).

The demand for highly-valued and relevant content is a major driver for Internet take-up. But the primary sources of content in Africa remain international and there is a paucity of local content available.

Africa's focus, thus far, on mobile networks to address an immediate service need has left backbone networks underdeveloped. This has created a major bottleneck in the rollout of high-bandwidth services and in the upgrading of cellular networks to provide value-added services. Overcoming this infrastructure hurdle is an important element in shaping the structure and policy framework of the telecommunications services sector (Moshen A. Khalil. Broadband for Africa. Developing Backbone Communications Networks, The World Bank Group, Infodev, 2010). Mohsen Khalil, Director of Global ICT at the World Bank.

The hurdle is not only infrastructural. It is also political and regulatory. In a book to be published titled "Access and Usage: is mobile telephony another plight for Africa?" we share the view that absence of political direction, inefficiency of regulatory boards, lack of powerful consumer associations, and technology fetishism have transformed mobile service into an accelerator of poverty for more than

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50 % of African users. We therefore caution the decision makers to approach the technology deployment with less fetish-based beliefs and consider the externalities and local impacts.

The term "media system" is frequently used in ways not clear enough to provide an unambiguous definition. From media studies, we approach the media system as a complex and autonomous entity, part of a greater set, being a continent or a country, considered as a system. Such media system is therefore composed of sub-systems such as institutional structures, informal arrangements, and end products used directly or frequently by a variety of recipients. In Africa traditional media and the use of modern and Internet-related media are crucial to the functioning of the media system. That is, taking into account the uniqueness of forms of content is essential.

The local content as envisaged here goes beyond standard media, to include websites in local languages and broader local contexts. The concept encapsulates local cultures, software, government services, and educational materials hosted locally within the African continent's local loop network.

The deployment of the first generation of ICT networks has led to what the economist termed "the mobile marvels in Africa."¹ The "mobile marvels"² transformed the perception of Africa. While long viewed as a marginal market, the continent is becoming the new business frontier (Fig. 6.1).

Gearing towards broadband networks is a prerequisite to fulfill the unmatched needs for more, new, and affordable services. Accenture (2011) states that "fast-developing convergence of the Internet and TV ... is revolutionizing the broad-casting industry and has the potential to transform the market for every player"³—both established and those that are just emerging in this exciting and dynamic environment. For a continent where the broadband access is less than 1 %⁴ this represents a paradigm shift, for which the recipes that led to the surge of mobile telephony might be inapplicable.

This chapter is an attempt to take stock of the broadband video revolution so as to assess its implication on national and international media systems, including growth of local content in Africa. Huge investments are being made in optic fiber deployment all over Africa. Without enough relevant local content, international content alone will not maintain usage at levels that are economically sustainable.

It also discusses the conditions under which economic models could be implemented to sustain content-thirsty broadband deployment in Africa. In addition, the chapter seeks to underscore the necessary drivers needed to frame the policy, technology, and business trends that will reshape the broadband deployment for video purposes in Africa. The assumption put forward is that upgrading existing

¹ The Economist, Mobile marvels, Sept. 24, 2009.

² The Economist, 2009.

³ www.accenture.com/.../insight-bringing-tv-life-race-dominate.

⁴ ITU The world in 2010: ICT facts and figures.



systems to the level of next-generation, video-capable broadband is a condition critical to sustain the information society in Africa.

Lessons learned from the surge of mobile telephony and research carried out on policy formulation, access, and usage patterns enable us to anticipate that Africa is on the path to broadband deployment and adoption. Africa will face a number of challenges: infrastructural, technological, regulatory and policy formulation, and related economic models.

Broadband Video Within the African ICT Context

Africa is entering the race for broadband with a track record of successful mobile telephony technology implementation. In most African countries, the mobile networks have filled the gap created by the fixed line network sub-capacity. The success of mobile is reflected in the number of mobile phone subscribers which has grown from 4.19 per 100 inhabitants to 41 on a continental average as of 2010, according to ITU. But with more than 500 million subscribers, we have been assessing that the mobile voice market is reaching its saturation level.

Thus, mobile operators have turned towards data services as a means of capturing new sales. The problem is that in Cameroon, for example, the fixed (wired) broadband connection costs an average of 1,990 PPPs per month, as compared to barely 28 PPPs per month in developed countries. Cameroonian broadband users pay 3,000 times more for service than in Monaco. Put another way, the cost of access represents 0.3 % of average income in Monaco and 1,000 % of average income a country like Cameroon and similarly situated countries in sub-Saharan Africa. Indeed, 11 out of the 15 so-called least developed countries economically are located in sub-Saharan region in Africa.⁵

A user in the USA pays an average of \$3.33 per Mbps and a user in Japan pays \$0.27 per Mbps, while a user in Nigeria pays \$2,400 and a user in Kenya pays \$700 for the same capacity. This imbalance explains why the mobile sector has created wealth for mobile system owners without development for countries. Income generated has been insufficient to generate employment, and the jobs that are generated are mostly in the informal sector. The cost of access remains among the highest in the world. A 2012 household and individual survey on ICT access and usage in 12 African countries demonstrated that most of the users spend well above 12 % of their income on nonrevenue-generating telecommunications services, spiking for some Africans at more than 50 % of their monthly income.⁶ This data demonstrates the extent to which an environment that is not conducive to secure investment and fair competition in a transparent regulatory structure has created in some countries failed policies and broader disparities between rich and poor—creating rather than fighting against poverty (Fig. 6.2).

However, the use of mobile infrastructure to provide Internet services is encountering a number of difficulties. The growing need for more services and larger bandwidth is outstripping the existing capacity, and investment is not following fast enough to meet necessity.

For Hamadoun Touré,⁷

Broadband is the next tipping point, the next truly transformational technology. It can generate jobs, drive growth and productivity, and underpin long-term economic competitiveness. It is also the most powerful tool we have at our disposal in our race to meet the Millennium Development Goals, which are now just 5 years away.

Broadband definition varies. Traditionally, it is defined as an Internet connection speed of 256 kilobytes per second (kbps). It can be provided by three types of connectivity: fixed wire line, fixed wireless, and wireless. It can be delivered by a range of access technologies: DSL, WiMAX, CDMA, EV-DO, HSPA, and LTE. For an increasing number of researchers, the speed is not an issue. With advances in technologies, the speed is always changing. They suggest instead considering broadband in terms of an "always-on" connection where the user does not need to dial a phone number to go online. "Broadband also means high-capacity networks that can deliver very large amounts of information simultaneously. As a result, they can deliver voice, data, and video, all at the same time" (quoted in Akpan-Obong and Alozie 2011:6). Most definitions of broadband transcend bandwidth and speed. They capture the "entire 'eco-system' of Internet and data services from both a demand- and supply-side perspective." Their definition is close to the World Bank's

⁵ ITU StatShot—Issue 8, January 2012.

⁶ Towards an African e-Index: Household and Individual ICT access and Usage across 17 African countries, edited by Alison Gilwald, 2010.

⁷ *Hamadoun Touré, Secretary General, International Telecommunication Union*, 2010, quoted in Akpan-Obong and Al, 2011.



Fig. 6.2 Comparison of average price. Source: Measuring the Information Society Report 2010, ITU. Nevertheless, as mobile networks have by far the greatest per capita penetration in Africa, and as broadband is essential to Africa's struggle to continue to bridge development gaps that isolate Africa in the world economy, logic dictates that mobile infrastructure will be the workhorse to drive next-generation services in Africa

definition of broadband as "an interconnected, multilayered ecosystem of highcapacity communication networks, services, and applications." As an ICT ecosystem, broadband has three components: infrastructure, applications and services, and access.

Dynamics of Video Platform Networks

For video and entertainment purposes, the existing backbone networks are extensive in reach but predominantly low in capacity. They have been designed to carry voice communication services. As a result, the current network infrastructure is not able to carry the volume of traffic that would be generated if affordable broadband connectivity were available on a mass-market basis. And they cannot effectively carry video.

The deployment of the envisaged backbone networks with video-enabled platforms will set the stage for a rapid uptake of digital video services and fuel the growth. IP video delivery will provide a big market opportunity for a range of companies in the broadcasting, communications, cable, high-tech retail, entertainment, and content development industries.

The growing size of Africa's population and the diversity of its cultures combined with the raw talents that abound on the continent create the opportunity for phenomenal growth in the video and entertainment industries. The Nigerian film industry is a resounding example of what Africa could achieve with the right tools. In an issue of Africa Update, Gloria Emeagwali states, "The prolific output of Nigerian screen writers and producers is now legendary. Every day at least four or five videos are produced in Nigeria.⁸ With the exception of India, Nigeria produces more movies in quantitative terms than any other country in the world. Nigerian movies are dominating TV screens all over Africa. According to the Filmmakers Cooperative of Nigeria, every Nigerian film made has a potential audience of 15 million people within the country and about 5 million outside. The statistics look conservative considering the fact that Africa's population has reached the billion threshold and that the Nigerian film industry is no longer just the affair of Nigerian viewers.

The Economy of Video Films

To appreciate how this affects Africa's surge to future economic growth, consider the following. The State of California has a gross domestic product of \$1.4 trillion and is the fifth largest economy in the world, richer than the combined wealth of all the 54 African countries. The wealth of California comes from the Hollywood film industry. Hollywood has generated a commercial model through which a film's commercial life-span normally begins with a box office or cinema release, then video release, then broadcast on fee-paying television, and finally on public television. The appropriate promotion and publicity enable producers and marketers to maximize profitability out of each phase. This goes for the content as well as for the supporting sound tracks in many cases. The model has made the American movie industry the second largest export revenue earner, after the aviation industry.

Another country has mastered the model: South Africa. In South Africa, according to entertainment experts, the video distribution usually doubles or triples a movie's revenues. The video boom is becoming an African phenomenon. The FESPACO, a Pan-African Film and Television Festival of Ouagadougou (which is held in the capital of Burkina Faso every 2 years) is helping a great deal to improving the quality and global appeal of Francophone films and contributing to their respective economies. In Africa, video has imposed itself as the home entertainment mainstay. The video industry is creating jobs, generating income, and contributing to the improvement of African image. Through video movies, Africans are experiencing a cultural connect worldwide.

The South Africa's leading satellite TV company, Multichoice DSTV, has caught the waves by introducing its Africa Magic channel which attracts over 1.5 million subscribers in Africa, Europe, and the Middle East. Broadband needs the video industry just as much as the video industry needs broadband networks. The African video industry is viable and has all the elements of being sustainable over the long term. And all of this would double and triple if the regulatory bodies would

⁸ Africa Update, www.web.ccsu.edu/afstudy/upd11-2.html, consulted on May 12, 2012.

organize more transparently and intelligently to force competitors to become market dominators, like Multichoice.

The potential has drawn into the market an increasing number of new players, striving to explore ways and means of improving high-speed connectivity in Africa. There are significant projects currently under way in several countries in the region. Some telecommunication companies are linking up their networks between countries to establish regional backbone networks. New carrier operators are emerging, specifically aiming at providing high-capacity backbone services to other companies.

From Talking Drum to the Internet: African Media Systems at a Crossroad

As noted at the outset, the African media system is one of the most complex ones in the world. Prior to western colonization, Africa's traditional media system comprised callers, criers, and bards who served the purpose of message conveyance. The messengers were in charge of getting people's attention through various means or tools. The marketplaces served as important settings for communication.

The colonialism era brought the introduction of modern technologies that have produced today's media systems. The newspaper, the radio, and lastly the TV were introduced and used more as a political tool than as a tool for information dissemination or entertainment. Those technologies did little to vitalize the traditional media system. They accentuated the divide between the towns (homes of the colonizers/settlers) and the rural areas with villages (where the majority of the natives lived).

The African media have undergone tremendous changes in the last decade. The shift towards democratization has led to media diversity in a way never seen before in Africa. According to the UN, alternative and new forms of media, being community or privately owned commercial media, have steadily emerged and grown in numbers and diversity of opinion.⁹ Consequently, while the new media entities were emerging, state-owned media, faced by competition and diversity, has stagnated.

African scholars are reflecting on the impact of digital and convergence technologies on the media systems. Questions are raised about conventional regulatory telecommunication frameworks. Research on the telecommunication regulatory environment (TRE) carried out by the Research ICT Africa Network (RIA)¹⁰ has persistently demonstrated that the regulation in Africa to deal with new and emerging technologies lags behind.

⁹ UN report, 2006 quoted by.

¹⁰ResearchICTAfrica.net.

The prospect, hope, and expectation are that broadband will free ordinary citizens from the hurdles of access to frequencies and licenses by making affordable digital and video cameras and audio recorders and players available to ordinary citizens. More people will be able to create, publish, podcast, stream, and share their content on the Internet. The broadband revolution will also challenge the traditional definition of journalism. The media systems as they exist today are adapting. Citizen journalism demonstrated its transformational power during the Arab Spring.

Among the number of challenges that stand in the way of a strong media sector, sustainability emerges as an overarching concern. The financial sustainability will remain a dream as long as the media system market is thin, the buying power low, and the advertiser base weak. In most African countries, there is an overall deficit of investment. Owners and entrepreneurs have little or no dedicated means of support. Most rely on donors to provide funds and support training. Such piecemeal, small-scale support cannot lead to the creation of a vivid, self-supported, and financially sustained media sector. There is a need for an economic model to assure consistent and coherent financing. Only the development of and commitment to support a sustainable economic model will free the African media systems from reliance on donor funding and lead to full sustainability.

The Ethiopian Airlines is an example of a model to consider. Ethiopian Airlines has created markets outside of its national base. The overwhelmingly urban concentration of the existing media system does not serve the national developmental purpose. The broadband revolution is bringing in its wake hope of transnational media markets, with improved capacity and standards and high-quality, accurate, reliable, pertinent, and content production. The advent and the surge of ICT and especially the Internet have changed the African media system landscape. Progress has been made. Nevertheless, the African mass media remains plagued by acute problems including a lack of financial, human, and material resources and a dearth of local content.

Local Content: A Driver

Despite the efforts related above, nearly all Internet content is hosted outside Africa. The situation has resulted in a dependency on international backhaul to access this content. There is no need for a user based in California or New York to cross the US shores or traverse its states to get cnn.com. CNN hosts its content in Atlanta. For Atlanta user, CNN content is accessible by a local connection, and in other states, it is accessible by any number of technologies that drive connection. Its user doesn't need international capacity. The users of the area will do few hops to access hosting servers for most of the content they seek. Their Internet experience is completely different from what an African user experiences. A Kenyan user has to leave the continent to access nation.co.ke hosted at Verio.net on their servers. Internet access is therefore more expensive for the African user because he or she always has to traverse international links that are private commercial ventures.

In order to cut down cost, two conditions are critical: deploy broadband capacity networks and roll out local content hosted within Africa. Our local content concept is much more than media. Media content needs to encompass African cultures reflected in the various talking drums, folk songs, drama, festivals, town criers, traditional wears, artifacts, artworks, paintings, stories, cultural architecture that reflects African vibrancy in the palaces, shrines, and African cities, towns, and villages. What is needed are software, hardware, government services, and educational materials hosted by reliable data centers within Africa. With more than one billion people of diverse culture, tribe, ethnic, language, tradition, and customs, the uniqueness of Africa's local content is embedded in the originality, creativity, tradition, and culture of its peoples. The mobile operators are trying to cash in on this phenomenal economic potential. With voice service adoption reaching saturation, mobile service companies are seeking to boost their usage numbers by developing content for specific African regions. Various strategies are being tried to stimulate the production of more local content for their customers.

Among the most popular approaches is the establishment of mobile application stores. In an attempt to promote locally relevant mobile applications created by African developers in East Africa, Vodacom, Safaricom, and MTN have launched stores. They are also providing greater support to local application developers. Safaricom and Vodafone launched the Betavine Platform in 2011. The purpose of the platform is to help local developers design and test their applications. Safaricom has also established an academy in partnership with Vodafone and Strathmore University. The aim is to offer tailored Masters-level training in mobile software application development specifically for the African market.

MTN Play seeks to serve another purpose: promote local content through a portal showcasing an array of downloadable local content, videos, and music. The South Africa-based operator has signed a deal with the music channel Trace to enable its younger customers access tailored local multimedia and news. Safaricom similarly offers content particularly aimed at its Kenyan audience through its web portal Safaricom Live.

These various efforts seek to curb the predominantly international content available through news and web portals, such as CNN, BBC, or Yahoo, and by global Internet platforms, such as Facebook and Google's Gmail. The use of mobile infrastructure to achieve this purpose has drained the resources of the existing networks. With their capacity to sustain the high demand, cut user costs, and lay the ground for sound local content development, land-based broadband video networks, providing the backbone to mobile broadband, may be able to provide a better and more sustainable solution.

Conclusion

On its paths to broadband revolution, Africa needs to overcome three major challenges:

- 1. The "build-it-and-they-will-come" theory: The continent is deploying hundreds of thousands of kilometers of fiber-optic cables on pure speculation. There is a lack of strategic market research or needs assessment information. The risk is to drain the means useful for development projects into networks which could become "cyber elephants." If the expectations are not realized, the companies may not realize a return on their investment and the institutions in charge of such broadband management may not achieve the desired growth. Or this nascent industry bubble might burst, like in the US dotcom bubble or the well-known casualties of the past like WorldCom, Tyco, Global Crossing, Adelphia Communications, and of course, the railroads of yore.
- 2. A fragmented market: The fragmented nature of the African market contributes to the difficulty in building a useful economic model. Vinoth Gunasekaran and Dr. Fotios C. Harmantzis from Stevens Institute of Technology Telecommunications Management (2005)¹¹ say that there are numerous broadband business models proposed. But it is necessary to figure the most suitable to the context. Restarick and D'Aleo (2009) quoted the computing pioneer, Alan Kay, as saying that "... after the printing press: the development of a ubiquitous, high-speed broadband network [will link] people, businesses, educational institutions, services, everyday objects and appliances, and much more. Consumer demand for high-speed networks is strong, driven especially by mobile broadband connectivity. But effectively monetizing broadband deployment will be a challenge. Competition will only intensify, especially between traditional providers and cable companies."¹²

Given the challenges, it is imperative that states and investing companies start with a careful network plan and strategize accordingly. For the planners, several considerations should be taken into account:

- *Local capacity and demand for the access network*. For both broadband wireless access and fiber deployments, linking the rollout plan to local demand is the key to establishing an adequate business case.
- *Backhaul and core capacity*. Increasing the footprint and capacity of access networks requires detailed analysis and preparation of aggregation points in the network, specifically backhaul from regional exchanges and, generally, multiprotocol core networks.

¹¹ Migration to 4g-.ubiquitous broadband.economic modeling of wi-fi with wimax. Stevens Institute of Technology Telecommunications Management (Castle Point on Hudson) 2005.

¹² Planning an effective high-speed broadband deployment, Jonathan C. Restarick and Marco D'Aleo, 2009.

- Costs for a next-generation operations support system (OSS). The OSS structure for a next-generation network is radically different from a traditional network. Provisioning requirements and new ways of managing customers and services necessitate an enhanced OSS capability if multibillion-dollar broadband investments are to deliver adequate business value.
- *Government subsidies*. Governments see high-speed broadband networks as a key to achieving important policy objectives, so they have to take a variety of supportive actions. These can be, as in the case of Japan, the use of tax incentives and DSL regulation to drive growth in fiber-to-the-home deployment. In general, the business case for many carriers will depend heavily on direct or indirect government subsidy and on the direct participation of local municipalities.
- *The role of utility companies*. Utility companies have become one of the largest drivers of fiber-to-the-home connectivity, using their existing pipes and ducts to enable faster, less expensive deployment. In Norway, for example, utilities now connect more than 6 million citizens with wireline broadband access. Service providers must therefore consider what role utility companies might play in the overall high-speed broadband ecosystem.
- *Potential savings*: High-speed networks can be less expensive to operate. A carrier's real estate portfolio, for example, will be substantially smaller along with its investment. Higher capacity optical switching requires less floor space in exchanges and can provide greater reach from exchanges to customer premises. The lower energy cost of an all-fiber network also contributes to savings. These savings will not materialize, however, if providers must maintain both their new broadband network and their copper legacy network.¹³
- The network deployment is focusing on the most profitable geographical areas, primarily major urban areas and intercity routes. They create an imbalance between towns and rural areas, paving the way for a divide which might keep the rural inhabitants out of the stream.

The success story of mobile phone companies in Africa is well known and documented. However, lessons learned from its flaws do not seem to enlighten the decision-making process related to broadband deployment. There is a real danger of serious policy mistakes. As in developed markets, broadband strategies in developing countries tend to focus on investment in optic fiber. The focus on fiber may miss the transformational opportunity provided by broadband, video, and the unmatched content of Africa.

Accenture: Reshaping the business for sustainable digital growth, Why a new operating model is needed for high performance in tomorrow's digital Media and Entertainment industry. Consulted May, 10, 2012.

¹³ Ibid.

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