Kitskoo
Make the Future Different

AFRICA AND THE GLOBAL DIGITAL ECONOMY

BACKGROUND

In a study last year, the World Bank determined that a 10% increase in mobile phone subscribers leads to a 0.81% increase in economic growth. But a 10% increase in high-speed internet leads to a 1.38% increase in economic growth or more than 50% higher than with mobile phones! There are five components that have to be in place in order for the country to be competitive in the global digital economy.

FIVE COMPONENTS ARE NEEDED FOR AFRICA TO ENABLE ITS INFRSTRUCTURE FOR THE GLOBAL DIGITAL ECONOMY

1: WIRELESS & MOBILE TOWERS - This is the first factor and it represents the all important access (or "last mile") to the customer. Given the extremely limited copper distribution in the country (less than 20% of homes or locations have access to a landline) the only way that the majority of the population will get broadband Internet is wirelessly. However, most wireless broadband technologies require the user to be within 0.5Km - 2km of the tower/base station particularly if it is mobile wireless (yes, there are technologies that allow users to be tens of kilometers away but these tend to be specialized and expensive). For example in order to support mobile broadband, the Singapore telecom company Starhub has more towers/base stations than the Philippines largest carrier SMART has in the whole of the Philippines! After many years AT&T has eliminated their unlimited mobile data plans as "unsustainable". While neither of these situations has a direct correlation to Africa, they never the less point to the fact that both building out mobile internet infrastructure and providing broadband Internet service is expensive. Significant tower expansion is the only way to ensure proper Internet access and quality for the majority of Africans. Yet tower expansion is expensive and broadband prices are generally fixed, usage is unlimited and the service is less profitable than voice and texting. In fact towers consume up to 50% of a mobile carriers capital expense and up to 60% of their operating expense! Many countries have found that regulating or encouraging tower co-location or sharing is the only way to ensure proper coverage and service. Therefore operators and carriers must take advantage of significant cost savings and the government regulator must push carriers to adopt cost saving measures that will ensure better coverage of the service. Sharing is good for telco's who can save up to 75% of the Capex cost of building new towers and 60% of their Opex cost for running and maintaining existing towers. It is good for the

country as broadband becomes more widely available. It is good for subscribers who enjoy higher quality service at a lower price. And it is good for the environment as it reduces power consumption and pollution and eliminates the eye sore of multiple towers in the same location.

2: NATIONAL FIBER OPTIC BACKBONE - The second factor is fiber optical cables, which are the complement and backend connection to the wireless and mobile towers. Fiber optics are the "super-highway" on which all the other elements depend. It is divided into two categories International Cables and a National Backbone. Surprisingly the international cables are simpler and easier to build (no rights of way in the ocean!) and the majority of the cost is borne by foreigners (local telco's primarily pay for the local cable landing station). The national backbones must reach deep into the tertiary cities and municipalities. High speed Internet can only occur when there is sufficient "bandwidth" or network capacity and this can only be achieved with fiber optic backbones. Therefore both high quality and mass market broadband cannot take place without extensive fiber optic backbones. This is extensive and time consuming. In some countries, the right of way is shared by all the utilities and there is either cooperation among the carriers or independent companies that specialize in building the fiber optic networks to be used by all industry players. An analysis indicates that the majority of the African are unlikely to be provided with quality broadband that can reliably deliver voice, data and video anytime soon.

3: NATIONAL INTERNET EXCHANGE - The third factor is opening up the Internet for local business and entrepreneurship. Currently 15% - 25% of the internet traffic is domestic. Domestic traffic starts and finishes in the same country. The origination and destination may be as close as across the city or even across the street from each other but in many African countries 60% - 80% of this local or domestic Internet traffic is being sent out of the country to Europe or the US before returning. The lack of a proper Internet exchange means that accessing and interacting with local web sites and the performance of many applications and games can take more than twice as long as it should. It also makes the country dependent on international cables. While international cables situation has significantly improved over the past two years, internet traffic has exploded and the dependency of business, commerce and personal communication has similarly increased. "Peering links" are where telcos exchange Internet traffic locally. However, while these do exist they tend to be small, congested, difficult to obtain and subject to various pricing agreements. An Internet Exchange allows internet traffic particularly local traffic to flow over the shortest route. It reduces costs for the carriers

because it reduces the international bandwidth required to maintain a minimum level of service. Even though international costs have fallen, it is still many times more expensive to pay for international bandwidth rather than connecting locally. The lack of an Internet exchange costs countries foreign investment and job creation. It is a disincentive for foreign companies or providers to locate their websites, services and businesses locally as even their local customers will experience more delays than if they located their servers and services in the U.S. or Europe! A broad spectrum of industry players agree that it is a problem that can be easily fixed, but many believe that although they are willing to cooperate others will not!

4: OPEN MOBILE PLATFORM - There is a global push for getting public and essential services into the hands of the general population. According to The Economist the mainstream economic view is to "get markets right first" and then to deal with any pockets of poverty afterwards. However, this "trickledown theory" is just that a trickle. In many cases poverty remains persistent. A new view is developing that there must be a specific push to deliver critical services, information access and communication to the general population directly. Some of these initiatives in the area of agriculture, social services, health, education and micro-finance are coming from international and multi-national organizations including the UN agencies, the World Bank, ADB, USAID and others. The mobile phone is the most important tool in reaching the broad population, be it for basic services or in preparation or response to a disaster. For today and the foreseeable future the mobile phone is the most pervasive and de facto technology that is able to reach, communicate, inform and educate 80% of the world's population. Unlike other technologies (e.g. radio) it allows for acknowledgement of the information and communication provided. It is two way and supports input, response, communication and participation. Today however, most carriers have virtually closed their networks to all but their own internally generated services. Outside or third party commercial service providers are seen as a threat. Or, if they are allowed to provide services over the telco's network they are reluctantly supported after many months of negotiation and testing and only after they agree to turnover the majority of their revenue to the telco.

5: INFORMATION & COMMUNICATION EDUCATION & TRAINING - This is the fifth and final component. The purpose of the previous four factors is to create an infrastructure that will unleash job opportunities, entrepreneurship and innovation. However, it will be critical that skilled and educated talent is available to both support the infrastructure and take advantage of it. While it is no less important than the other

four components it is essentially different. This is because education and training is much more scalable than the other components and does not require an industry leader or industry cooperation to get started. If the education and training industry is properly informed and encouraged it is likely they will respond to the expanded opportunity.

THE SOLUTIONS ARE NOT COMPLEXT BUT THEY DO REQUIRE LEADERSHIP

Implementing the National Internet Exchange primarily requires a neutral party and some attention from industry executives. While this is not easy it is a relatively simple problem to solve.

National Fiber and Wireless Tower sharing presents more of a challenge. Both of these concepts are well established in many countries such as India, USA and Singapore, and are either supported by the industry or mandated by the regulator. While a “neutral third party” will be helpful or even necessary it will not be enough. These two factors will require leadership both within the industry and in government.

The concept of an Open Mobile Platform is just starting to take hold within the industry. This “change of heart” is occurring mainly because Apple has scared both handset manufacturers and the telco’s with the stratospheric success of the iPhone. A key factor of success for the iPhone is that Apple opened its platform to all software application developers. This generated tens of thousands of applications many of them free or less than $2. Apple also made the applications easily accessible to customers from the Apple app store on the Internet. Suddenly a model that discourages third party applications and makes them difficult to use and access has been called into question. In addition, governments are beginning to realize that information and communication are too important for the “common good” to be left completely in the hands of the private sector. However, visionary leadership either at the industry level or the government will be required to achieve the required breakthrough in this critical area.

THE BENEFITS ARE TOO BIG TO IGNORE AND FAILURE IS TOO FRIGHTENING TO CONTEMPLATE

Some studies have attributed up to one third of GDP growth to telecom investment. A 10% increase in broadband yields a 3% increase in non-farm employment. Widespread access to broadband reduces the challenges of low population density and physical remoteness from cities.

Information and Communication Technology (ICT) is an accelerator of economic and social development. It has well documented benefits including, job creation, improved efficiencies of distribution of services, information and goods (including agricultural). ICT increases worker productivity, it provides more efficient and increased access to "basic" services such as healthcare and education.

Failure to accelerate ICT to the population in general, will contribute to the widening of the gap between rich and poor and significantly reduce the already falling competitiveness of the Philippines.

BIG IDEAS

1. **Tower company:** Setup a company to acquire existing towers and build new ones. This has been successful in countries as diverse as the U.S. and India. Scale economics works here and is powerful. This would significantly reduce one of the major costs of setting up and running mobile Internet service.
2. **Africa-wide fiber network**: Many of the countries along the coast of Africa have one or more international fiber optic cables, which are critical for connection to the Internet backbone. In addition, currently through various initiatives (including those of the World Bank) certain countries and even regions (e.g. East Africa) have built or are building fiber networks. This idea takes it a couple of steps further where regional networks are developed in all regions, North, East, West, Central and South and then interconnected to promote continent wide trade, commerce and information sharing. The regional focus will ensure that the project gains acceptance and traction and does not become so unwieldy that it doesn't work. On the other hand it promotes regional cooperation which is vital to development.
3. **Tower and backbone network**: Combining both the towers and the fiber optic backbone would have a multiplier effect on accelerating broadband as it would allow the operators to focus on sales, marketing, product development and customer service.
4. **Build a mobile applications network:** Buy significant wholesale capacity from existing mobile operators across Africa. Evangelize and promote the development and deployment of applications on this "virtual" mobile network.