IIMB Management Review (2015) **27**, 196–208

available at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/iimb

ROUND TABLE

Telecommunications at the crossroads in India

Subhashish Gupta *

Economics and Social Sciences, Indian Institute of Management Bangalore, Bangalore, India

Received 25 March 2015; revised 18 May 2015; accepted 4 June 2015; available online 21 July 2015

KEYWORDS
Telecommunications;
Cellular mobile;
Data;
Broadband;
Spectrum;
Regulation;
Policy

Abstract The telecommunications sector is going through an interesting phase in its evolution. Cellular mobile service providers have been at the root of the massive expansion in the number of subscribers and usage. Since last year the pace of growth has slowed down and it is increasingly clear that revenues from voice services alone will not be sufficient. The action has now moved to data. In fact, mobile service providers have seen a rapid increase in their revenues from data. Data, however, is more complex than voice. The key challenges are explored here.

Introduction

Even sceptics should describe the story of telecommunications in India, after deregulation and liberalization, as a spectacular success. There have been a few twists and turns as in most industries, but the narrative of high growth and low prices cannot be denied. Compared to other infrastructure sectors such as electricity, roads and coal, telecommunications stands out by the degree of its achievements. It should be admitted that the technologically dynamic nature of telecommunications played a strong role in this development but the telecom regulator, the Telecom Regulatory Authority of India (TRAI) and the government also did their bit. The end result was an unqualified success.

Success often merely whets the appetite for more. We are by now used to the ubiquitous mobile phone and rock bottom prices. We now want smart phones at low prices and Internet data plans at even lower costs. We crave a large number of applications for entertainment, information services, health and financial services among many others and available in vernacular languages. We wish for lightning fast connections and high speeds and being able to connect almost everywhere. It may seem that we want too much and that our wishes are unlikely to be granted any time soon.

Strangely though the telecommunications companies want nearly the same thing. They have come as far as possible with voice. The remaining consumers are proving difficult to reach and prices have been squeezed almost as low as possible with the existing technology. They too believe that data could prove to be the next big source of revenue. Unfortunately, too many pieces have to fall in place together for that to happen. There must be enough spectrum available, technology must enable faster connections and availability by new compression and other techniques, application providers and aggregators must provide innovative and interesting applications that consumers desire and use. The government and the regulators must provide the right mix of policy and regulation to make it possible. Finally all private players—telecommunication service

* Tel.: +918026993030; fax: +918026584050.
E-mail address: sgupta@iimb.ernet.in.
Peer-review under responsibility of Indian Institute of Management Bangalore.

http://dx.doi.org/10.1016/j.iimb.2015.06.001

providers, phone manufacturers, software providers, application providers, infrastructure providers and so on—must make money. This seems very complex and very difficult.

The current situation

Before we embark on providing answers to difficult questions we should start by looking at the state of telecommunications in India. A frequently used statistic is teledensity, which measures the number of telephone connections per hundred people. The current teledensity in India as of December 2014 is 77.58, with an urban density of 148.06 and a rural teledensity of 46.09. The total number of subscribers is 970.97 million and the number of broadband connections stands at 85.74 million.[1] Quite obviously there is a difference between rural and urban subscribers. The latter have multiple connections whereas more than half the rural population does not have a phone subscription. This points to one part of the much discussed urban–rural divide. One should be careful about reading too much into this difference, as it is possible for families to share one connection and also for subscribers to possess multiple connections that are not used. Subscription is not synonymous with being connected.

This is good juncture for a quick digression into voice over Internet protocol (VoIP). Voice over Internet protocol refers to the usage of the Internet to transmit voice. The way this is done is to digitize voice into data, and transmit it across the net in packets, which are then reassembled to reproduce the original conversation. As might be surmised, quality can be low in unmanaged or best effort scenario *but* it is really inexpensive compared to the telecom network, where to have a conversation a connection between the two speakers must be devoted solely to them. In contrast many packets covering many conversations can be sent at the same time on the net. Most countries allow telecommunication companies to offer VoIP. The exception, for a long time, was India. Even now, we cannot make domestic calls on VoIP. The large telecom companies who have Unified Access Service Licenses (UASL) do not offer VoIP because they do not wish to undercut their networked telecom services. Internet Service Providers (ISP) wish to offer internet telephony, but to do so they would have to amend their licenses to include access services as well and pay large amounts. So, that is how things stand. Voice over Internet protocol would lead to even further reduction in tariffs and would be particularly beneficial to rural and impoverished sections of the society, provided they have access to the net.

The other part of the urban–rural divide is related to access to the Internet. It is commonly accepted that access to the Internet is very important as it provides a whole host of opportunities to those who are connected. Not only do we get access to the gigantic amount of information that is available but we can also get pertinent information on issues such as health, education, banking, government services and market information that have a direct effect on our wellbeing and productivity. Internet access allows us to be citizens of the digital world with its endless possibilities of communication and participation. Without access we are shut out of this most important and revolutionary of modern innovations.

The statistics on broadband access are quite disappointing. The National Telecom Policy of 2012 (NTP 2012) targetted broadband on demand by 2015 and 175 million broadband subscribers by 2017 with a minimum speed of 2 mbps and 100 mbps on demand. Against that target we have achieved 85.74 million at a minimum speed of 512 kbps at the end of 2014. It seems very unlikely that we shall achieve our target at the current rate. One would suspect that the urban–rural divide would be more pronounced in the case of Internet access. While there are no reliable data as in the case of teledensity the fact that out of the top five states with respect to broadband penetration two are Delhi and Mumbai strongly suggests that this is so.

Overall we can say that even though the telecommunications sector has come a long way from the sorry state of affairs in the pre-liberalization days there are enormous challenges ahead. The relatively easy combination of pent up demand for communication and the deployment of available technology to meet it has run its course. It will be increasingly difficult to connect the remaining unconnected population and even harder to connect them to the Internet.

The problems of telecommunication companies

The primary onus to rectify the situation rests on the uneasy shoulders of telecommunication companies. This includes both telecommunications service companies such as Vodafone and Airtel, handset production companies such as Samsung, Micromax and Nokia, and equipment companies such as Alcatel, Qualcomm and Lucent. We could also add companies and individuals that produce applications or apps and other content providers such as newspapers and magazines, television channels, social media firms such as Facebook, and video game manufacturers.

The simple truth is that mobile phone operators are finding that their revenues from telephone calls are stagnant or declining. Consequently they have to find new ways of generating revenues. They are betting on data. Another way of saying the same thing is that they are hoping that consumers will use their phone to access the Internet now that they are not increasing their calling behaviour. However, there are a number of hurdles to be overcome before that can happen.

The supply side

The first problem is with technology. To be able to provide access, mobile operators need spectrum, which is scarce. In comparison to other countries the amount of spectrum available for commercial use is low. Since the practice of the government is to auction it the price is also substantial. So it is difficult for mobile operators to provide access at reasonable speeds at low prices that encourage adoption and usage. One solution is not to rely on spectrum that needs to be commercially purchased but to depend on unlicensed Wi-Fi or Wi-Max systems to carry much of the burden of reaching the consumer (Wi-Max is a licensed band in 2.3, 2.5 and 3.5 GHz

[1] TRAI press release no 11/2015, 6th February 2015, http://www.trai.gov.in/WriteReadData/WhatsNew/Documents/PR-TSD-Dec-14.pdf.