



BWA - Analyst Presentation

Usher in a Broadband Revolution in India

June 12, 2010

Forward Looking Statements



This presentation contains forward-looking statements which may be identified by their use of words like “plans,” “expects,” “will,” “anticipates,” “believes,” “intends,” “projects,” “estimates” or other words of similar meaning. All statements that address expectations or projections about the future, including, but not limited to, statements about the strategy for growth, product development, market position, expenditures, and financial results, are forward-looking statements.

Forward-looking statements are based on certain assumptions and expectations of future events. The companies referred to in this presentation cannot guarantee that these assumptions and expectations are accurate or will be realised. The actual results, performance or achievements, could thus differ materially from those projected in any such forward-looking statements. These companies assume no responsibility to publicly amend, modify or revise any forward looking statements, on the basis of any subsequent developments, information or events, or otherwise.



1. Transaction Highlights

Transaction Highlights



Transaction Overview

- On June 11, 2010, Reliance Industries Limited (“RIL”) announced an agreement to acquire a substantial stake in Infotel Broadband Services P.Ltd. (“Infotel”)
 - RIL will invest ~INR 48,000 mn by way of subscription to fresh equity shares to be issued by Infotel at par
 - RIL to own 95% of Infotel at closing
 - RIL to comply with non compete and trademark agreements, including modifications in May 2010

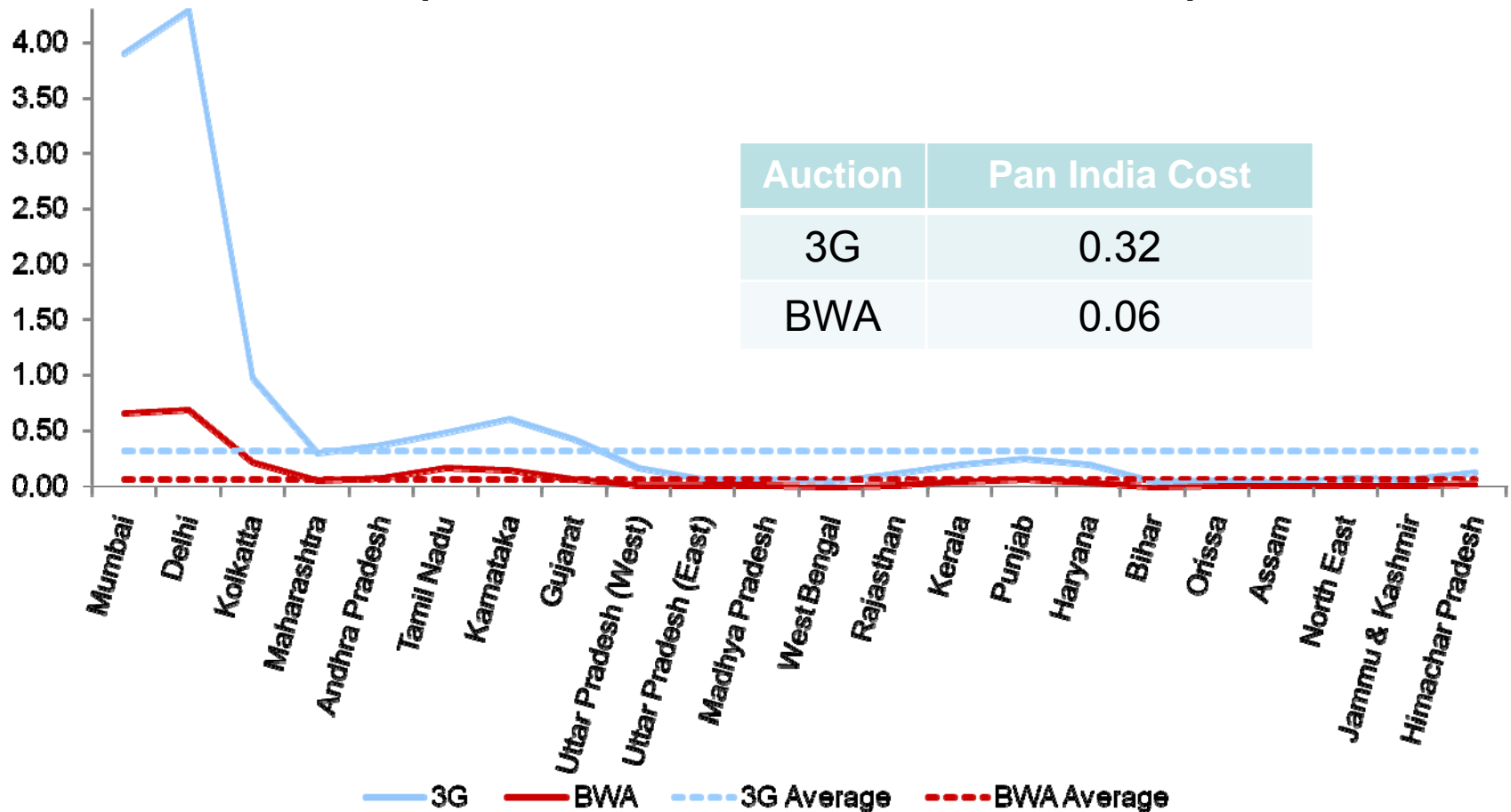
About Infotel

- ONLY successful bidder in all of the 22 circles of the auction from Broadband Wireless Access (“BWA”) conducted by DoT, Government of India

Spectrum Auction Prices in India

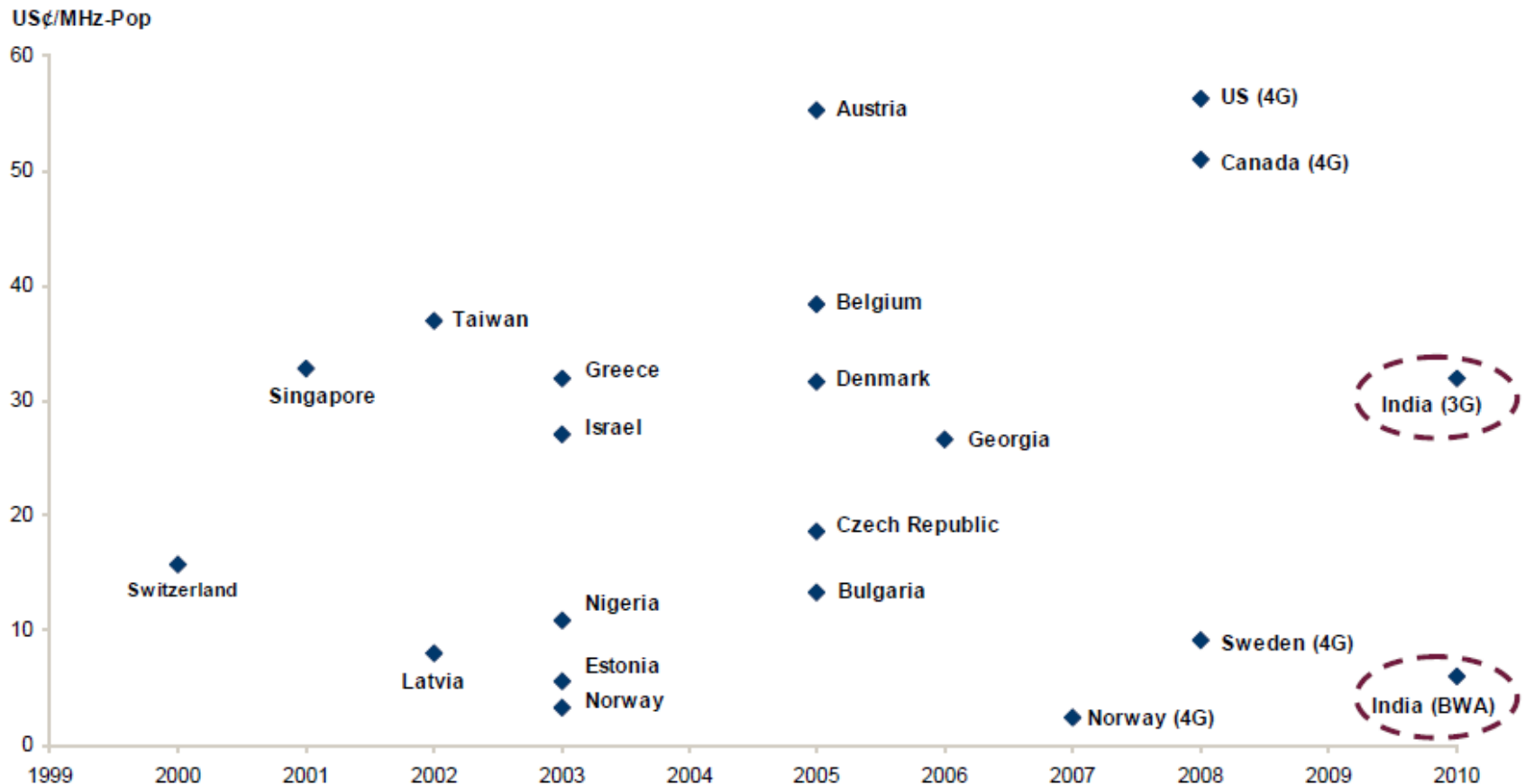


3G & BWA Spectrum Auction – Costs in US\$ / Mhz / Population



BWA spectrum has been acquired at substantial discount to 3G prices

Global Trends in Spectrum Auction Prices

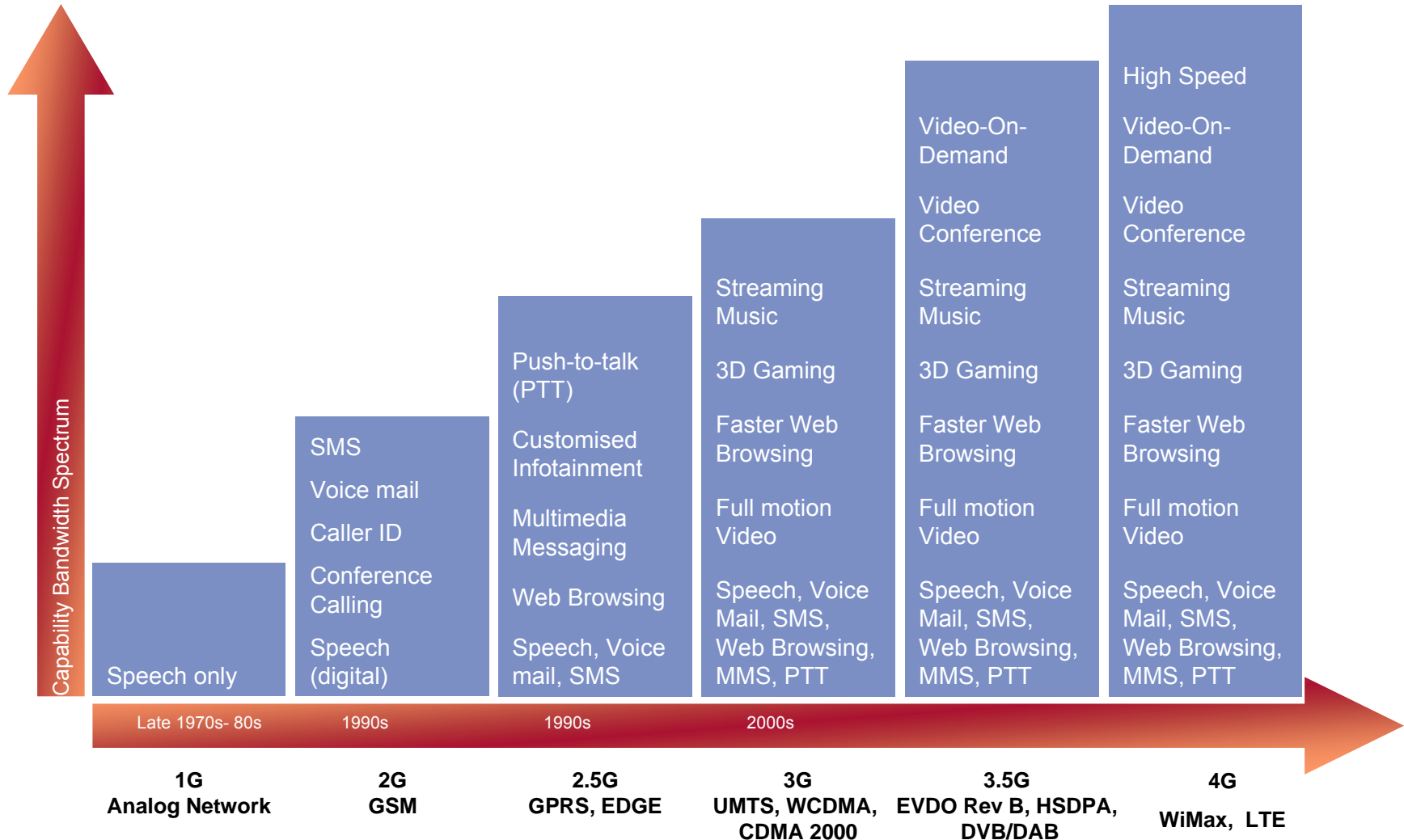


BWA spectrum acquisition price extremely competitive by global benchmarks



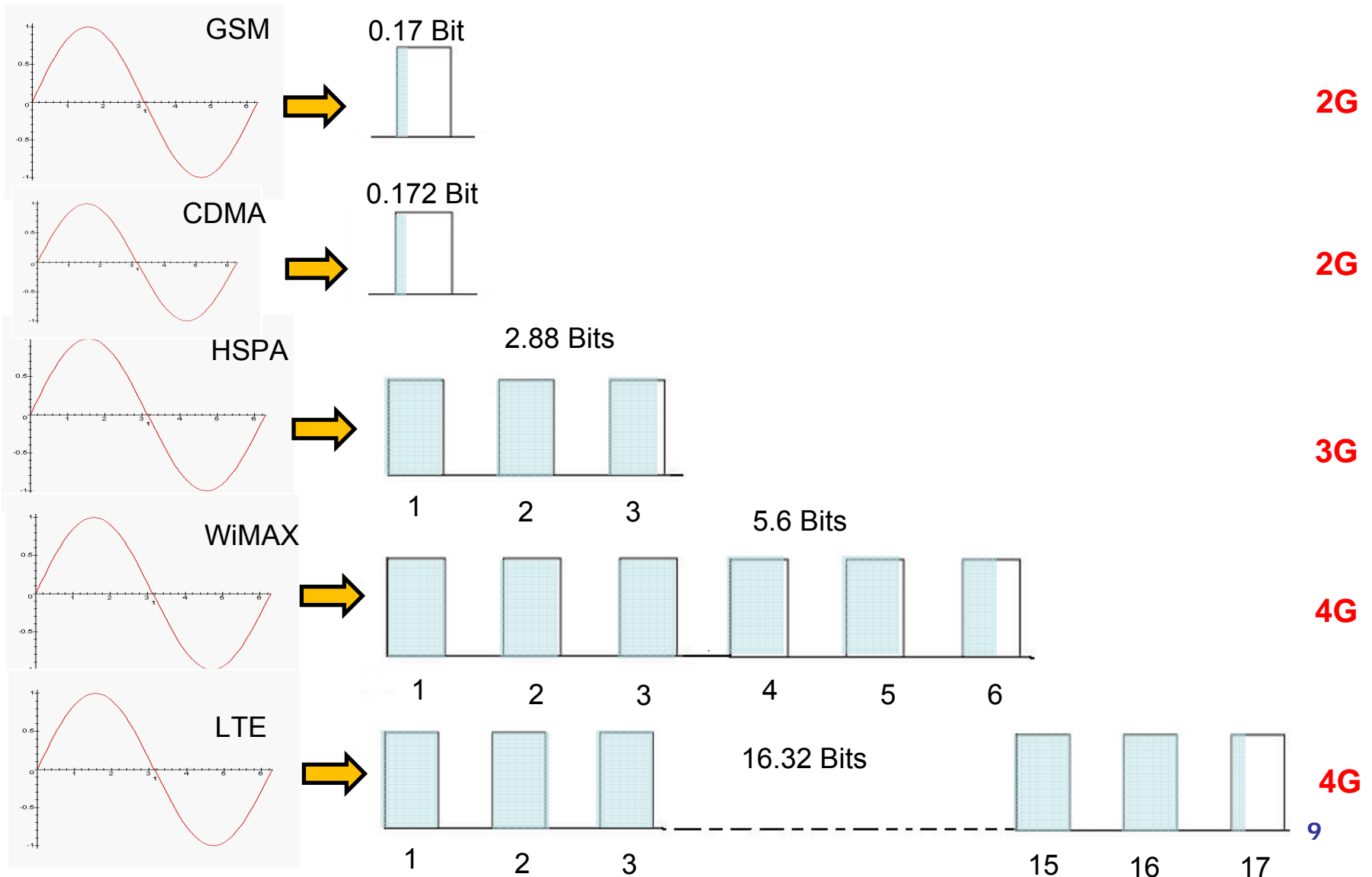
2. Technology

With Mobile Technology has been Continuously Evolving



Increasing array of products with greater demand for speed driving evolution of mobile technology

Cellular Evolution : Packing more Bits per Hertz



WiMAX and LTE vs. HSPA and EVDO

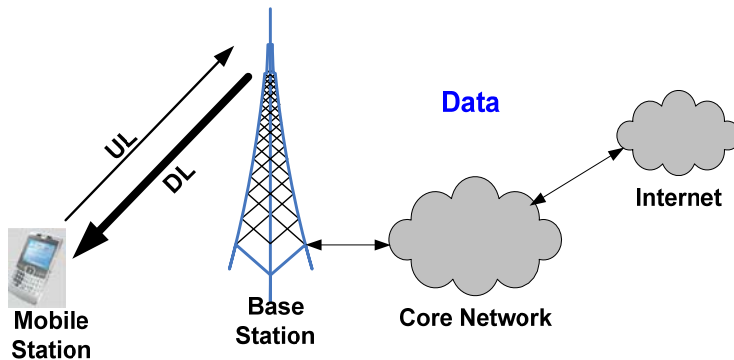


System	DL (Mbps)	UL (Mbps)
WCDMA (Rel. 99)	2.048	0.768
HSDPA (Rel. 5)	14.4	0.768
HSUPA (Rel. 6) (3G Spectrum)	14.4	5.76
HSPA+ (Rel.7)	42	11.5
LTE (Rel. 8) (BWA Spectrum)	270	62.7
CDMA2000 1x	0.153	0.153
CDMA2000 EV-DO Rev. 0	2.4	0.153
CDMA2000 EV-DO Rev. A	3.1	1.8
CDMA2000 EV-DO Rev. B	9.3	5.4
UMB	280	68
802.16e WiMAX Wave 1	23	4
802.16e WiMAX Wave 2 (BWA Spectrum)	50	6
802.16m	225	33.75

Comparing 3G Licensee to BWA Licensee - Why 2x5 MHz does not equal 10 Mhz



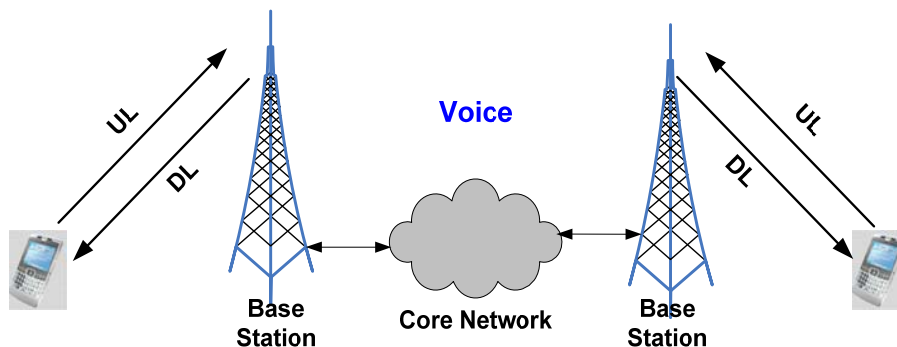
- 2x5 MHz spectrum allotted to successful 3G bidders is paired – 5 MHz Uplink (UL) and 5 MHz Downlink (DL)
- This paired spectrum is used in Frequency Division Duplex (FDD)



Data / Video / Internet Browsing are asymmetric services requiring higher bandwidth in the downlink and much less in the uplink

3G paired spectrum (equal in both DL & UL) is therefore not efficiently used for data services – spectrum in the uplink will remain largely vacant

This applies whether the 2x5 MHz spectrum is used for 3G , WiMAX or LTE

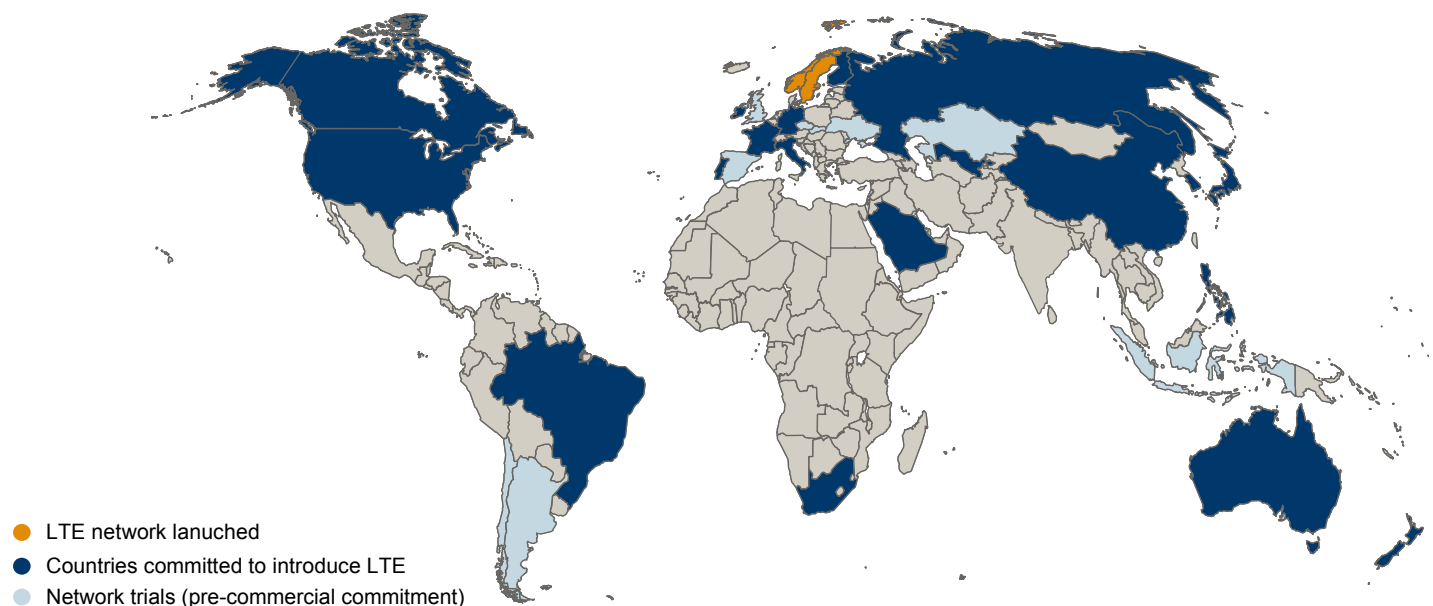


2x5 MHz spectrum holders will remain inherently disadvantaged for data services even if they deploy LTE.

For symmetric service like voice, uplink and downlink are equally used, so 2x5 MHz = 10 MHz only for voice services

The 20 MHz unpaired, contiguous spectrum (used in TDD) of BWA gives utilizable bandwidth which is more than double of 2 x 5 MHz 3G spectrum

LTE Networks and Growth

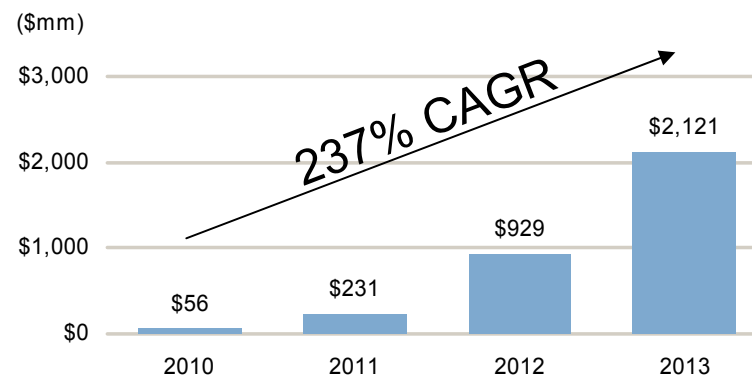


Network Status

- 110 LTE network commitments in 48 countries
- Up to 22 LTE networks expected to be in commercial service by end 2010
- 39 or more LTE networks expected to be in commercial service by end 2012
- Major supporters include AT&T, Verizon, Vodafone and Orange
- World's first LTE network launched in December 2009 by TeliaSonera
 - The LTE networks cover the central city areas of Stockholm and Oslo and initially will be used for mobile data services
 - Coverage roll-out to more cities in each country is continuing in 2010

Source: Global mobile Suppliers Association and InStat, February 2010.

LTE Chipset Revenue



LTE – Ready for Rollout






LTE Deployments and Commitments



Over 110 operators in 48 countries have committed to deploying LTE, while Norway & Sweden are already operational

BWA: Success Case Studies



Company	Country	Comments
	Korea	<ul style="list-style-type: none"> First company in Korea to explore wireless broadband services Deployed approximately 600 base stations covering 12 million people Established itself as the wireless broadband leader in Korea
	USA	<ul style="list-style-type: none"> Operates in the United States, Ireland, Belgium, Spain, Denmark (with Danske Telecom) and Mexico (with MVSNet) Offers internet speeds of up to 6 Mbps per user device Launched 4G WiMaAX in Jan 2009
	Russia	<ul style="list-style-type: none"> First mobile WiMAX network in Russia, launched in September 2008 Offers internet speeds of up to 10 Mbps per user device Installed 150 base stations in Moscow and 80 base stations in St. Petersburg with peak data rates of about 180 Gbit per second
UQ Communications	Japan	<ul style="list-style-type: none"> Only telecom company in Japan providing nationwide mobile services based on WiMAX Aims to extend coverage to 90% by 2012
P1	Malaysia	<ul style="list-style-type: none"> First operator to launch commercial WiMAX operations in Malaysia in 2008; acquired 100k subs within 6 months of launch Investment plans of over \$300mn in the next 5 years



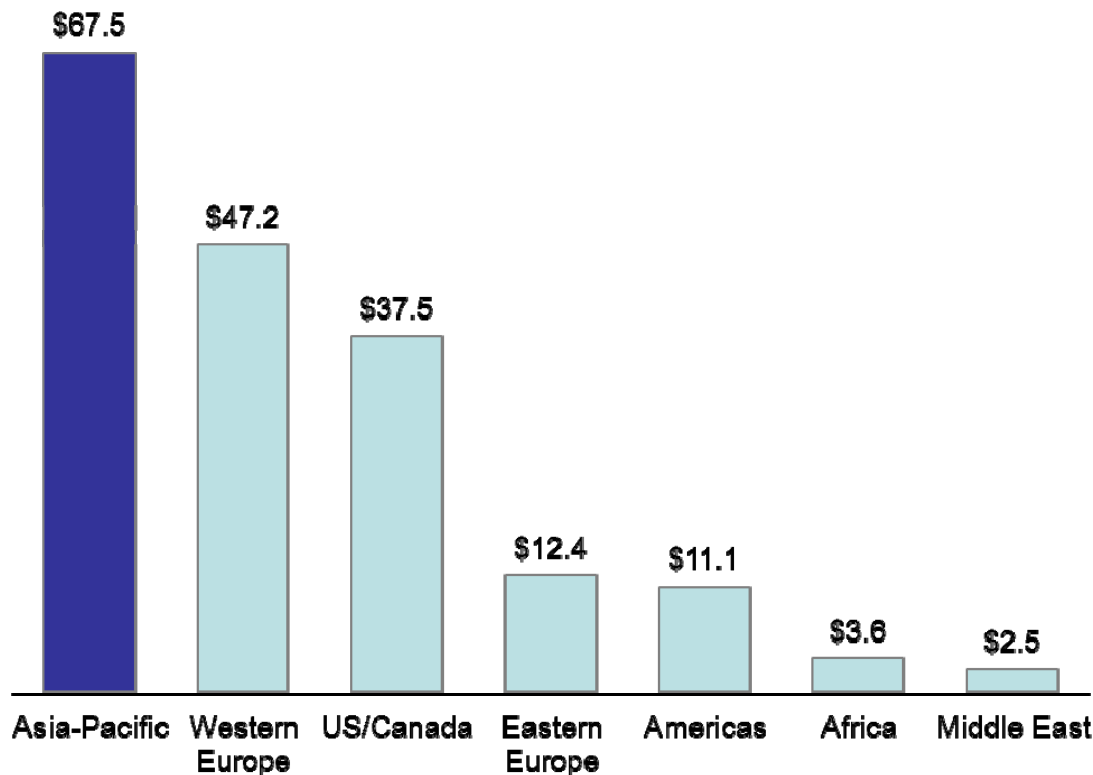
3. Global Scenario

Global Data Market Overview



2008 Data Revenues

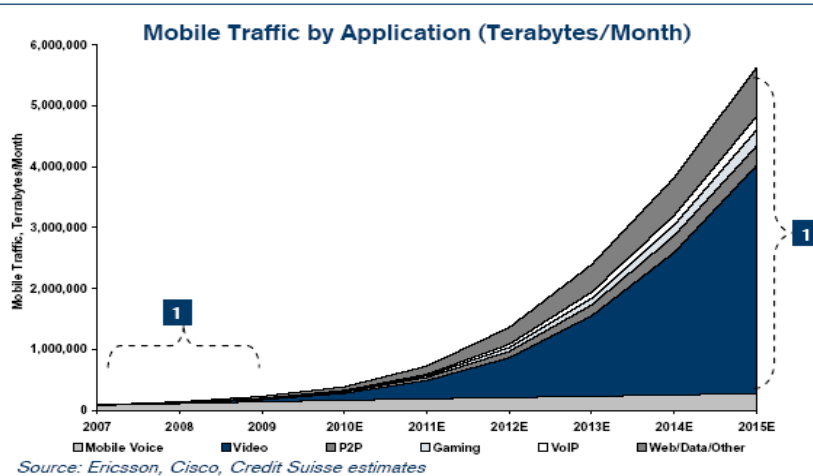
(US\$ Billions)



Source: Informa Research.

- Data – revenue is US\$181.8 billion in 2008, which represent a 23% Y-o-Y growth
- Asia-Pac comprising 37% of the global market
- Western Europe contributed to 26% of the total revenue, while North America contributed 21%

Mobile data volume overtakes voice traffic



Voice vs. Mobile Data usage

	Number of subs (mn)	Traffic utilised (TB, Month)	Traffic per sub (MB/Month)
Mobile voice	4,600	140,000	30
Mobile Data	400	140,000	350

Source: Ericsson

1) **Global mobile data traffic has exceeded mobile voice traffic.** On a global basis as of December 2009, Ericsson confirmed that mobile data traffic surpassed voice, with the cross over occurring at around 140,000 terabytes per month. More importantly such traffic trends have been achieved with only 400mn mobile broadband subscriptions, compared with the 4.6bn mobile subscriptions around the world.

2) **A typical mobile data subscriber uses 350 MB of data/month currently, 11.7x more than a typical voice customer**

3) **We expect data traffic to grow by 100% per year over 2010-2015 to reach ~5.3mn TB/month.** The growth will be driven by several factors, namely subscriber growth and new services:

- The smartphone subscriber base is expected to grow four-fold but require 25x more capacity.
- The connected laptop base is expected to six-fold, requiring 50x more capacity.

Mobile Traffic likely to grow 100% yoy from 2010-2015

Mobile traffic (TB/Month)	2007	2008	2009	2010E	2015E	CAGR 09-15E	Absolute increase, 09-15E
Mobile Voice	81,429	109,286	136,875	164,250	276,550	12.4%	2.0x
Mobile Data	7,179	29,196	90,829	220,089	5,347,050	97.2%	58.9x
Video	1,579	8,759	35,897	113,094	3,738,217	116.9%	104.1x
P2P	1,436	5,839	15,496	23,783	320,877	65.7%	20.7x
Gaming	287	1,460	4,615	11,716	262,050	96.1%	56.8x
VoIP	287	1,460	4,579	11,245	224,614	91.3%	49.1x
Web/Data/Other	3,589	11,679	30,242	60,251	802,193	72.7%	26.5x
Total	88,607	138,482	227,704	384,339	5,624,500	70.7%	24.7x

% of Mobile traffic (TB/Month)	2007	2008	2009	2010E	2015E
Mobile Voice	91.9%	78.9%	60.1%	42.7%	4.9%
Mobile Data	8.1%	21.1%	39.9%	57.3%	95.1%
Video	1.8%	6.3%	15.8%	29.4%	66.5%
P2P	1.6%	4.2%	6.8%	6.2%	5.7%
Gaming	0.3%	1.1%	2.0%	3.0%	4.7%
VoIP	0.3%	1.1%	2.0%	2.9%	4.0%
Web/Data/Other	4.1%	8.4%	13.3%	15.7%	14.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

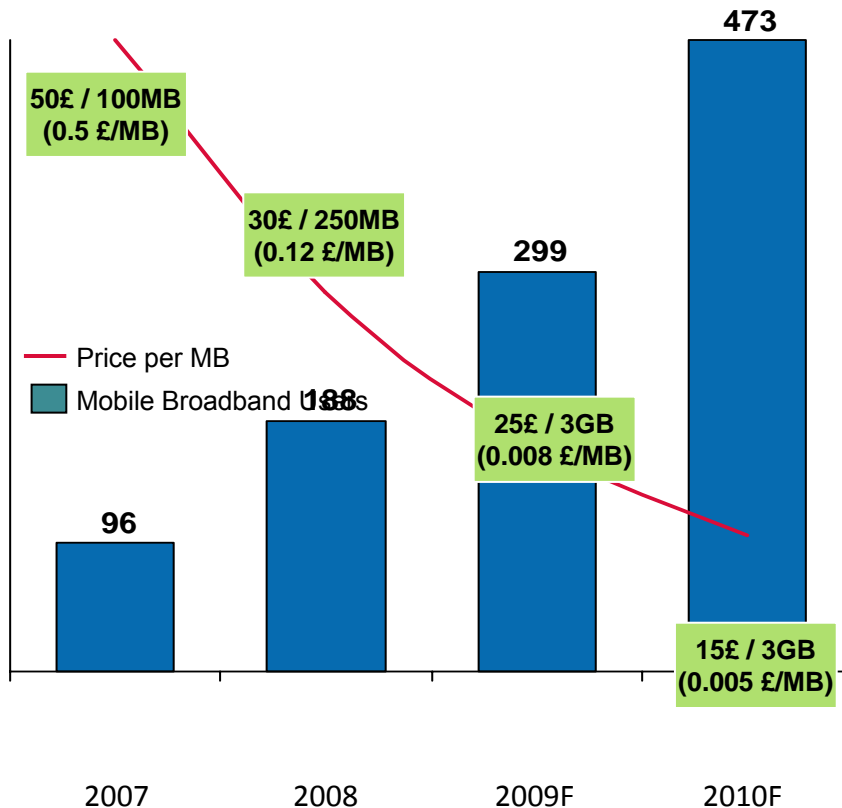
Source: Ericsson, Cisco, CS Estimates

Mobile data traffic rising 60x over the next 6 years

Global Mobile Broadband Trends



Mobile Subscribers (Mn), and Price per MB (GBP) for a leading global operator



Source: Operators Websites

- Operators opening up their networks for data traffic
 - Network technology advances down driving cost per MB
 - Mobile technologies supporting broadband rates and experience
- Subscribers are demanding mobile high speed internet access
 - Subscribers requiring connectivity on the move
 - Applications becoming more data centric, requiring higher data rates
 - Increasing penetration of 3G devices

Fulfilling consumer need to be connected while on the move



4. India Opportunity

India – A great telecom growth story



Parameters	Current Status
Telecom Subscribers (mn)	621
Wireless Subscribers (mn)	584
Tele-density (%)	53
Avg. Net adds/ month (mn)	20
Y-o-Y Subscriber growth rate (%)	49
Average minutes per user	318
ARPU	144
Average operators/ circle	9

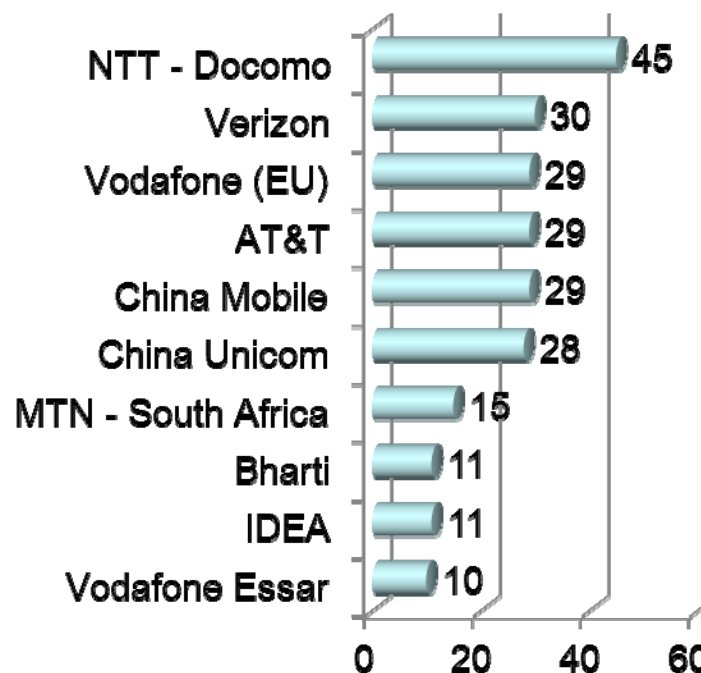
India is the largest, fastest growth market and also the most competitive - this has been achieved predominantly in the past decade

India: Data - the next frontier



- Indian operators have one of the lowest non-voice revenue mix globally
- Even within the ~10% non-voice mix, bulk of the revenues come from SMS – which is a primitive non-voice service
- 3G and BWA will be key drivers for rapid growth of advanced data services

Non Voice revenue mix (%)



Mobile broadband likely to be primary means of broadband access

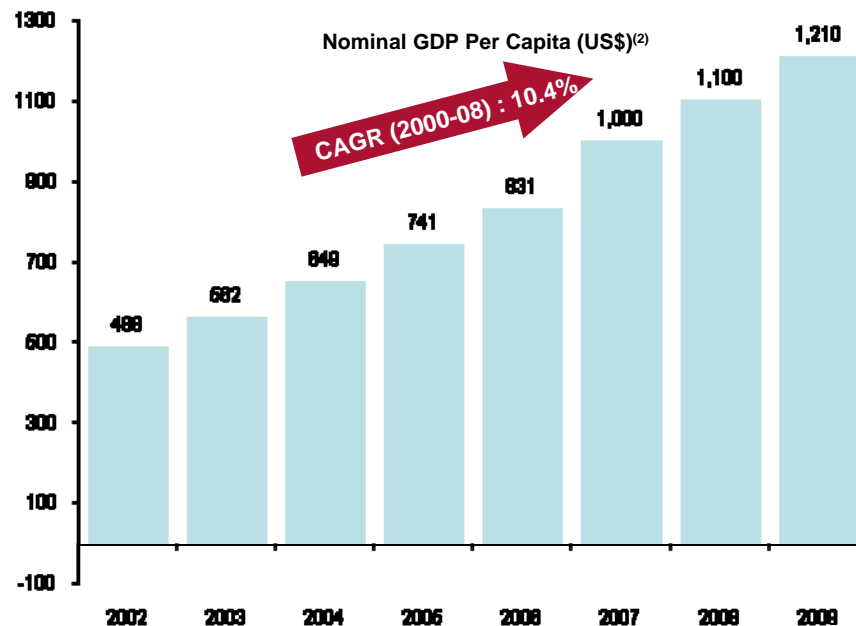
Strong Growth in GDP & Per Capita Income



...Making India the 4th largest Economy ...⁽²⁾

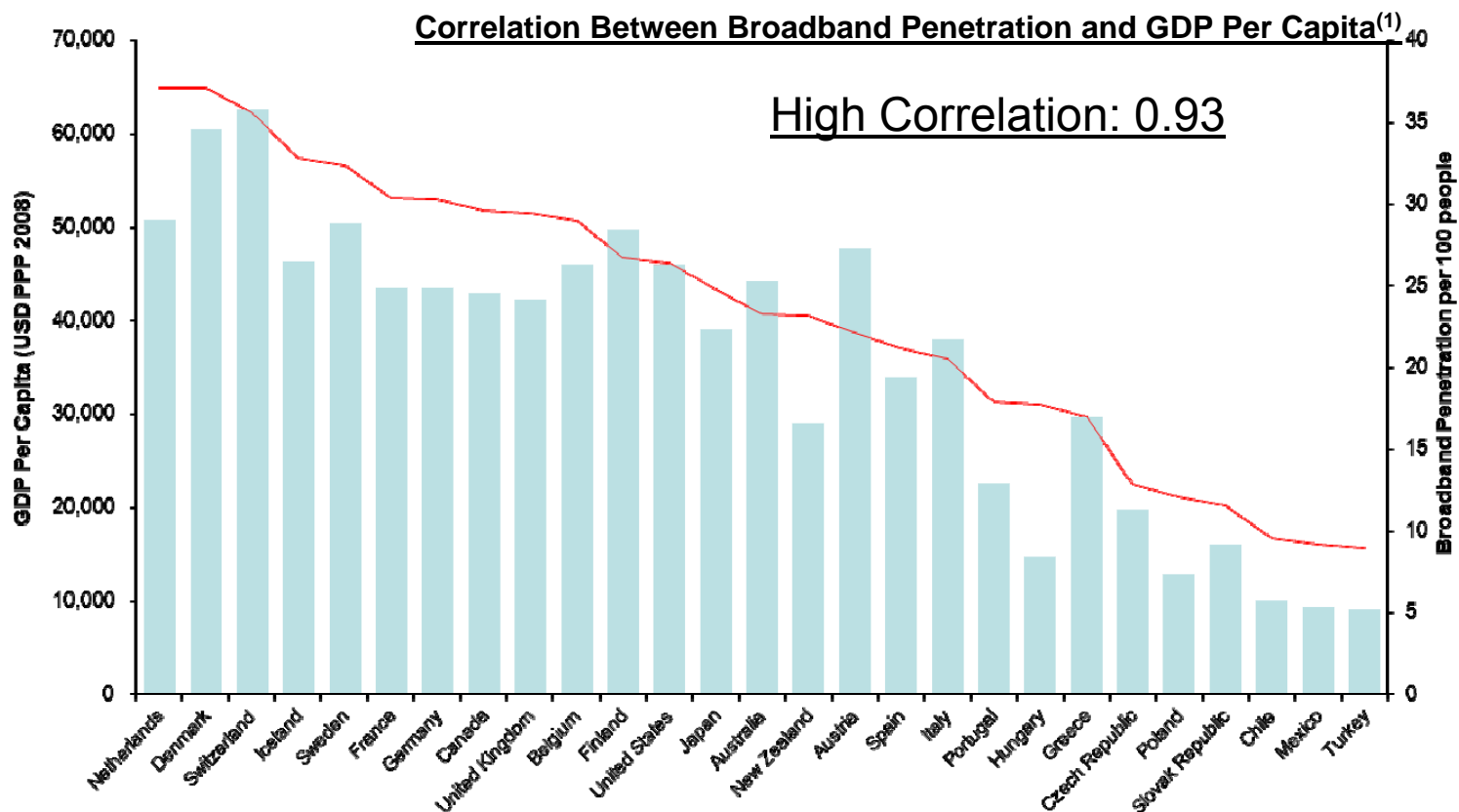
Country	Rank	GDP – PPP Basis (US\$bn)
USA	1	14,260
People's Republic of China	2	8,789
Japan	3	4,137
India	4	3,560
Germany	5	2,811
United Kingdom	6	2,149
Russia	7	2,116
France	8	2,110
Brazil	9	2,025
Italy	10	1,760

...Improving Per Capita Income⁽³⁾



India is one of the fastest growing economies

With Strong Economic Growth...



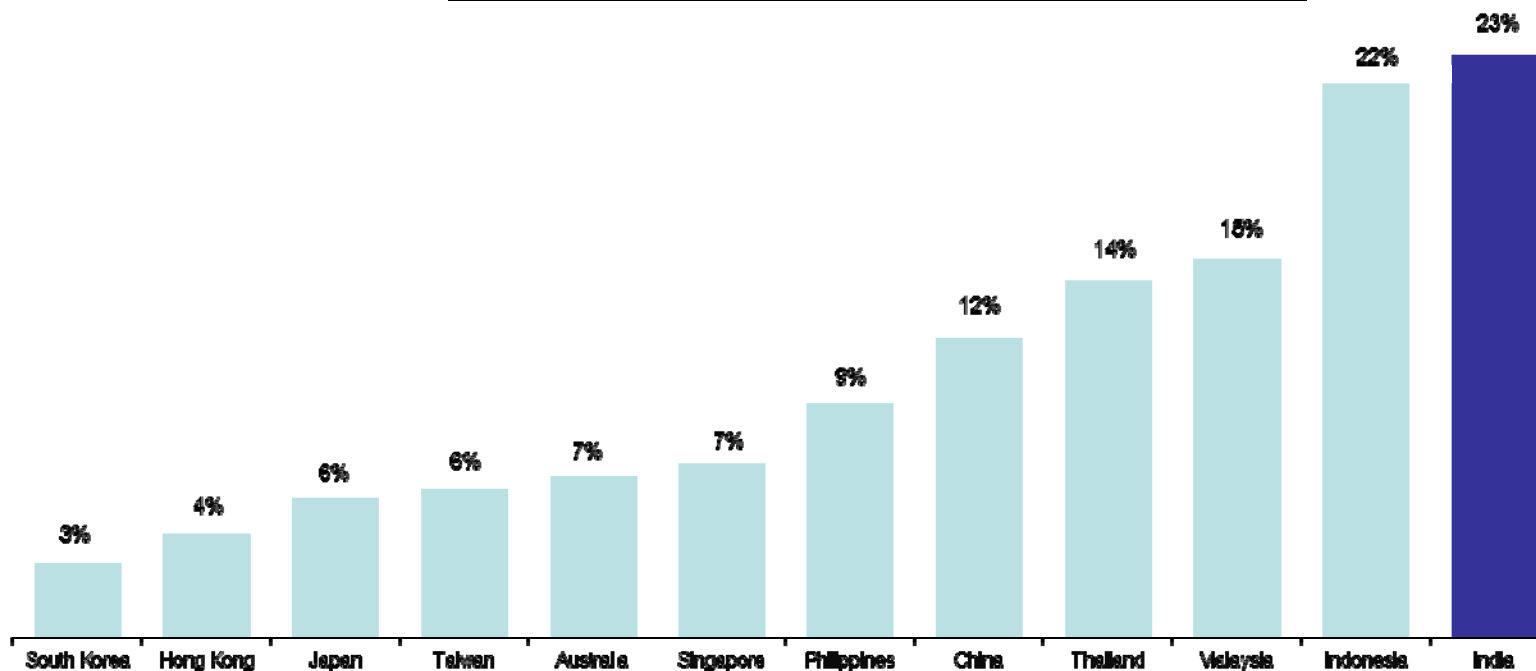
- Countries with high GDP per capita have a higher broadband penetration
- Increase in India's per capita income to result in higher broadband penetration

(1) Source: OECD Broadband Portal

Comes Higher Growth In Broadband Connections



Growth In Broadband Connections Between 2009-2013⁽¹⁾

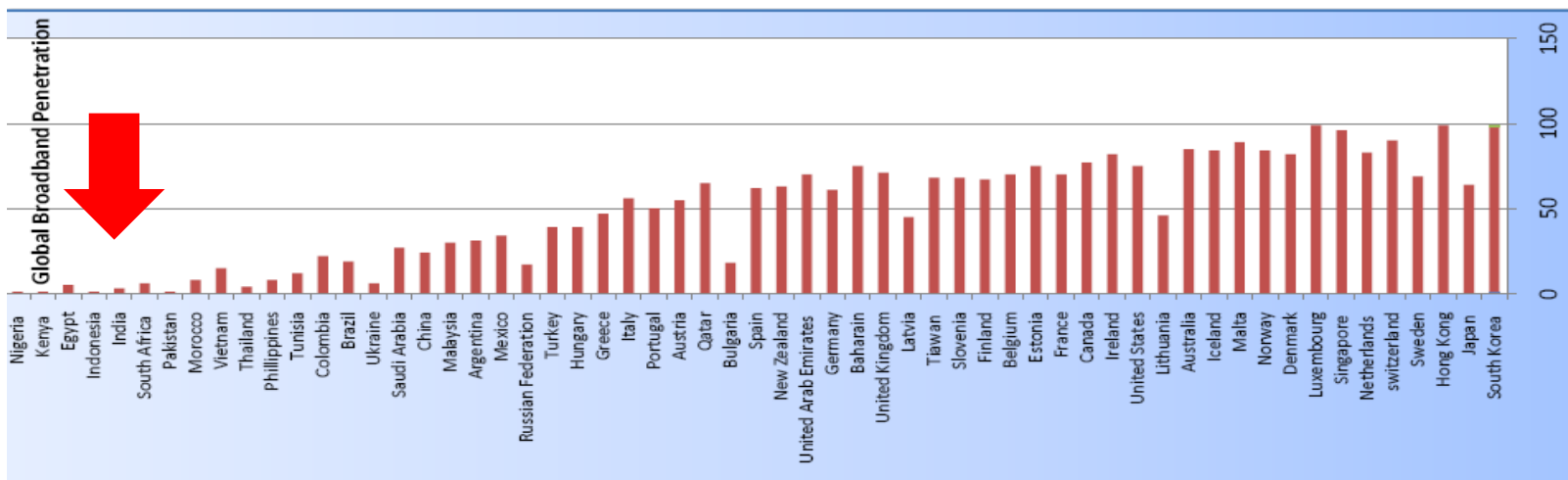


- Broadband connection in India expected to grow rapidly in the next 3 years
- BWA Spectrum availability to facilitate this growth further

Indian Broadband scenario



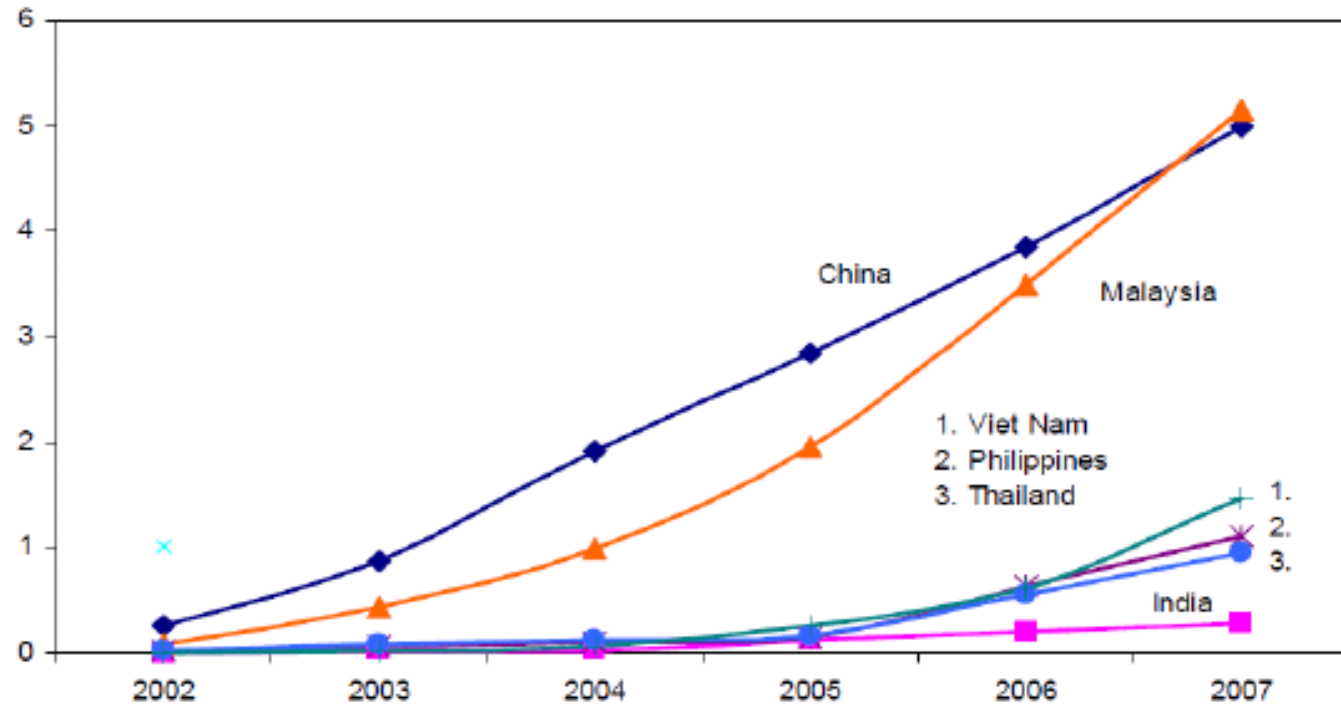
- In 1995, India had a cellular subscriber base of only 75,000. Today, this figure is almost 600 million – a phenomenal growth of 8000 times. India is second only to China in terms of subscriber base.
- This phenomenal growth is fuelled predominantly by Voice service and Broadband Data services are virtually non-existent
- The Indian broadband landscape of 2010 is similar to the cellular voice landscape of 1995. India ranks almost at the bottom with under 1% penetration



India has low broadband penetration even compared to other emerging markets



Broadband subscribers per 100 inhabitants

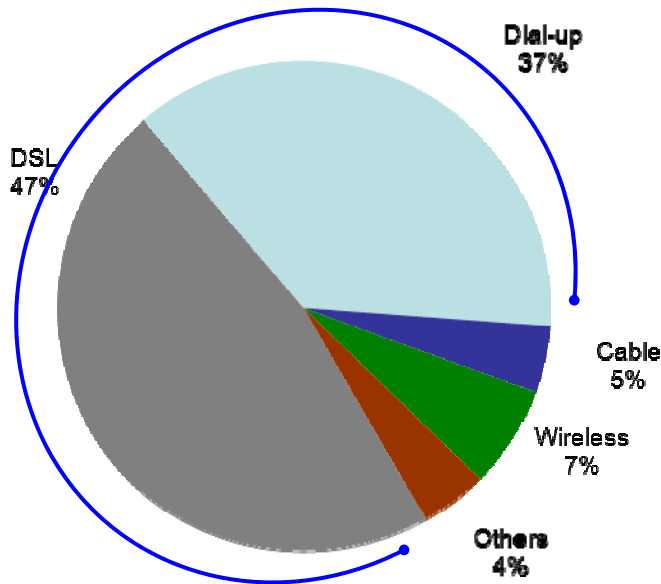


Currently, China has 130mn broadband users, which India can achieve in a 3-4 year timeframe.

Future Growth To Be Driven By Wireless Technology



Internet Access Technologies⁽¹⁾



- Currently, Dial-up and DSL comprise of about 85% of the total internet connections in India
- However, both Dial-up and DSL have limited reach due to low penetration of the wireline
 - Currently total wireline subscribers stands at ~37mm⁽¹⁾ and has been showing a negative growth
- Furthermore, the overall connection speeds are also lower
- Getting last mile connectivity is also an issue in many places

We believe that like voice telephony, increase in data penetration will also be led by the wireless technologies

(1) Source: TRAI Performance Indicator Report for the period Oct-Dec 2009 released in April 2010

Imperatives for Broadband Growth in India



Constraint	Description	Imperative
Utility of Broadband Connection	<ul style="list-style-type: none"> There is a perceived association of PC and internet with business applications 	<ul style="list-style-type: none"> Entertainment lead broadband penetration Consumer education and free trial
Affordable Devices	<ul style="list-style-type: none"> Cost of smartphones and PCs are still in the above US\$300 range 	<ul style="list-style-type: none"> Promote subsidies for institution / educational segment Innovation from OEMs for low cost smartphones and affordable PCs for the mass market
Lack of Compelling Content	<ul style="list-style-type: none"> Not enough variety of content and applications to appeal to all segments of people, especially those who do not already have internet access Limited content and applications for which the people are willing to pay 	<ul style="list-style-type: none"> Create an environment to enable growth of VAS ecosystem
Poor Consumer Experience	<ul style="list-style-type: none"> Lack of spectrum leading to poor usage experience on 2.5G Content discovery and navigation still remains challenging for an average user 	<ul style="list-style-type: none"> Allocation of larger spectrum check to allow more spectrum to be dedicated to data access Device-service integration for better user experience
Business Case for Wireline Connectivity in Rural Areas	<ul style="list-style-type: none"> Providing connectivity in rural areas is a challenge due to the high cost involved in laying new copper / fiber 	<ul style="list-style-type: none"> BWA for connectivity in rural areas, for both common service centres and for individuals Spectrum vacation in the lower frequency bands for larger coverage in rural areas

Source: BDA Analysis.



5. RIL's Vision

Reliance Vision



- Leadership in a new frontier of knowledge economy
- Pan India presence providing seamless service
- State of the art technology platforms leading to maximum capacity and efficiency
- Enable rapid growth in data usage, in both rural and urban markets, propelling India into global data leadership
- Create end to end solutions that address the entire data value chain – from rich content/advanced services to compelling end-user experiences
- Serve business enterprises, social organizations, educational and healthcare institutions and Indian consumers
- Asset light approach, in collaboration with strategic partners such as leading global technology players, service providers, infrastructure providers, application developers, device manufacturers etc.

Only Private Operator with Pan India Spectrum



bharti



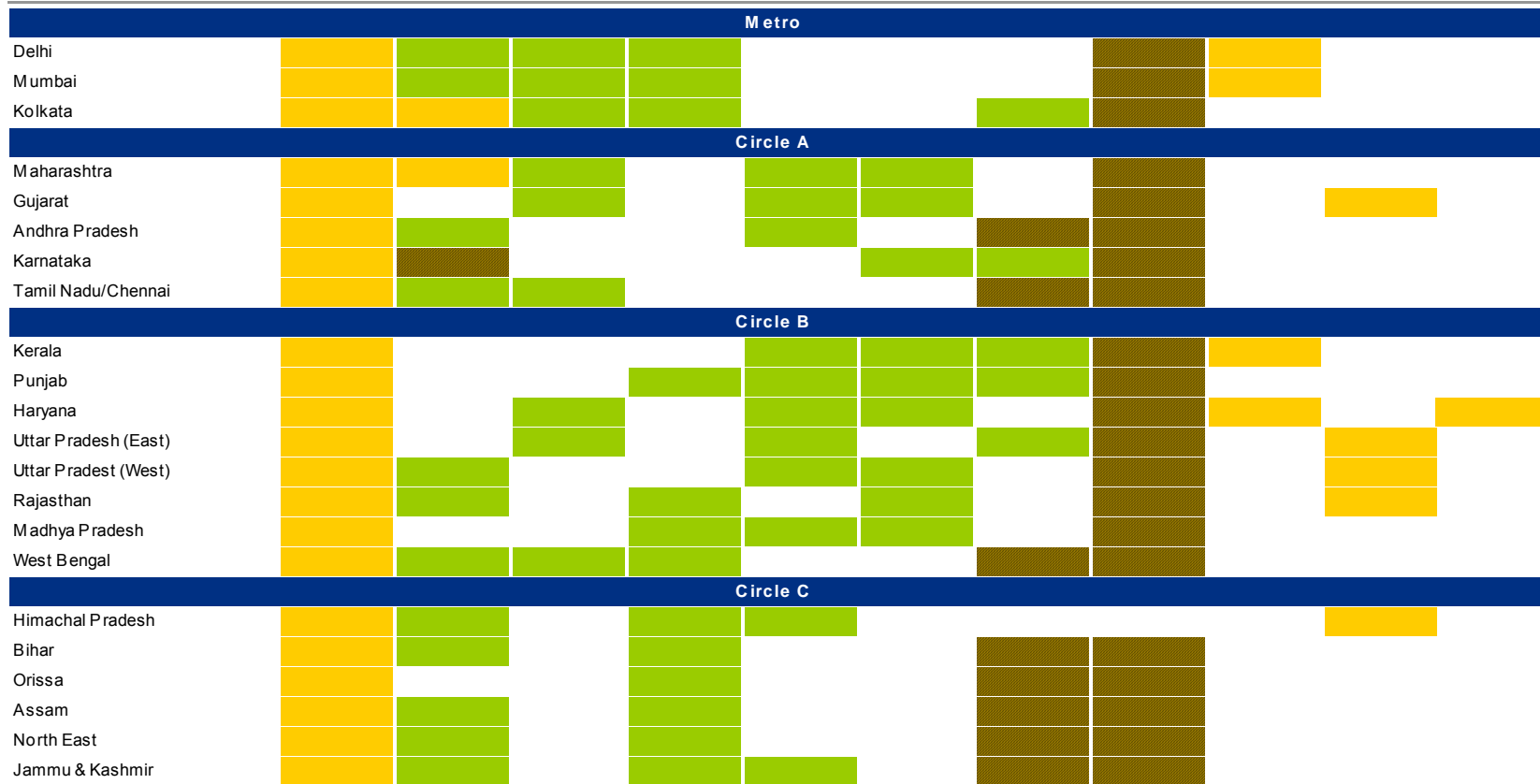
RELIANCE



BSNL



Augere



Standalone BWA Circles	22	3	-	-	-	-	-	-	4	5	1
Standalone 3G Circles	NA	12	9	13	11	9	5	-	NA	NA	NA
3G + BWA Circles	NA	1	-	-	-	-	8	22	NA	NA	NA
Circles with no 3G / BWA	-	7	13	9	10	-	9	-	18	17	21



Standalone BWA



Standalone 3G



3G + BWA

Summary



- Wireless broadband to be new frontier
- This opportunity can be exploited using 20 MHz BWA spectrum
- Decisive competitive edge due to significantly high data speed compared to 2G and 3G networks.
- None of the private operators have spectrum assets that would match the capacity of Pan India LTE TDD 20 MHz BWA spectrum.
- Significant market potential as less than 5% of cellular subscribers use wireless broadband.



Thank you