



Knowledgefaber

**"27 insights" that
Summarize Telecom
Industry Developments
in Emerging Economies**

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*Knowledgefaber can help you win in emerging telecom
markets around the world.*

11/20/2009

Summary:

Trend area 1	Trend area 2	Trend area 3	Trend area 4	Trend area 5	Trend area 6
Value Added Services	Consolidation of Industry	Rural market Potential	Govt. Regulation	Drivers of economic Growth	New Technologies
Consolidation of Players	Number Portability	Infrastructure Sharing	Issues with Spectrum Allocation	Internet Penetration	Competition with new technology
Revenue Sharing with Operators	Race to acquire Market Share	Innovative Energy Solutions	FDI Policies	Mobile as a Service	Opportunities for Equipment Suppliers
Attracting PEs and VCs	Aggressive Pricing Plans	Low cost Handsets		Making Transactions Easier	Technology enables VAS
Whats Next	Global Acquisitions	Healthcare and Mobile banking		Cheaper SmartPhone	Wimax
	Broadband Connectivity			Identification through Mobile	IPTV and Triple Play Services
				Mobile Advertizing	

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Value Added Services: Value Added Services (VAS) is the next big play for all wireless operators.

Consolidation of Players: An aggregation of VAS players by service providers or a consolidation among larger VAS players are expected in the near future.

VAS contribution to total revenues of wireless operators could reach 25 per cent levels in the next five to six years from the current levels of 10 per cent. Realizing this, the Telecom Regulatory Authority of India (TRAI) has recently come up with recommendations for a regulatory framework for VAS. Additionally, players realize the importance of getting the first mover advantage in the Indian VAS market and that they do not have the luxury of a long drawn in-house R&D process. Thus, acquisition of VAS providers seems to be a possibility for wireless operators. However, a conflicting trend seems to be from market leader Airtel which has sold its VAS business Comviva. Therefore it seems more likely that VAS players will consolidate to form larger players to develop scale and bargaining power.

Revenue Sharing with Operators: The revenue sharing agreements between VAS players and Service Providers will become more equitable and slowly favoring VAS players in the long run

Also, currently in India the operators take almost 70 per cent of the revenue pie, while content developers, aggregators and technology enablers are left to share the remaining 30 per cent. Fewer, stronger VAS providers could affect a shift in this revenue sharing arrangement. The Chinese, however have a very liberal VAS industry where operators give 75% of the revenue share to content creators. In India, TRAI needs to intervene in this and make this at least 50% for content businesses to grow faster.

Attracting PEs and VCs: VAS players are the next big thing for PE Firms and VCs lining up big money deals for major players

At the same time, we have already seen cross border M&A activity, with Indian players acquiring niche VAS firms abroad and vice versa. An example of this is the acquisition of Telisma (a European speech recognition company) by OneMobile – India's leading VAS firm. Also, UK based 2Ergo (a mobile marketing firm) announced the acquisition of ActiveMedia Technologies. ActiveMedia has most of the major GSM and CDMA operators in India in its client list. IMI Mobile Raised \$13 Million In Funding From Sequoia Capital.

What Next: Service providers await the next big service that achieves the same global impact like SMS did

Innovative services will be fueled by the spread of the 3G network. For e.g. Safaricom Kenya's Instant Internet service which is charged on a usage basis at \$0.10/MB on average, with only the phone cost as entrance fee and provides push-email and organizer applications in addition to browsing has helped them in acquiring 1.1M subscribers in 2008. Tata's in India has taken advantage of small footprint

browsers (100-160KB) from Opera & Novarra optimized for use on low end phones to capture 1.3M users in less than 18 months. They offer variety of services like text, image, and video with fast loading in advertising plus subscription model.

In China, the Ministry of Information Industry (MII) made a declaration to classify the VAS into five categories, which are VAS in the fixed telephone networks, VAS in the mobile telephone networks, VAS in satellite networks, Internet VAS, and VAS in the other data networks.

In Brazil, The expansion of UMTS/HSPA coverage and the presence of variety of 3G networks in the most important urban areas of the country will force Brazilian mobile operators to evolve their current data strategy. The present focus on SMS will give way to efforts to strengthen multimedia type VAS and wireless broadband access. This will lead to the emergence of other services which will try to replicate the buzz created around SMS, by leveraging on newer technology tools like 3G.

Consolidation of Industry: Consolidation expected in the industry with stagnating revenues and rising tele-density indicating a tapering off of growth in the near future

Number Portability: The rise of number portability along with falling ARPUs will drive further consolidation of the industry

Race to acquire Market Share: Currently, all new service providers are in race to acquire market share with aggressive pricing plans

Aggressive Pricing Plans: Pricing of vanilla offerings like call rates and SMS charges will drop drastically. Schemes like pay per call (irrespective of minutes) will soon be a reality.

Addition of new lower pricing schemes, coupled with the large scale acquisition of new customers has meant that there has been a general stagnation of overall revenues in the telecom market. New operators have been gaining revenue market share at the expense of incumbents. Bharti Airtel Ltd and VodafoneEssar Ltd, for instance, lost 50 and 30 basis points, respectively, in revenue market share last quarter. This explains why these companies have eventually chosen to mimic the aggressive pricing strategies initiated by new firms such as Tata Docomo.

India is set mobile number portability on Dec 31, 2009, a move that could further intensify the stiff competition in the world's fastest-growing wireless market and push call charges lower. Mobile Number Portability (MNP), which allows users to retain their number even if they switch operators, will be introduced in two phases, the telecoms regulator said, first in the metro cities and the so-called Category A telecom zones and in other areas by March 20, 2010.

It all adds up			
Average revenue per mobile-phone user per month 2008, \$			
Japan	56.9	Nigeria	12.7
France	54.2	China	10.1
United States	50.7	Kenya	9.8
Britain	37.3	India	6.5
Germany	30.5	Indonesia	4.8
Brazil	14.6	Bangladesh	3.7

Source: TeleGeography

In Russia, deputy IT and Telecommunications Deputy Minister Boris Antonyuk has said that number portability for fixed line and mobile subscribers is 'unlikely' to be introduced in Russia until 2012. Antonyuk said that around 40% of telephone lines in Russia are still analogue and currently do not allow fixed line subscribers to move to another operator while keeping the same number, adding that networks would not be fully digitized until 2012.

In Brazil, Number Portability, which was launched in September'08, will now be available to another 8.3mn fixed and mobile telephony users in Brazil's four states, reports country's telecoms regulator Anatel. To counter competition arising from number portability implementation, Telesp is expected to undertake increased promotional spending which would negatively impact margins.

However, in the medium to long term, Bharti Airtel foresees a consolidation of telecom rates, as the business models of many new operators are not viable, it feels. "I feel consolidation in terms of tariffs will happen in one to two years, which should lead to some stabilization in the sector," said Manoj Kohli, CEO and managing director, on the sidelines of the India Economic Summit.

Tata Indicom, the CDMA arm of Tata Teleservices, has just unveiled an innovative pay-per-call plan. The Tata Indicom subscribers will have a fixed charge on a per-call basis – at Re 1 for all local calls and Rs 3 for STD calls – regardless of the duration of the call. Industry analysts are still wondering about the viability of such a scheme. This is after the per second calling system introduced by Tata Docomo recently. A similar technology has been seen enforced in Mexico despite the huge monopoly enjoyed by Carlos Slim and his company Telmex. Also, reducing the termination charge as suggested by communication minister Mr. A. Raja, will help to lower the tariffs further. Local call charges can come down to as low as 10 paise a minute and STD charges to just 25 paise. The termination charge is the levy paid by one operator to another on whose network the call ends.

Global Acquisitions: Large companies may look to acquire a more global reach as local markets stagnate

The Bharti-MTN prospective deal is a sign that operators are looking overseas for growth. The African telecommunication market is estimated to grow at roughly 40 per cent and is expected to continue to show higher growth for much longer period after the Indian market stagnates. Also, the average revenue per user is much higher at Rs 600 in these emerging markets compared to Rs 250 in India. The domestic merger and acquisition norms have also made it difficult for existing telecom companies such as Bharti and Reliance Communication to acquire other large operators within India. On the other hand, a deal with South Africa's MTN will give Bharti access to nearly 100 million subscribers across 21 countries. Also in the news, BSNL is likely to submit financial bid for a majority stake in Zambia's leading telecom company, Zambia Telecommunications Ltd.

Broadband Connectivity: Fixed line revenues services are declining steadily with more and more households cancelling connections in India but this trend is reversed in China and in Russia due to the rise of broadband connectivity

In Russia, the operators are going for outward internationalization strategy as the best option for their development. The mobile service markets of the former USSR countries (except from the Baltic States) are potentially quite attractive for Russian telecom companies due to their growth potential and low level of competition. Many Russians cut expenditure on entertainment outside the home, spending more time at home due to the current crisis. This has helped fixed-line operators. Since the beginning of the year, there has been an increase in landline-to-mobile calls, a rise in internet traffic and greater demand for TV services.

By number of subscribers, in 2008 **China** had the most fixed broadband users with 83.4 million (53.8 percent of the region's total subscriber base), followed by Japan with 30 million and South Korea with 15.5 million. Looking forward, experts dispel the threat of mobile broadband to fixed broadband services. They believe that both these access services need to co-exist. In the age of convergence and multi-play services, both wireless and wireline broadband should be viewed as complementing technology to offer subscribers with blended services. While mobile broadband has significantly lower throughput than fixed access, it provides residential users with the convenience of 'on-the-go' connectivity. Asia-Pacific's fixed broadband subscribers are expected to grow 17.3 percent to reach 182 million users by the end of 2009, clocking estimated billings of US\$44.9 billion, a rise of 13.3 percent over 2008. Frost & Sullivan industry analysts attribute this to the various government initiatives in rolling-out their national broadband ambitions such as Malaysia's high-speed broadband (HSBB) project, Australia's national broadband network (NBN) and Singapore's iN2015 master plan. At the same time, in sharp contrast, fixed line services stood at around 37 Million subscribers in **India** a base that is steadily declining at around 0.13 Million customers every month.

Rural market Potential: The rural market is here to stay and all efforts (investments, technology etc) are tuning in to the large market potential

Infrastructure Sharing: Rising costs have led even the major players to enter into tower sharing agreements with their competitors

Given that roughly 70 per cent of India's population is rural and urban-teledensity has already hit a high 75 per cent—90 per cent plus in the metros—it's rural subscribers who will come into the fold and drive the industry for the next few years. The mobile user base is expected to increase from 400 million at present to 900 million by 2013, though operators are not betting on a proportionate increase in revenue generation thanks to lowering of ARPUs and increased competition. In China, China Mobile will spend a whopping \$8 billion on bringing 2G coverage to rural areas this year.

Innovative Energy Solutions: Deficiencies in basic infrastructure like electricity are made up for by innovative ideas such as solar power, fossil fuels etc.

For example in rural markets, the regular laying of the network and selling phones and pre-paid cards alone does not work. Towers need electricity and most of the rural areas are short of it. They have to run the towers on diesel and generators. This operational cost is the major chunk for any telecom company. That is the reason why telecom companies are reluctant to penetrate rural markets at the same pace as they did for urban markets. The regular towers which run on electricity might not be the solution. There are efforts to make solar GSM towers which run on the sunlight and wind power. There are also companies like Ericsson which are working on a similar kind of tower which consumes less of the fossil fuel.

Sharing of telecom infrastructure seemed to be the most logical step towards improving capital efficiency and reducing the cost of maintaining passive telecom infrastructure, besides enabling them to focus on their core operations. Besides hived off telecom infrastructure subsidiaries, there are several Independent Telecom Infrastructure Companies (ITIC) that build passive and active telecom infrastructure on anticipatory basis and rent it out to operators. For example, Essar Telecom Infrastructure Limited, Xcel Telecom Private Limited, GTL Infrastructure Limited etc. Etisalat DB, a leading telecommunications company in the Middle East and its subsidiary would outsource their telecom infrastructure requirements for the 15 telecom circles, encompassing end-to-end tower and transmission infrastructure to Reliance Infra Limited and Reliance Communications Limited. Top mobile firm Bharti Airtel, Vodafone Essar and Idea Cellular have formed a joint venture that has more than 100,000 towers. Telecom tower companies have also attracted interest from foreign investors. New York-listed American Tower in March agreed to acquire Indian tower firm Xcel Telecom in its bid to expand in the world's fastest-growing mobile market. Bharti Airtel's tower unit has raised \$1.35 billion by selling stake to private equity firms, while institutional investors own 5 percent of the Reliance Infratel unit.

In China, Ministry of Industry and Information Technology of China has just issued a circular that requires China Telecom (CHA), China Mobile (CHL) and China Unicom (CHU) to promote the sharing and co-construction of telecommunications infrastructure. China Mobile was the world's leading mobile communications service provider with over 400 million customers. In some cities, its penetration rate was over 100%. With such huge successes, Chairman Wang Jianzhou was exploring ways to expand its customer base. Nearly saturated in the cities, China Mobile needed to broaden its base of subscribers. Wang believed that further investment in China's rural villages was a key strategy that would help the fuel growth for the future. However, the cost of connecting remote locations was high and was often not offset by subscriber fees or usage rates of these populations.

Low cost Handsets: Handset manufacturers are developing low cost phones to cater to rural demand.

According to a report, mobile handset sales in Indian rural market is expected to grow at a CAGR of nearly 17% during 2009- 2012 to exceed 75 Million Units by 2012. This growth will be primarily driven by

the introduction to low cost, affordable handset devices targeted at rural populace of the country. One of the major reasons for the anticipated growth in rural mobile handset sales is the subscription of merely 13% of the rural populace to mobile telephony services. Companies like Micromax, Intex Technologies, Karbonn, Byond & Fly, amongst others, are in the race to pump in huge money in marketing activities to rope in rural customers. These companies are bullish about the Indian rural market in terms of the number of handsets being sold. As per analysts, almost 60% of the total net additions are from the rural area, which makes this market more lucrative for these small handset manufacturers. Anticipating this future growth several handset manufacturers, like Nokia, Samsung, Motorola and LG, are preparing to enter the developing rural market in India. Ultra low-cost handsets (ULCH) those selling for \$35 or less will determine the success of operators and vendors in emerging markets, according to Strategy Analytics. More than half of the 300 million ULCH expected to be sold in 2013 will go to emerging markets, with China and India playing a crucial role in driving the growth.

Healthcare and Mobile banking: Healthcare and mobile banking have been a revelation thanks to the convenience of the mobile

In India, thousands of people from rural areas across 12 states are likely to get their social security pension and wages paid under the National Rural Employment Guarantee Act (NREGA) scheme with the help of mobiles. The ecosystem is important since banking regulations in India currently do not allow cash for exchange of another 'unit' such as 'airtime' in the case of mobiles. Only banks and the Indian Post (through money orders) are currently allowed such transfers.

Mobile banking, which is catching up fast in the cities and rural India as well, is not only helping the government to take a step forward towards fulfilling its aim of having one bank account for every household, but also saving it crores of rupees by way of reduced transaction costs. The mobile acts as a branch of the bank by storing a database of customers. It also has a smartcard, which biometrically stores the identity of the customer such as name, address, photograph, fingerprint templates and relevant details of the savings or loan accounts held by the issuing bank. Customers get a secure electronic identity via phone or smartcard, while agents take deposits and dispense cash. ALW works with the banks on a revenue-sharing basis.

Primary Health Care Services using Mobile Devices ensures improved access to primary healthcare and its gate-keeping function leads to less hospitalization, and less chance of patients being subjected to inappropriate health interventions. Many primary healthcare clinics located in the rural areas do not have any electronic systems at all & continue to operate paper-based systems, resulting in patient records being kept by patients themselves.. Many vendors of Cellular phones started to embed a variety of e-health services in Mobiles. In South Africa, The Dokoza system is an innovative cost-effective interactive real-time mobile system for fast-tracking & improving critical services to the broader majority. The system has been developed for use initially in HIV/AIDS(specifically in respect of the roll-out of anti-retroviral therapy)and TB treatment, with the view to including other diseases. Furthermore, Dokoza back-end system is easily integrated with all existing hospital systems(such as the National Lab)and Dokoza can also be accessed in real-time via PC web, laptop, PDA, Smart phone, Palmtop and is able to interact with fax and email.

Govt. Regulation: Regulators have traditionally been slow to adapt to changing times and regulations have proved to be a bane towards ushering in growth

Issues with Spectrum Allocation: Handling of spectrum allocation issues, 3G and WiMax auctions have been slow and lethargic from regulators and it is credit to the telecom companies who have grown despite the regulatory hurdles

Availability of Spectrum is the biggest bottleneck in certain developing markets: It is very important for survival of Mobile business to achieve minimum scale when it comes to spectrum. Good governance is needed on this regard with transparency of policies and optimality of allocation. Low spectrum means more base stations and higher cost to service the same subscriber base. Due to lack of consolidation in Indian market we have an average allocation per operator of around 6MHz which is very less when we compare it to 22 MHz present in most of the economies. Our customer base and usage is also far greater than in most markets. Inevitably, the result is higher costs which limit future growth, especially in under-served areas. The new entrants generally get a spectrum of 6.2 MHz and this puts them at a competitive disadvantage as compared to the incumbents who have an average of 8-9 MHz of spectrum. Since most of the other economies have 3-4 major players this is not a deterrent in other emerging economies.

FDI Policies: Efficient policy making is lacking in most emerging economies to control the flow of FDI and private funds into this sector both into service providers as well as VAS companies.

Governments have mixed policies towards consolidation in Emerging markets: India has a restrictive M&A rule that prevents consolidation. Most other geographies in the world including France, US, China has 3-5 operators in each circle but India has up to 12 operators in each circle. The Brazilian Telecom sector on the other hand is fully liberalized and there are no restrictions on foreign telecom capital. Brazilian telecom industry is dominated by three groups -- Spain's Telefonica, Mexico's Telmex and Brazil's Oi and they are further expected to merge and consolidate. However the cash offer by France's Vivendi SA for Brazilian telecom operator GVT Holding SA had come as a surprise to local operators.

China telecom sector saw a consolidation in May 2008. As a result there were a series of M&As in China. China Telecom acquired the CDMA line of China Unicom, and China Unicom was merged with China Netcom. Another incumbent operator, China Mobile, acquired China Railcom. The idea behind the restructuring was to allow each operator offer full telecom services and to achieve the scale necessary to serve the market effectively.

Indian telecom sector is moving through a fast growth and development stage in the current times but the trends suggest that there will be a lot of consolidation in the market once the markets becomes a

little stable. Vodafone and France Telecom are the most likely to be tempted because of their existing presence in emerging markets.

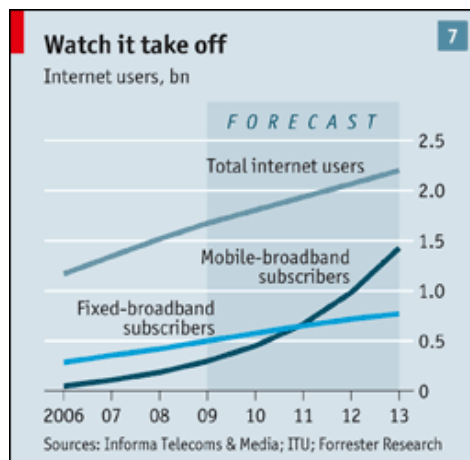
Driving economic Growth: Telecom and not Internet is proving to be the major growth driver in developing economies

Internet Penetration: Expect your mobile to do what your PC does and more. Mobile will pave the way for faster internet penetration and innovation

Mobile as a Service: Service providers will lose their clout over the customer as the mobile becomes more of a service with companies like Google leading the way.

Mobile teledensity (the number of phones per 100 people) went above 100% in Western Europe in 2007, and many developing countries have since followed suit. South Africa passed the 100% mark in January, and Ghana reached 98% in the same month. Kenya and Tanzania are expected to get to 100% by 2013. At current rates of growth it seems likely that within five years, and certainly within ten, everyone in the world who wants a mobile phone will probably have one. 3G networks capable of broadband speeds will be widespread even in developing countries, and even faster 4G networks will be spreading rapidly in some places.

The one laptop per person scheme which has proved to be largely unsuccessful will pave the way for Netbooks and technological advances that will help the growth of mobile broadband connections.



keep the consumer's utilization point in the same place. Add to that the increasing attractiveness of mobile devices such as the iPhone that offer access to video, Internet and telephone, and the portal's stickiness gets stickier. All roads lead to convergence—the ultimate quad-play offering of seamless voice, video, Internet and wireless.

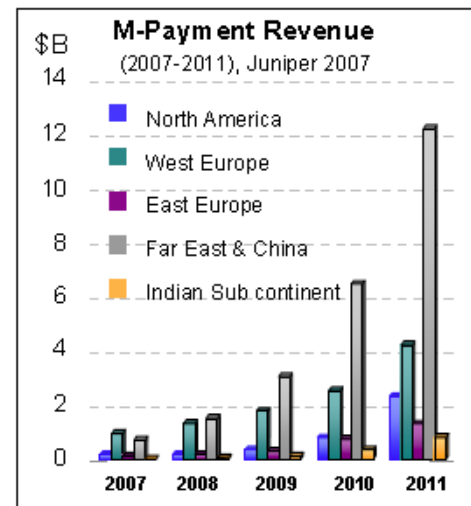
Making Transactions Easier: The mobile will become the easiest medium to carry out all the transactions. Careful development is needed to nurture in M-commerce, Mobile Gaming, Email, Social Networking platforms etc

Mobile Music becoming popular taking use of business model refinement and low cost technology:

Higher speed 3G networks are capable of downloading and streaming rich media to many users at once economically. This has become possible because of various changes in the business models. Reduction of music royalties and DRM protections are some of the prominent features in advanced business model. China Unicom's AnyMusic is one of the pioneers who have used this service to increase their customer base. It lets users download free music related contents like full-track songs, ringtones and wallpaper in exchange for viewing Ads embedded in the contents. Considering the need of emerging markets this facility is also designed to work on low end phones with small amount of memory. With the backing of these services Unicom acquired 1.7M subs in 14 months. Similar services were deployed by Iusacell, Mexico, Hutchison CAT, Thailand, and Tata, India and all were met with good response. Another example is Airtel India's Live Music. It is an on demand streaming music service offering selection amongst 1.25 million songs from diverse categories and language at only \$0.60 for 30 minutes.

Mobile Commerce: Another important source of revenue for mobile operators is mobile commerce. It includes mobile banking, P2P payments, M-Ticketing, POS payment, Mwallet, etc. The graph below shows the actual and expected quantum of mobile payments and we can clearly see the high growth rate especially in the China and Far East region. Mobile operators in Africa and Bangladesh have used these services very intelligently to increase their subscriber base and at the same time improving the access levels of society.

A prototypical example is Safaricom Kenya's MPESA service, which enables individuals to send between \$1.5 and \$500 to any individual registered with the service at low transaction fees ranging from \$0.40 to \$5.00.



Cheaper Smartphone: Handset makers will launch Smart phones at competitive prices to handle the demand and conveniences generated by the growth of the telecom experience

Next year falling Smartphone prices are set to boost market growth as Nokia and Google push their operating systems -- Symbian and Android -- to cheaper phones where sales volumes are higher. This is continuing with the overall trend of growth in VAS and growth in rural markets leading to greater demand and price competition.

Identification through Mobile: Policy makers will find mobiles the easiest way to connect to individuals and mobile ID verification may soon become common place.

The Unique Identification Database Project (UID) also plans to use the growing mobile phone network to verify the identities of individuals and provide an initial databank. Today, the mobile user network is tending towards a whopping 500 million. And by the next 4 years, close to half the mobile users will be able to use their mobile phone to verify their identities. Now, a recent news story announces mobile phones will verify the credentials of an individual. The scope for utility is endless. Few months back, we

wrote about the expansion of the mobile into rural regions. Another related post spoke about the rural job market and the potential for expansion. If mobile phones become the verifying agent, easy verification will help the job market as well.

Mobile Advertizing: Mobile Advertising will spark off a new wave of marketing strategy.

Mobile/Digital advertizing has shown growth rate of above 60% in last few years: Mobile advertizing enjoys higher response rate due to its reach, immediacy and relevancy. It exists in various forms, such as messaging (e.g. sending coupons by email or SMS), ad banners on the mobile web, ads returned with search results, and ads embedded in contents like music, videos & games. Off-portal social networking site, Buzz City is one example of successful banner advertising. It has a similar focus as facebook and it focuses on creating middle class communities in developing markets. It serves hundreds of millions of paid Ad banners in each of over a dozen emerging markets countries.

New Technologies: Advanced Mobile technology such as 3G and WiMax will rise in prominence and become enablers to the telecom revolution

Competition with new technology: For telecom operators this would mean a new round of innovation and competition to increase their market share.

Opportunities for Equipment Suppliers: Operators would be investing Billions of dollar to make the network 3G enabled and this would be a big opportunity for equipment suppliers

Technology enables VAS: 3G would substantially increase the bandwidth for cell phone surfing and this would led to innovation in field of value added services

3G is a feasible, cost-effective way to bring Internet access to emerging mass-markets, particularly in areas where the costs of implementing fixed line access are too high. 3G also add to the capacity in countries where service providers are running out of 2G spectrum. 3G broadband access to internet is successfully exploited by many service providers like TEF in Chile, MTN and Vodacom in South Africa and Smart Communications in the Philippines.

Telecom operators in emerging economies are betting high on the revenue potential on 3G services and are really moving fast to make the most of it. **In China**, China Unicom launched 3G services Oct. 1 and had more than 1 million subscribers to the mobile technology standard at the end of that month. To further enhance this growth, operators in China are also subsidizing mobile phones. In Brazil 3G services were launched last year and 3G market is expected to reach around 15% of the total market by the end of 2013. In Russia the big three got the 3G licensees in April 2007 and Russia's MTS eyes \$2.5 bln annual 3G revenues. With the increase in the no. of subscriptions there will be a lot of innovation to increase the bouquet of services and increase the reach in order to maximize the revenue for operators.

WiMAX: WiMAX will take broadband to remote locations

WiMAX as a service has the potential to provide wireless broadband access to wider areas. It promises to be a better-performing, less-expensive alternative when compared to the existing technologies (like DSL, Wi-Fi). Worldwide WiMAX subscribers are forecasted to grow at a CAGR of over 87% between 2010 and 2012. Asia-Pacific region will lead this growth and is expected that it will have 45% of total WiMAX subscribers by 2012. However the growth of WiMAX services in all these region is hindered due to delay in spectrum allocation. In India the allocation is supposed to happen in January 2010 along with 3G allocation. In India all the major players like TATA, Bharti Airtel and BSNL are actively pursuing WiMAX. According to an estimate there will be 20 million 3G-based broadband subscribers by 2014 as opposed to 60 million WiMax users. The reason for this being availability of 20 MHz spectrum per operator and the expected lower price of WiMAX based devices. China and Russia are also in the process of complete roll out of services. According to an estimate Chinese WiMAX services will start in 2009 and market will reach 8.39 million users in 2011. A Russian telecom operator Yota who recently launched WiMAX services in some parts of Russia had reach the breakeven point in a small period of 5 months. According to experts WiMAX services can cover a wider area and are cheaper to roll out as compared to 3G and hence would be a great enabler in making broadband reach small towns and villages.

IPTV and Triple Play Services: IPTV and Triple Play services will rejuvenate the fixed line services.

IPTV is a service that sends the TV signals to the subscribers through their broadband internet cables. It had generated a lot of revenue for operators in the developed world. The no. of subscribers is expected to reach 81 million by 2013 generating revenue for around \$20 billion.

This success is still not replicated in the emerging economies mainly because of regulatory (Brazil) and infrastructure (India) hurdles. Chinese operators, on the other hand, have aggressively rolled out IPTV services, with China Telecom adding 250,000 subscribers and China Unicom adding 100,000 subscribers in the first quarter of 2009.

The operators in emerging economies introduced the concept of Triple Play services to make IPTV popular and also to justify the higher cost of the service. Triple Play includes broadband, telephony along with entertainment services. They have also started experimenting with VoD (Video on demand) services in order to increase their revenue. In India recently Bharti Airtel introduced its Triple Play Service. Brazil is also using a similar model to stimulate the growth of IPTV services in their country.

Outsourcing of Activities: Outsourcing as a practice in emerging economies have decreased the pace of R&D

The telecom operators in emerging economies have mostly focused on core operations and outsourced all secondary work like billing, network management etc. to low cost operators. This has served them well since they have been able to capitalize on the cost saving and have build their network across the span of their countries.

The goals of keeping the costs to minimum have made them ignore the importance of R&D and innovation in their business. Till now they have thrived on the innovations of the developed world. The stagnation in the developed world is hitting the bottom line of most of their operators and they might not continue with this trend. Hence in the changing circumstances, it is becoming very imperative for operators from regional economies to invest in innovation and research to maintain their growth rates.

Conclusion:

To sum it all up, mobile phones have proved to be a boon for the poor world. An extra ten mobile phones per 100 people in a typical developing country boosts growth in GDP per person by 0.8 percentage points, according to a recent study. Mobile-phone subscriptions in poorer countries accounted for just a quarter of the global stock in 2000, but had risen to three-quarters of the \$4 billion market by the start of this year. The next challenge is to expand the use of mobile technology to access the internet. Despite huge strides in producing cheap netbooks that connect via mobile networks, the mobile phone may still provide the cheapest way to access the internet in the developing world. This provides a glorious opportunity for all the stakeholders concerned and one that they must leverage.

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