



Connecting the Philippines through Mobile Broadband



Connecting the Philippines through Mobile Broadband

Mobile Broadband Regulatory Seminar
10 May 2011, The Shangri-La Hotel
Makati, Philippines



Sandra Gilligan,
Project Marketing Director,
GSMA

The GSMA



- Represents the interests of the worldwide mobile communications industry
 - 800 mobile operators
 - Over 200 associate members
 - Across 219 countries
 - Nearly 5 Billion wireless connections
- Remit is to innovate, incubate and deliver new opportunities for our members, with the goal of driving the growth of the mobile communications industry

CONNECTING THE WORLD

Philippines success

Voice

SMS

Data

Communication
is an integral part
of the economy



Engagement
Inclusiveness
Empowerment

Philippines on the World Stage



Connecting the Philippines



Connecting the Philippines through Mobile Broadband

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Makati, Philippines



Thank you
sgilligan@gsm.org

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Key initiatives within
government policy on
mobile broadband to
promote economic
development

Commissioner Monchito
Ibrahim, Commission for
Information and
Communications
Technology (CICT)

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Creating the right environment to deliver affordable HSPA and LTE Mobile Broadband

Adam Denton, Head of Spectrum,
GSMA

Connecting the World

Fixed



1.1 Billion Lines

Mobile



Over 5 Billion Connections

Mobile networks are connecting the world...

MOBILE BROADBAND WILL CONNECT THE WORLD TO THE INTERNET

Ubiquity of Smartphones

By 2013, the number of smartphones will exceed the number of PCs



1.82 Billion Units



1.78 Billion Units

MOBILE WILL BECOME DOMINANT INTERNET ACCESS DEVICE

Mobile Beyond Voice

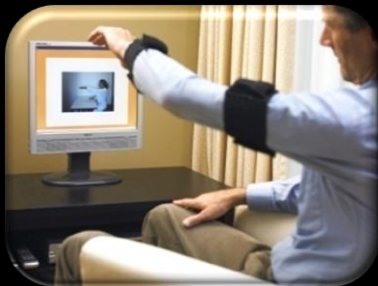
Healthcare

Transportation

Utilities

Consumer Electronics

Government



A WORLD OF CONNECTIONS...

Ensuring continued success



Economies of scale

- The global ecosystem that propelled strong economies of scale for GSM historically is currently mobile broadband

Regulatory Certainty

- The industry is a high CAPEX business. Regulatory certainty and a stable environment is needed to encourage investment from the eco-system

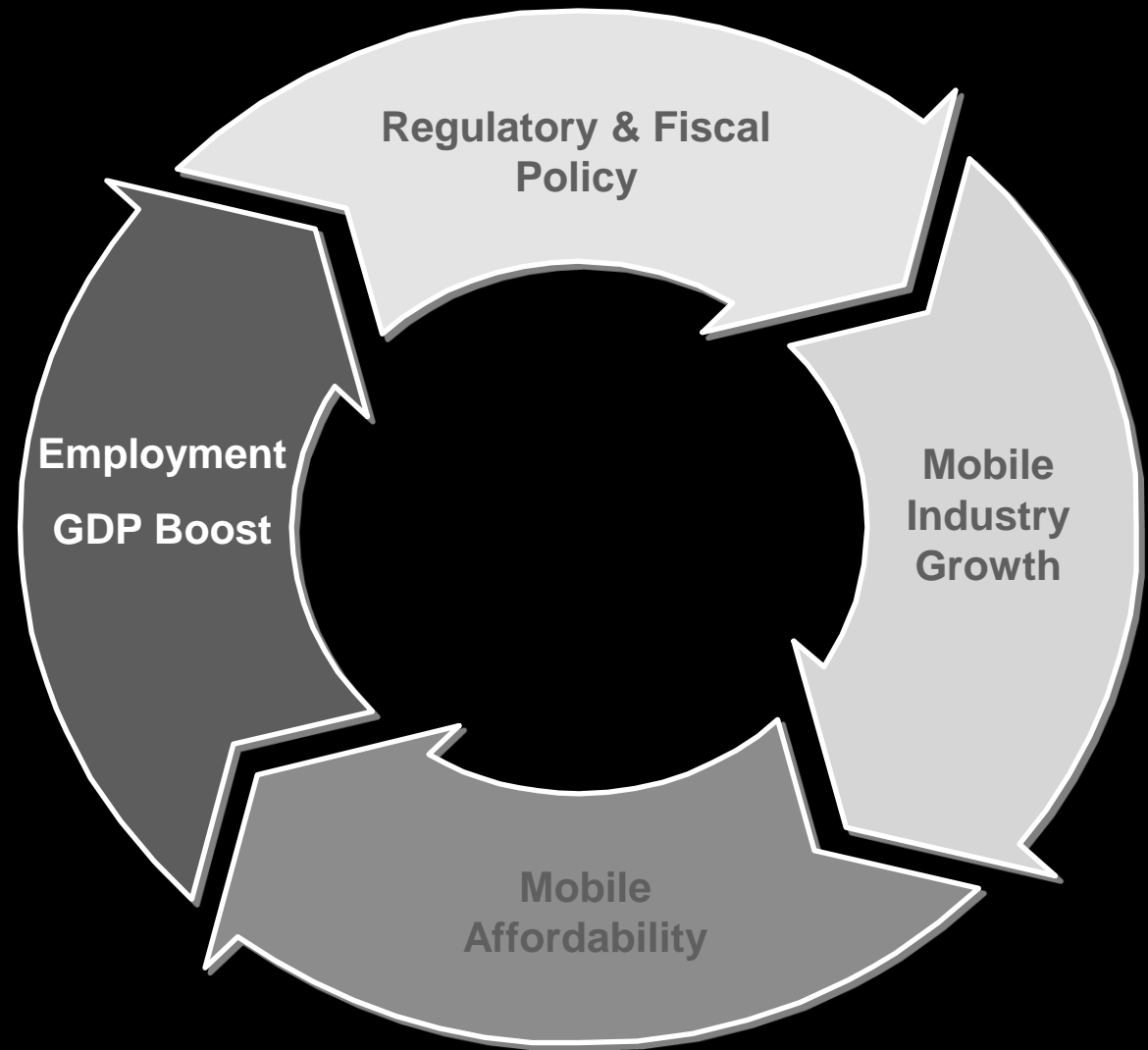
Spectrum

- Mobile needs access to spectrum to meet the capacity demand. Spectrum needs to be harmonised, needs to be in sufficient blocks and need to support capacity and coverage

ECONOMIC AND SOCIETAL BENEFITS FOR ALL

Development Circle

- What worked for voice will work for data
- Governments and regulators play a key role
- With the right environment Private investors can deliver (amazing things!)
- Critical is developing the right investment environment



Government / Regulatory Enablers



There are 5 main regulatory levers that influence the economic model for broadband

Spectrum availability



- Harmonised spectrum allocations
- Portfolios to spectrum to support capacity and coverage

Infrastructure / spectrum sharing



- Allow / encourage commercial spectrum sharing
- Crucial for rural and low-density areas where there are sharing no spectrum capacity constraints

Coverage obligations



- Appropriate coverage obligations to meet wider government broadband goals
- Encourage affordable access

Industry structure



- Appropriate competition market structures
- New entrants v's existing players

Spectrum / license fees



- Transparent allocation processes
- Balanced licence / fee structure

Source: McKinsey

In conclusion...

- President *Barack Obama* – 16.03.10

“Just as past generations met the great infrastructure challenges of the day, such as building the railroads and the Interstate highways, so too must we harness the potential of the Internet. Expanding broadband across the nation will build a foundation of sustained economic growth and the widely shared prosperity we all seek.”

- ITU Secretary General, Dr Hamadoun Toure, 15.02.2011

“governments need to raise broadband to the top of the development agenda, so that rollout is accelerated and the benefits are brought to as many people as possible”

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ERICSSON



Spectrum alignment for Mobile Broadband

Michael Bjarhov, Director Government &
Industry Relations, Ericsson



Mobile Broadband

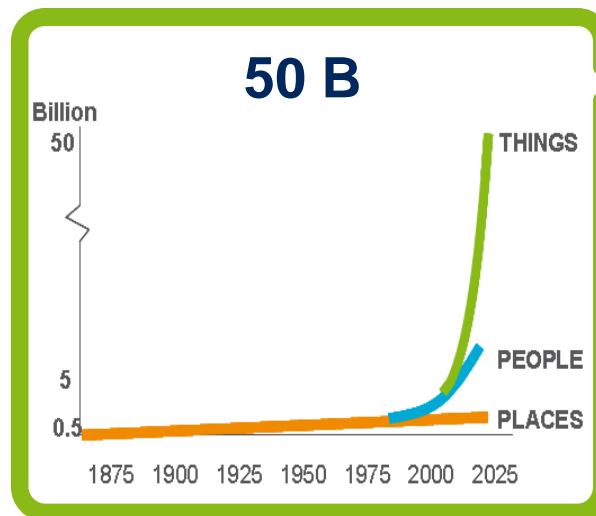
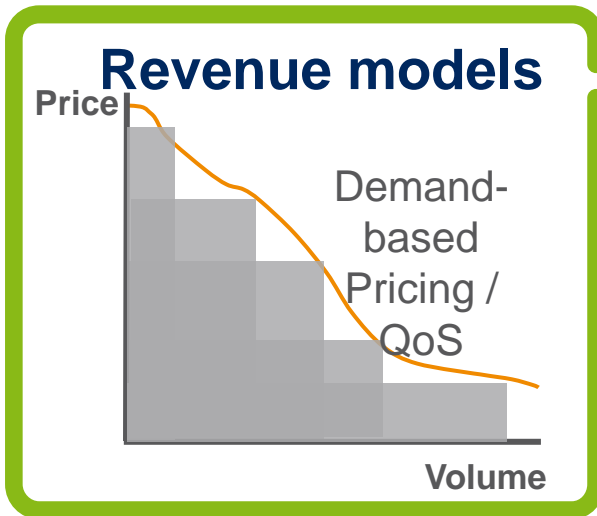
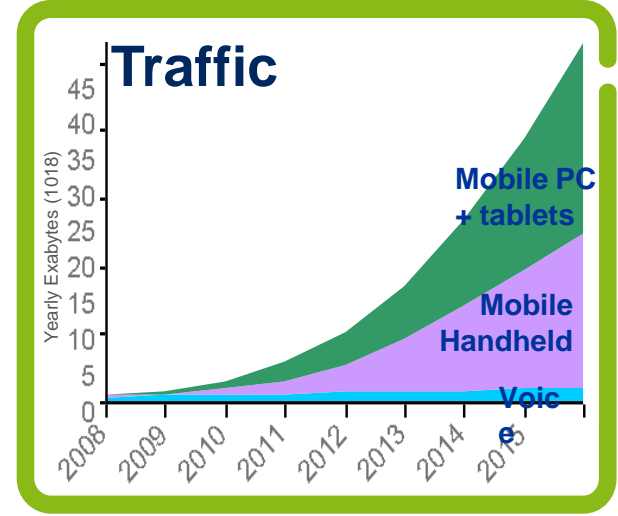
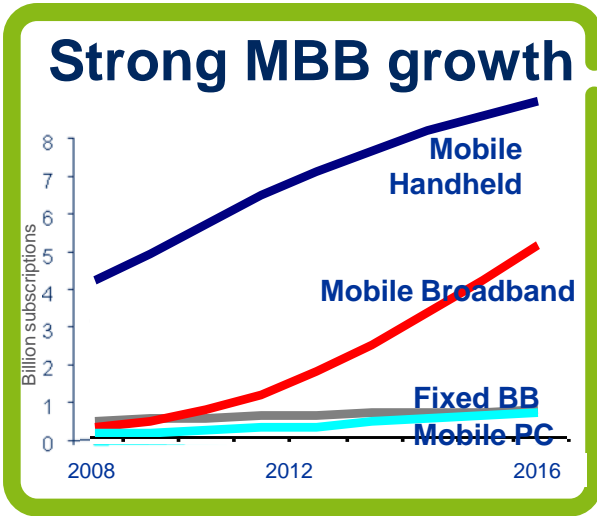
Network evolution and Spectrum alignment

Michael Bjarhov

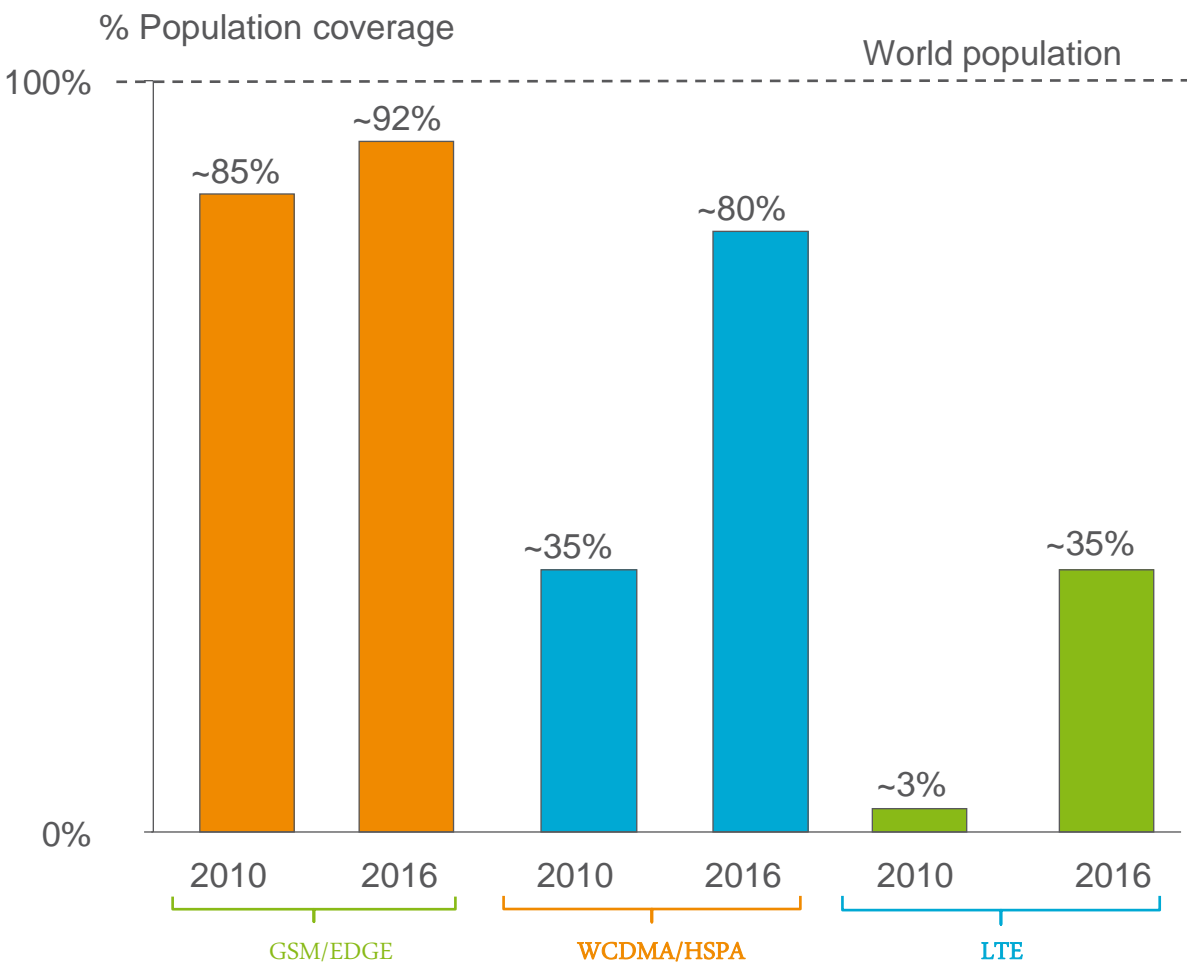
Director Government & Industry relations, Asia Pacific

Ericsson

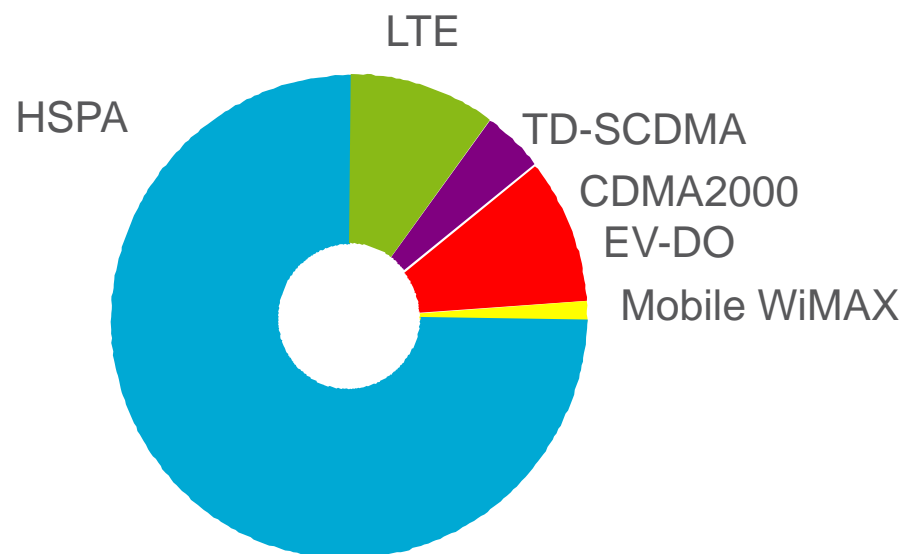
In the networked society The user experience is key



[The Network is the differentiator]



Mobile Broadband

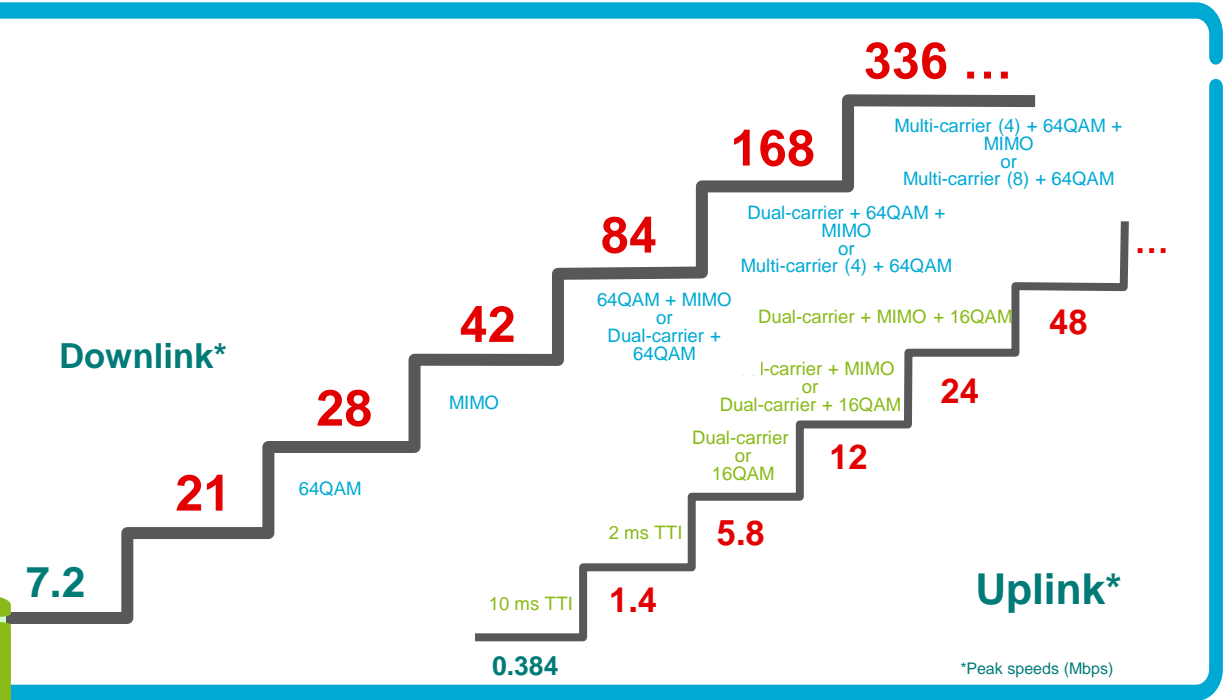


[Close to 5 billion Mobile Broadband subscriptions in 2016]

Evolution of Mobile Broadband

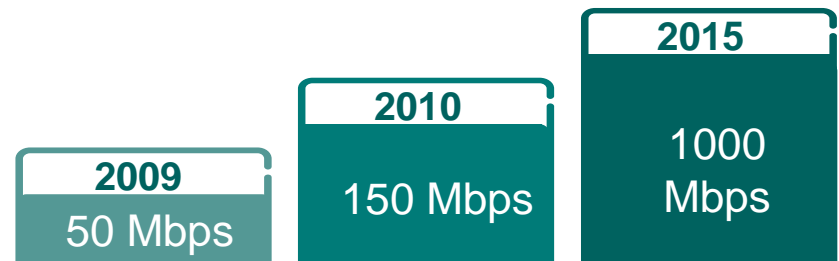
3gpp Technologies dominating the market

HSPA Evolution



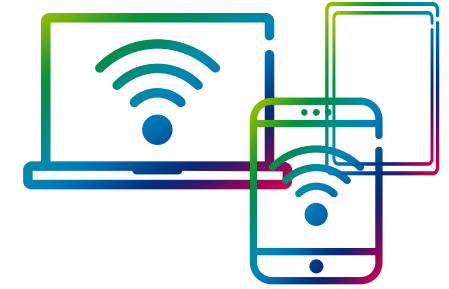
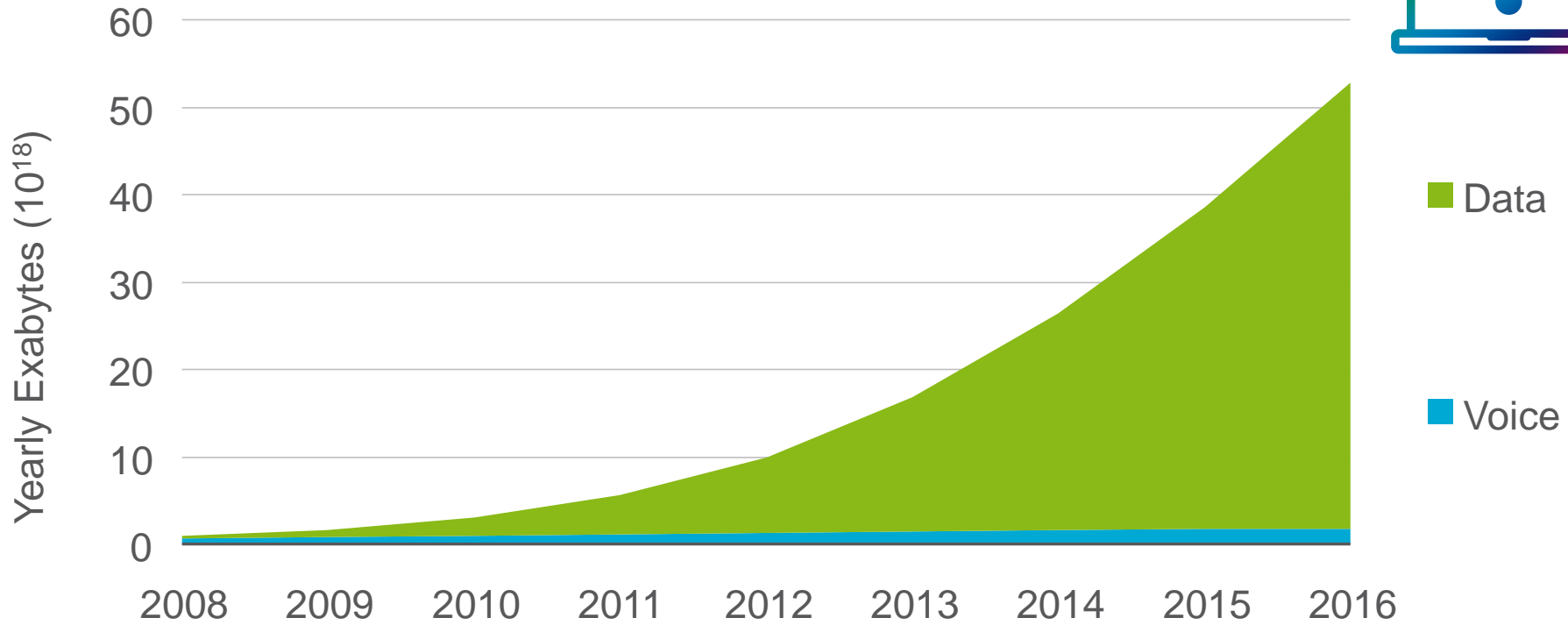
High capacity IP backhaul using fiber and microwave

LTE Evolution to 4G (ITU)



Impressive Mobile data growth

Subscriber traffic in mobile access networks



■ Data
■ Voice

Source: Internal Ericsson
 WiMAX and WiFi traffic not included.
 M2M traffic to be added on top.
 This slide contains forward looking statements

Mobile data traffic forecasted to double annually over the coming years due to Smartphones, laptops and tablets

Harmonized spectrum Key to success

Harmonized spectrum is key for development of public mobile broadband access as well as for industry to be able to successfully respond to national policy goals by providing **standardized products**

- › **Economy of scale** (based on a mass market)
- › Easy **cross-border coordination**
- › **Cross-border operation** (between countries)
- › **Global roaming** capabilities
- › **Interoperability** choice and convenience
- › **Efficient use** of spectrum (also in border areas)

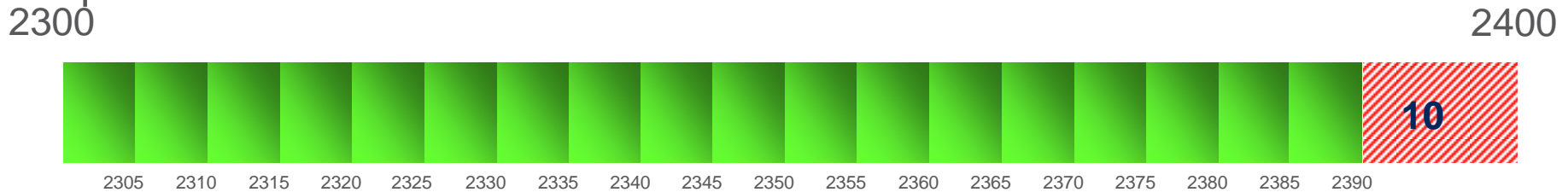


Providing affordable services to all



NEW bands for LTE in APAC

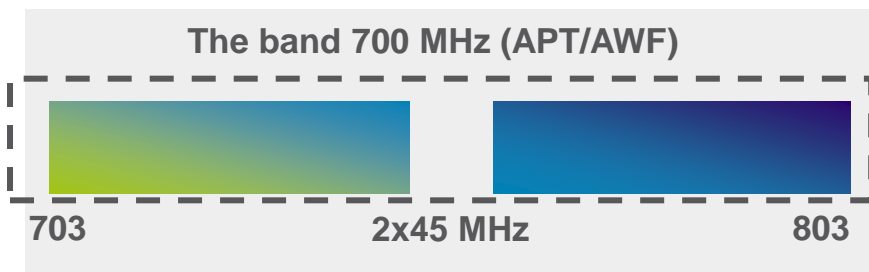
The allocation of the band 2300 – 2400 MHz, in 5 MHz blocks for IMT technologies – TDD only. Guard band of at least 5MHz for unsynchronized operation



ITU-R WRC-2000 identified the “Extension” band 2500 – 2690 MHz globally



698 – 806 MHz



The band 850 MHz



The band 900 MHz



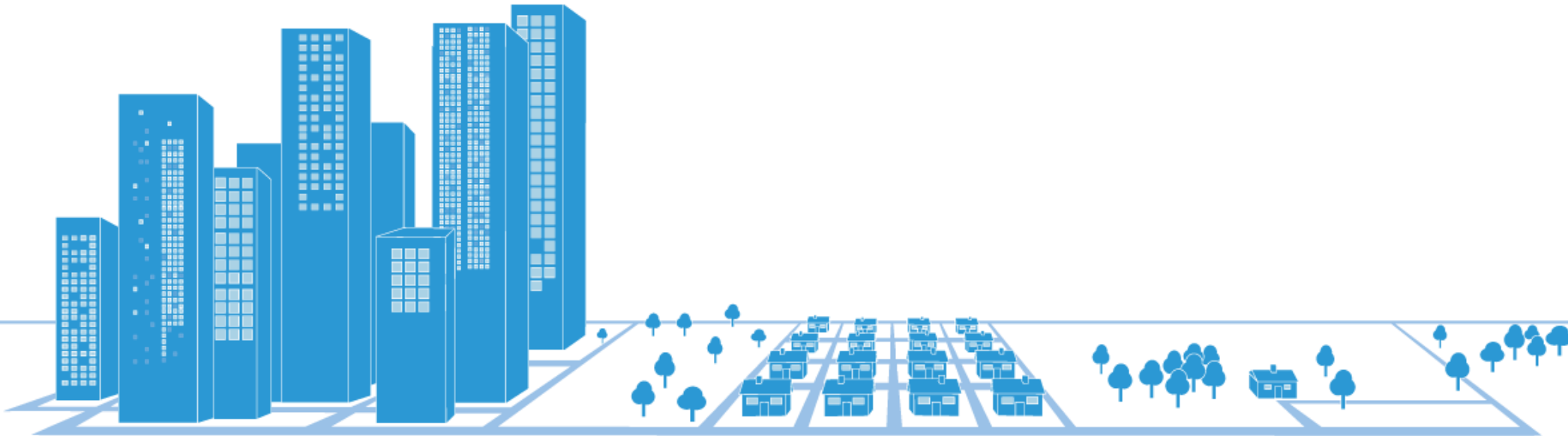
Possible SPECTRUM STRATEGY in APAC

Re-farm 900 and 1800 to HSPA and LTE

Urban

Suburban

Rural



700 MHz

850/900 MHz

CDMA / GSM / EDGE / HSPA (LTE)

1800 MHz

GSM / EDGE / LTE (HSPA)

2100 MHz

HSPA

2300/2600 MHz

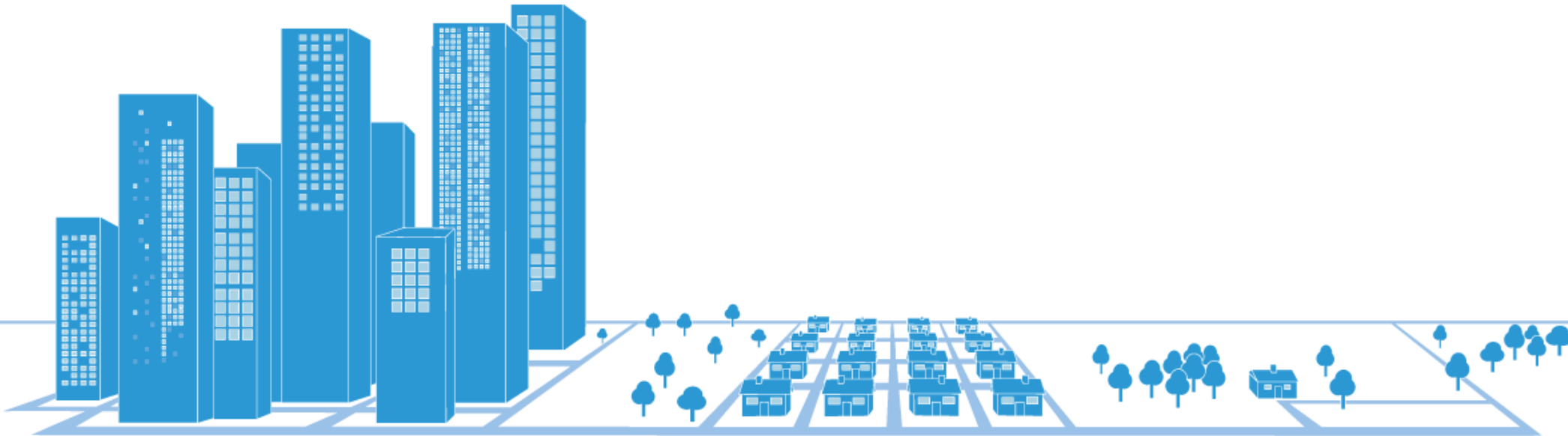
Possible SPECTRUM STRATEGY in APAC

Introduce LTE in 700 & 2300 / 2600

Urban

Suburban

Rural



700 MHz

LTE

850/900 MHz

CDMA / GSM / EDGE / HSPA (LTE)

1800 MHz

GSM / EDGE / LTE (HSPA)

2100 MHz

HSPA

2300/2600 MHz

LTE

Current spectrum

may not be enough for IMT after year 2015

Predicted spectrum requirements by the year 2020 for IMT (WRC-07)

May suggest a deficit of the order of 600 - 1000 MHz in the timeframe 2015 – 2020, subject to traffic and subscriptions, and national circumstances

		Region 1		Region 2		Region 3	
User demand setting	Predicted total (MHz)	Identified (MHz)	Net additional (MHz)	Identified (MHz)	Net additional (MHz)	Identified (MHz)	Net additional (MHz)
Low	1 280	693	587	723	557	749	531
High	1 720	693	1 027	723	997	749	971
NOTE – Prediction based on one network deployment.							

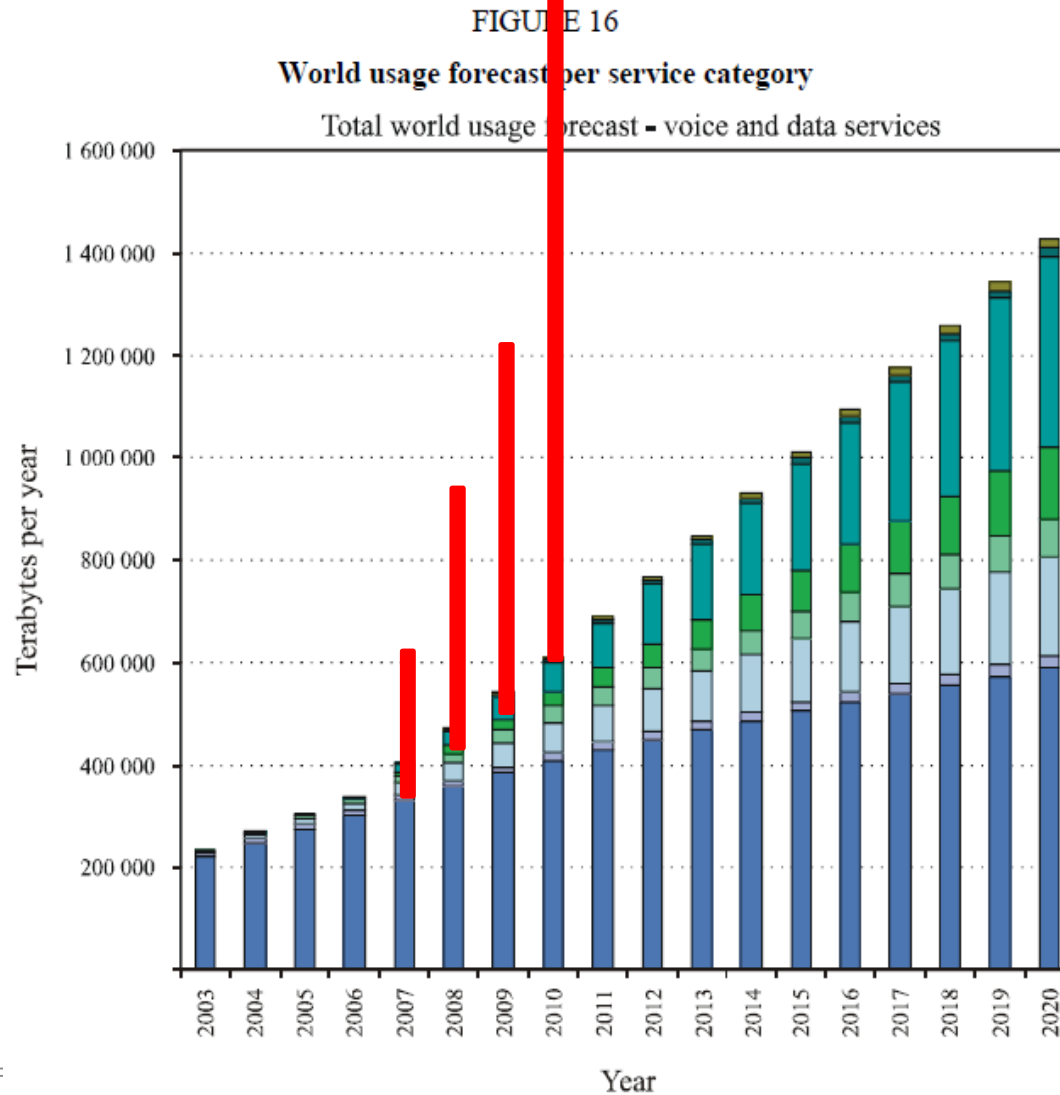
Reference: ITU CPM Report to WRC-07 and Report ITU-R M.2078

Philippines: 575 MHz (including 2300-2400 MHz and 2500-2690 MHz bands)

More spectrum needs to be allocated at WRC-16

Traffic growth forecast vs. real

Real mobile traffic (excluding WiFi and Femto)



Global estimate for “total world traffic” - done at year 2005 (Figure 16 from ITU-R M.2072)

Summary

- › In the networked society the user experience is key
- › Connectivity will be embedded into all kinds of devices
- › The 3GPP family of technologies with a path to 4G/LTE will dominate the market
- › Spectrum management is key to a smooth evolution
- › Traffic growth will require,
 - the most spectral efficient technologies
 - more radio sites with high speed IP backhaul
 - and **more globally or regionally harmonized spectrum**
- › To enable cost effective and affordable ...

Mobile Broadband for all



ERICSSON

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QUALCOMM

HSPA+, LTE and The Continuing Wireless Evolution

John Stefanac, Vice President and
President of Asia Pacific, Qualcomm



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Coffee/tea break with networking





HSPA+, LTE and The Continuing Wireless Evolution

May 2011



The Biggest Platform in the History of Mankind



>5 BILLION WIRELESS SUBSCRIBERS

>1B

3G SUBSCRIPTIONS
NOW

~2.8B

3G SUBSCRIPTIONS
BY 2014

Note : 3G includes CDMA2000, WCDMA and TD-SCDMA

Source: Wireless Intelligence estimates as of Nov.2 , 2010 for the quarter ending Sep 30, 2010; *number of unique wireless connections

What's Driving The Perfect Wireless Storm?

- Device – form factor diversity
- Device – processing power and capabilities
- Network capacity enhancements
- Flexible data plans
- Compelling apps and services
 - Cloud computing



By 2014, Monthly Worldwide Mobile Data Traffic Expected to Exceed 2008 Total

A young man and woman are standing outdoors in a park-like setting. The man, on the left, is wearing a white button-down shirt and has his arm around the woman's shoulder. The woman, on the right, is wearing a red and white striped long-sleeved shirt and is holding a black smartphone, looking at it with a smile. The background shows trees with some autumn-colored leaves and a blurred landscape.

IN EMERGING REGIONS, BY 2014:
**75% OF TOTAL BROADBAND
CONNECTIONS WILL BE MOBILE**



The Internet Is Now Mobile

SHIFTING TO A CARRY ALONG EXPERIENCE

Always
with you

Real-time

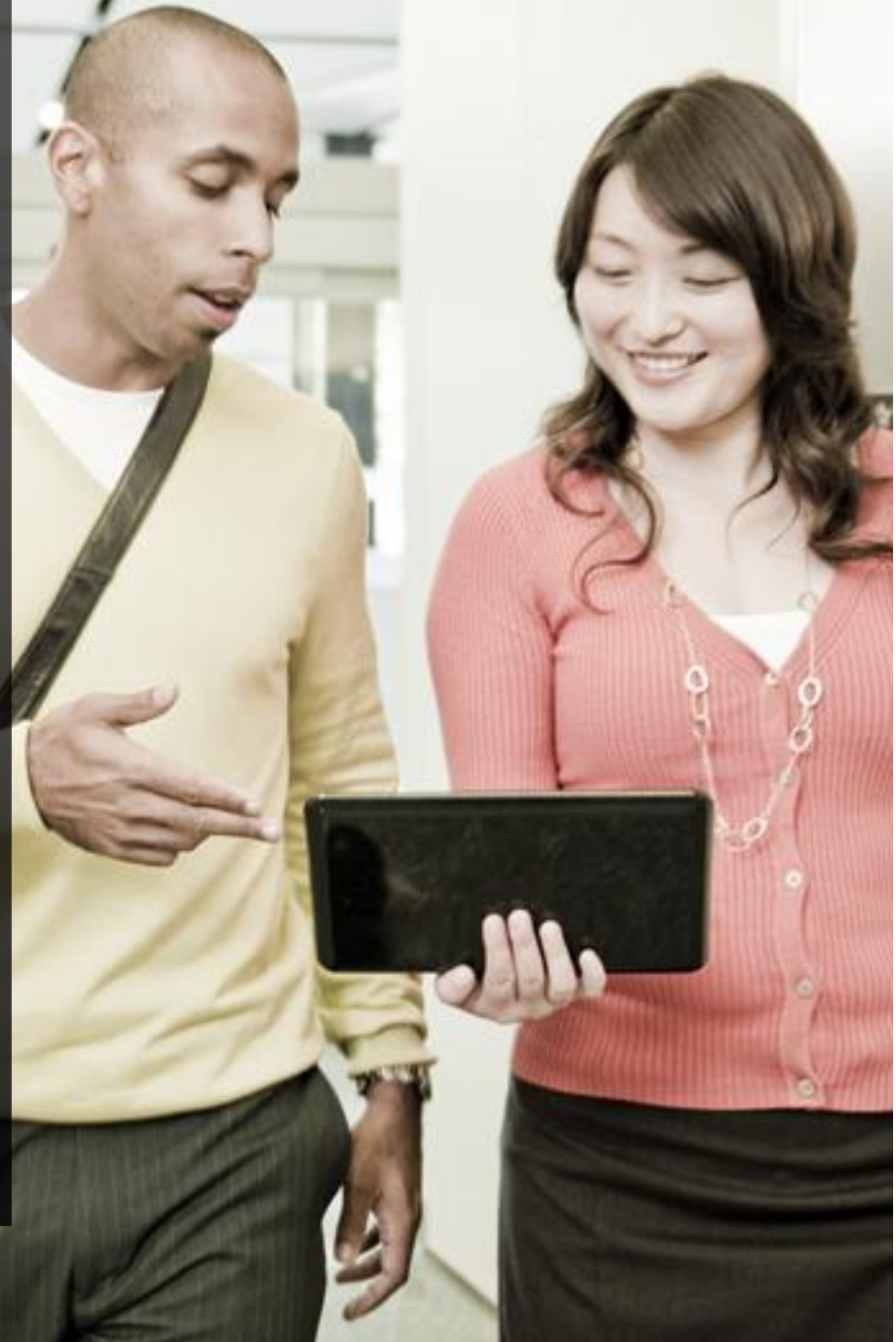
Context
aware

Leverages
the cloud

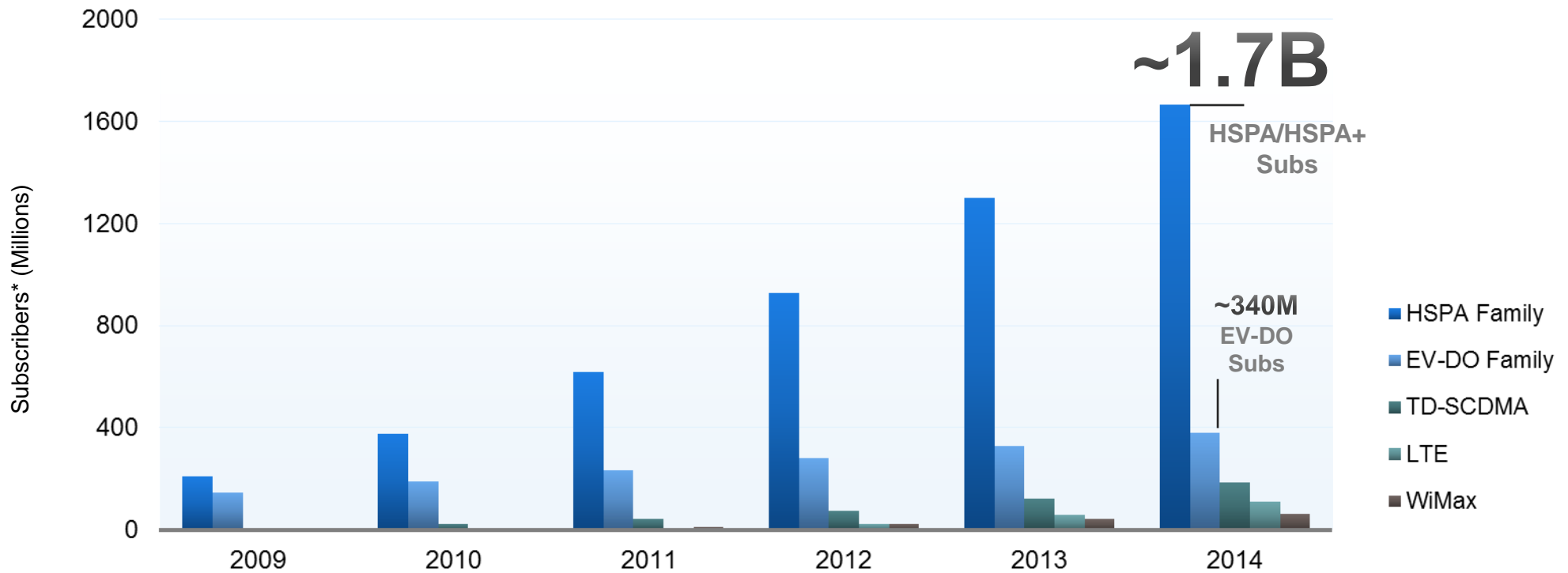
Highly
personalized

Addressing Data Demand Growth

- Evolve 3G to increase capacity and performance
- Free up 2G spectrum for more efficient 3G
- Boost data capacity with LTE for new and wider spectrum
- Bring network closer to the user —add small cells like femtocells



HSPA+ is The Mobile Broadband Leader



Total 3G* mobile broadband subscribers expected to be ~2.2B by 2014 (of total 2.8B 3G)

Note: * 3G includes EV-DO family, HSPA family and TD-SCDMA, ** number of unique wireless connections.

Source: 3G subs – Wireless Intelligence (Nov-10), LTE – Avg. of ABI (Oct-10) and Yankee (Sep-10) and WiMax - ABI (Oct-10).

HSPA+ is The New Baseline

HSPA+ IS THE NEW BASELINE

123

LAUNCHES

173

NETWORK COMMITMENTS

OPERATORS QUICKLY MOVING TO Dual-Carrier

23

LAUNCHES

Aug 2010

FIRST LAUNCH

HSPA+ DEVICES ACROSS ALL SEGMENTS

>100

DEVICES

20

VENDORS



Connecting a Very Large Number of Devices

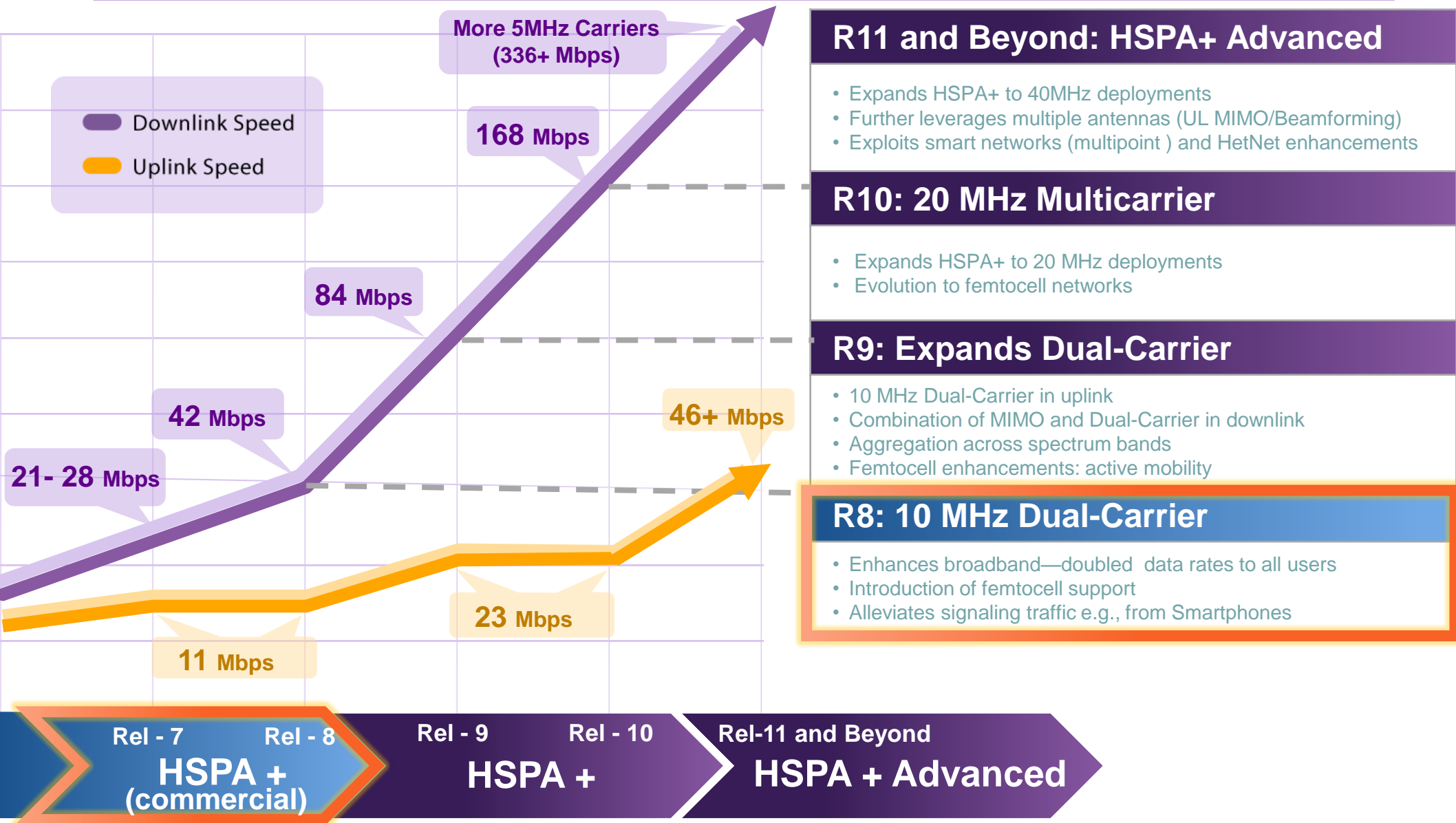
*The Next Era of Networking and Computing,
Where Everything is Intelligently Connected*

HSPA+ optimizations to support the explosion of interconnected low-traffic devices, e.g., M2M and Smartphones

Examples of improvements: Addition of Extended Access Class Barring (EAB) to handle very large density of low-traffic devices. Call rejection improvements to protect networks from access overload. Improvement of low power consumption states to handle bursty traffic even better .



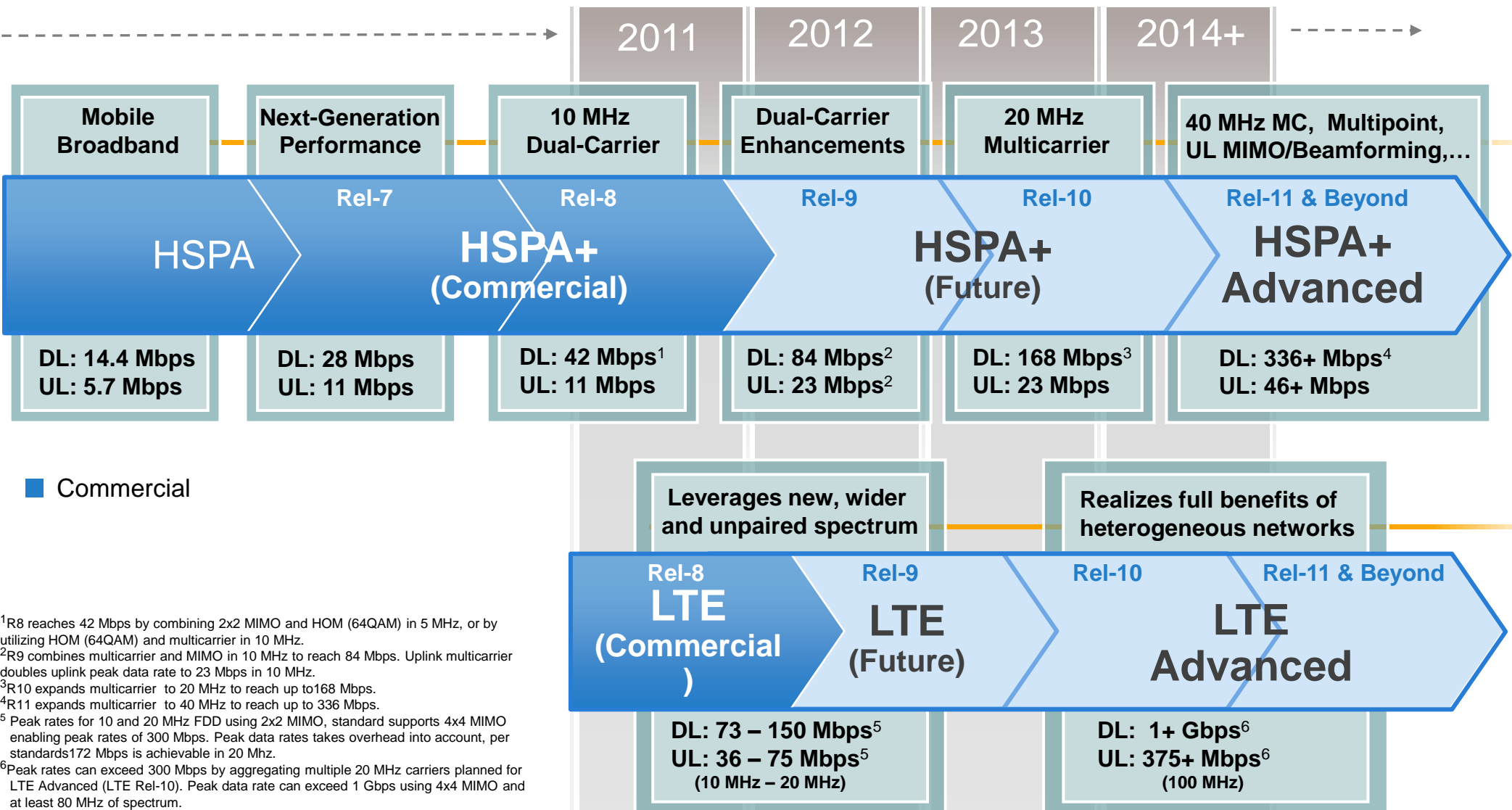
HSPA+ Has A Strong Evolution Path



Created 01/21/11

Notes: R8 reaches 42 Mbps by combining 2x2 MIMO and HOM (64QAM) in 5 MHz, or by utilizing HOM (64QAM) and multicarrier in 10 MHz. R9 combines multicarrier and MIMO in 10 MHz to reach 84 Mbps peak rates. Uplink multicarrier doubles the uplink peak data rate to 23 Mbps in 10 MHz in R9. R10 expands multicarrier to 20 MHz to reach 168 Mbps. R11 expands multicarrier to 40MHz to reach 336+ Mbps.

HSPA+ Leads To LTE



¹R8 reaches 42 Mbps by combining 2x2 MIMO and HOM (64QAM) in 5 MHz, or by utilizing HOM (64QAM) and multicarrier in 10 MHz.
²R9 combines multicarrier and MIMO in 10 MHz to reach 84 Mbps. Uplink multicarrier doubles uplink peak data rate to 23 Mbps in 10 MHz.
³R10 expands multicarrier to 20 MHz to reach up to 168 Mbps.
⁴R11 expands multicarrier to 40 MHz to reach up to 336 Mbps.
⁵Peak rates for 10 and 20 MHz FDD using 2x2 MIMO, standard supports 4x4 MIMO enabling peak rates of 300 Mbps. Peak data rates takes overhead into account, per standards 172 Mbps is achievable in 20 MHz.
⁶Peak rates can exceed 300 Mbps by aggregating multiple 20 MHz carriers planned for LTE Advanced (LTE Rel-10). Peak data rate can exceed 1 Gbps using 4x4 MIMO and at least 80 MHz of spectrum.

LTE Has Strong Commitments

LTE MULTIMODE LAUNCHED

18

LAUNCHES

196

NETWORK COMMITMENTS

LTE TDD GAINING MOMENTUM

>15

TRIALS

NOV 2010

QUALCOMM MOBILITY FIELD TRIAL

GROWING DEVICE ECOSYSTEM

~100

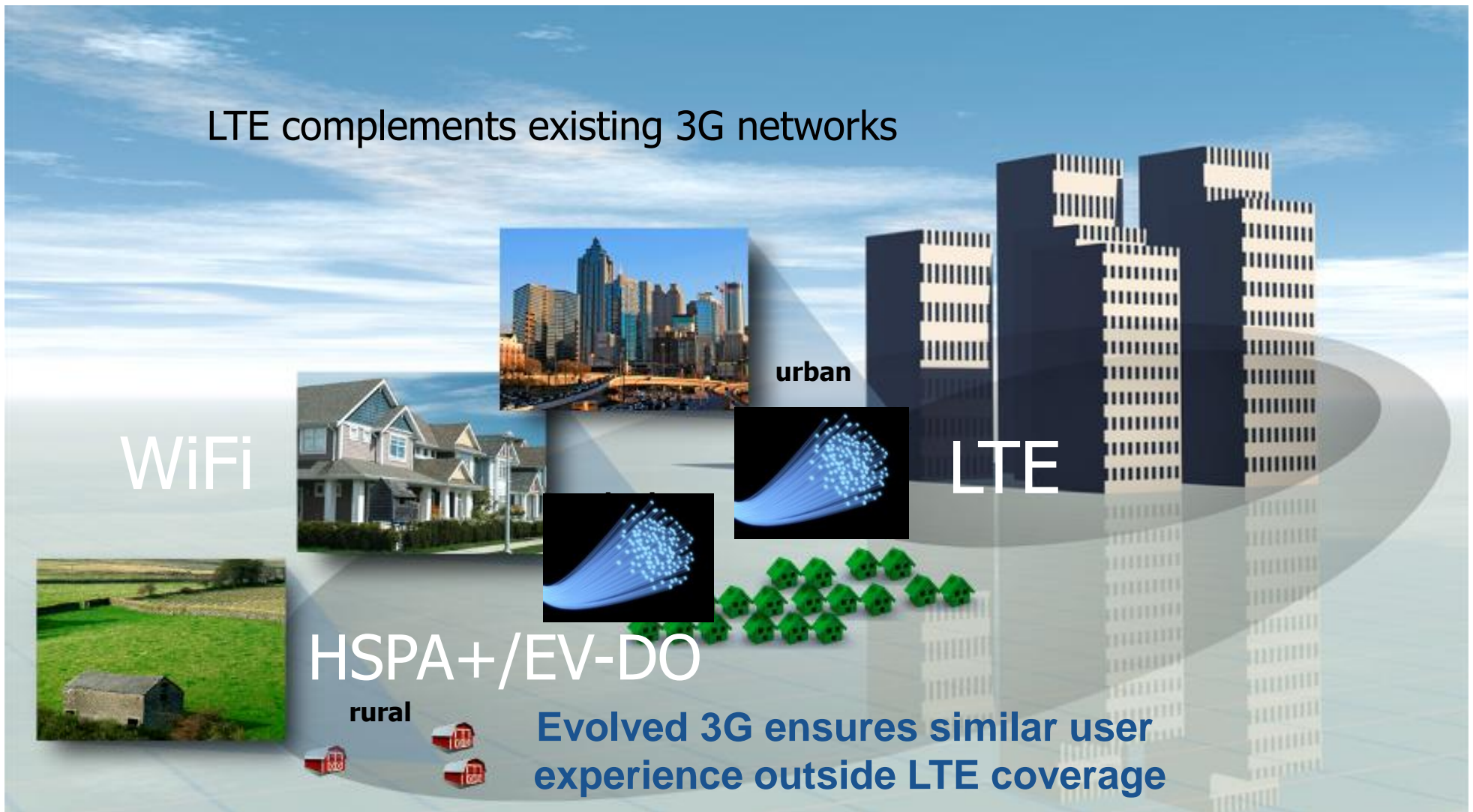
DEVICES

~35

VENDORS

Technologies Should Be Complementary

LTE complements existing 3G networks



WiFi

HSPA+/EV-DO

rural

urban

LTE

Evolved 3G ensures similar user experience outside LTE coverage

Benefits Of Spectrum Harmonization

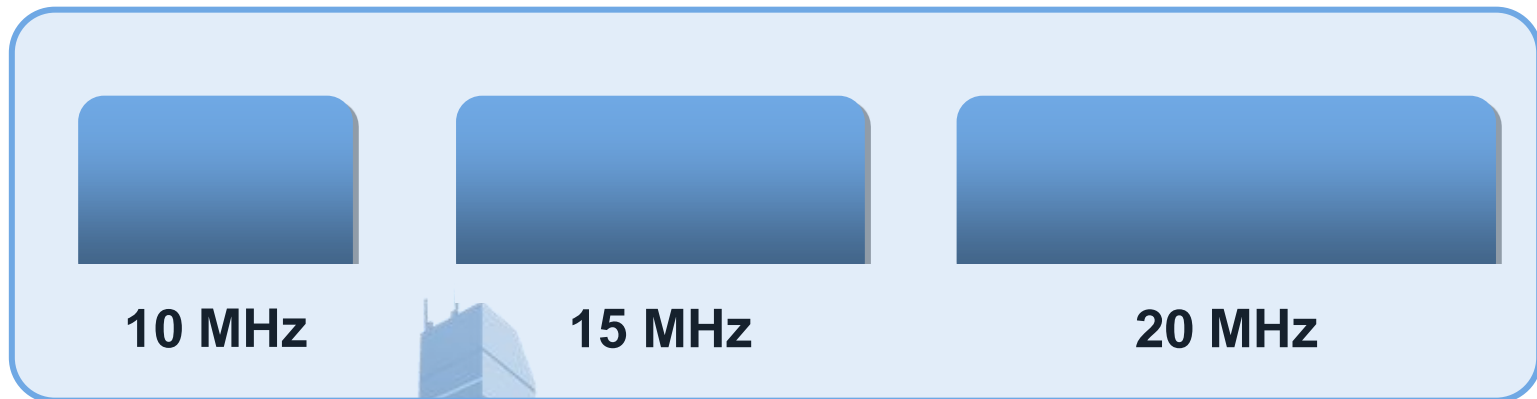


- Facilitates international roaming
- Greater economies of scale will drive down the cost of mobile user devices
- Minimizes interference

LTE Leverages New Wider Spectrum

Available in smaller bandwidths

Best suited to leverage new and wider contiguous spectrum



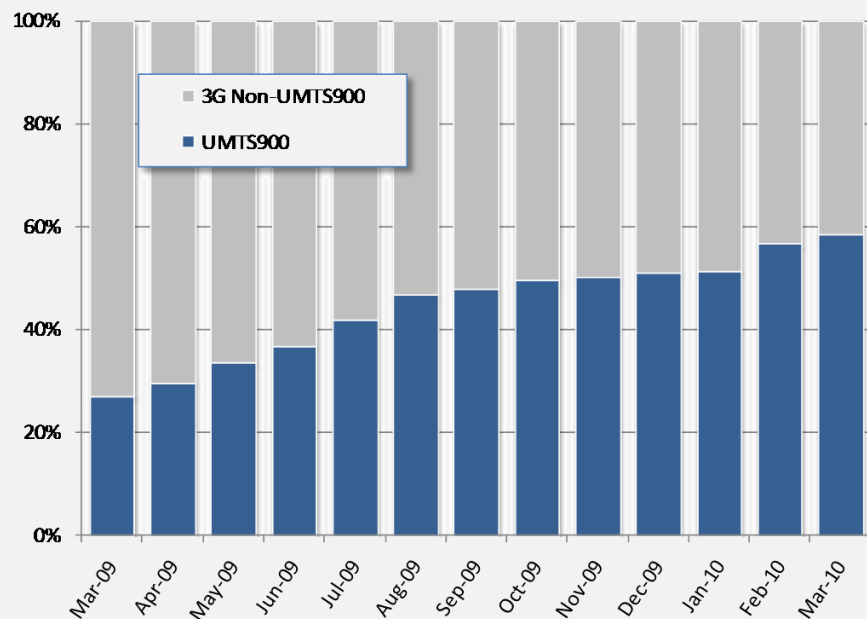
LTE relative performance decreases with bandwidth due to higher overhead; 40% overhead in 1.4 MHz vs. 25% in 20 MHz results in 25% better relative performance in 20 MHz vs. 1.4 MHz.

Similar LTE and Evolved 3G Performance
When using same bandwidth and same number of antennas

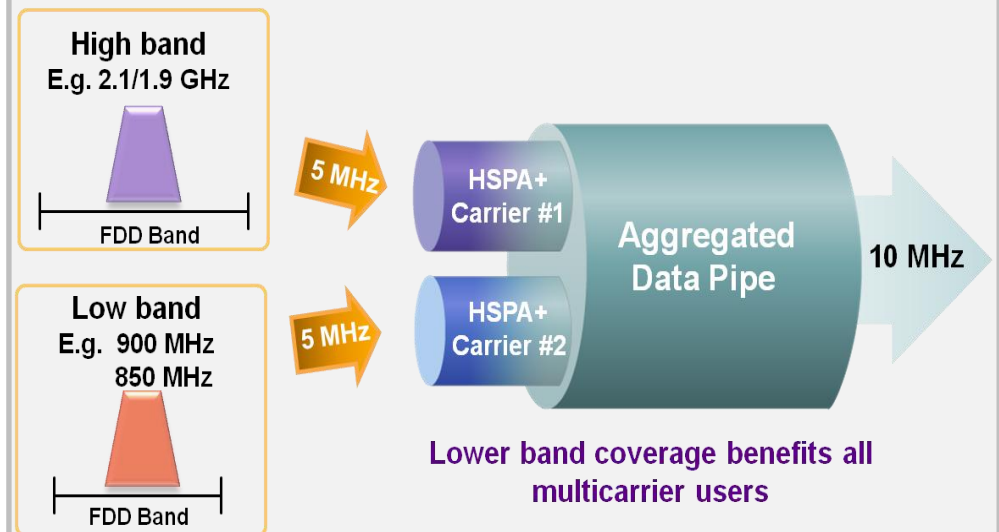
Free Up 2G Spectrum for 3G/4G LTE

- UMTS900 almost closes 2G/3G coverage gap—eliminates 3G porosity
- 3G to cope with increasing data usage and 2G capacity limitations
- Additional 2G bands e.g. 1800MHz suitable for HSPA+ and/or LTE refarming

Example: UMTS900 enabled devices is more than 50% of monthly sales in EU5¹



Multicarrier Across Bands—Another Driver for refarming 900 MHz and 1800 MHz for HSPA+²



LTE TDD: The Global Solution for Unpaired Spectrum

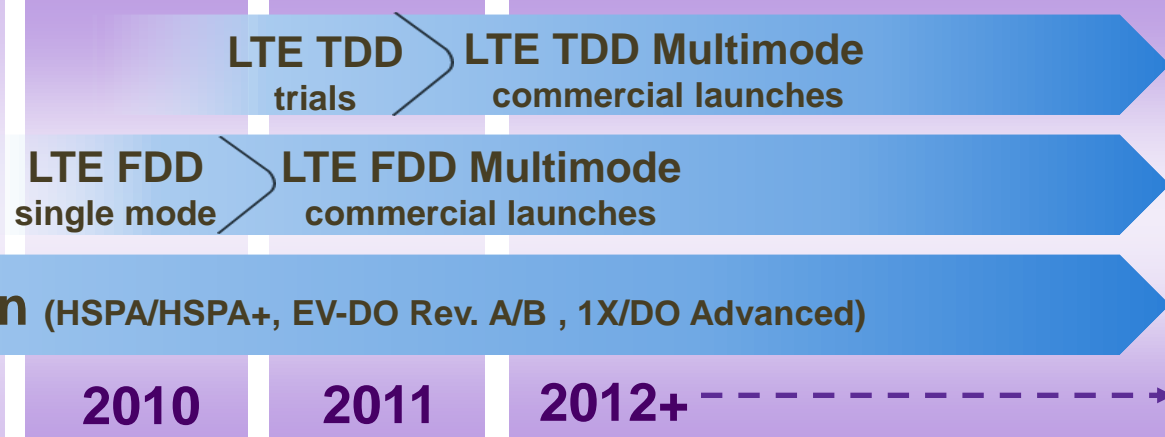
- China and India to deploy LTE TDD
 - China Mobile committed to LTE TDD, e.g. in 2.3 GHz
 - Major India BWA operators in 2.3 GHz
- Strong industry support
 - Basically all vendors offering LTE TDD
 - WiMAX industry support declining¹
- Leverages LTE FDD
 - Shares most of FDD design and standard
 - Common FDD/TDD core network

Global TDD Spectrum

TDD Spectrum Bands	Potential Spectrum
2.5/2.6 GHz (IMT Extension gap) B38 ³ : 2570 MHz to 2620 MHz	50 MHz
2.3 GHz B40 ⁴ : 2300 MHz to 2400 MHz	100 MHz

³IMT extension band provides 50 MHz TDD in addition to 70 MHz + 70 MHz FDD in most countries. ²B340 will e.g. be used for India and China, can provide up to 100 MHz, but less spectrum may be available in some markets.

LTE TDD operator trials in 2010, Commercial launches in 2011²



¹Examples: Clearwire announced LTE trials in press release Aug 4th 2010. Russia's Yota announced plans to drop WiMAX in favor of LTE in some markets.

²Single mode LTE TDD trials 2H2010, multimode trials 1H 2010 and commercial multimode launch in 2011



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Regulatory enablement towards growth of Mobile Broadband

Kristin Due Hague,
Spectrum Director, GSMA



The key messages

- Release mobile spectrum
 - Make all internationally/regionally harmonised mobile bands available
- Make spectrum for backbone / feeding available
 - Mobile broadband requires increased backbone capacity too
- Ensure transparent and fair mechanisms to award spectrum/licenses
 - Operators competing when excess demand makes sense
 - Technologies competing for access to spectrum is ok
 - Focus on long term economic efficient use of spectrum and not short term policies of maximizing revenue collection
- Ensure distribution of spectrum for a competitive downstream market but allow market mechanisms and underlying economic structures to contribute to determine the market structure
 - Significant upfront investment issues and scale issues
 - Leaving spectrum idle potentially making society worse off than allowing existing operators use it

From voice to mobile broadband

Aggregated bandwidth X 2? X3? X4?



By 2020 IMT will need:

- 1280 MHz bandwidth for rural areas
- 1720 MHz bandwidth for urban areas



Australian 2020 estimates:
1100 MHz required
300 MHz to be added



Colombia to auction 300 MHz of spectrum



Statements On making 500 MHz of new bandwidth available



More than 600 MHz to be released



Spain to release 310 MHz mobile spectrum



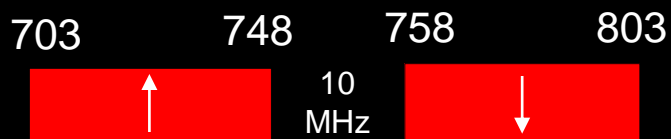
Chairman Genachowski in October 2009:

“In fact, I believe that that the biggest threat to the future of mobile in America is the looming spectrum crisis.”

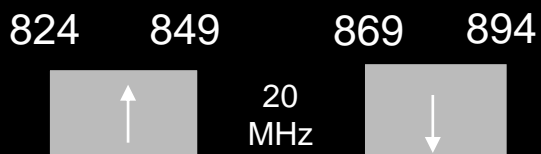
Candidate mobile bands Asia Pacific



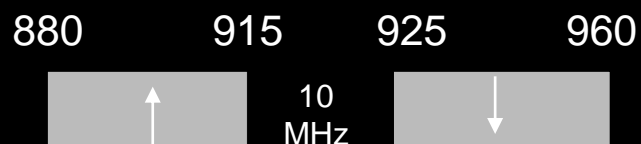
The coverage bands



The 700 band: 2X45 MHz

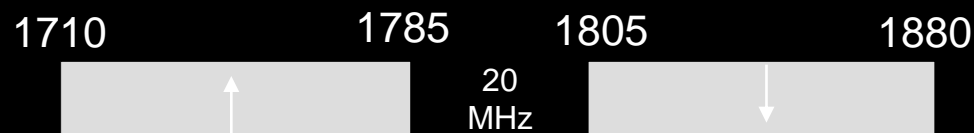


The 850 band: 2X25 MHz

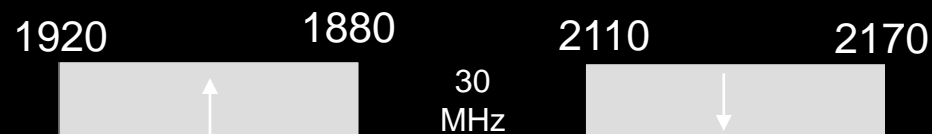


The 900 band: 2X35 MHz

The capacity bands



The 1800 band: 2X75 MHz



The 2100 band: 2X60 MHz



The 2300 band: 100 MHz



The 2600 band: 2X70 MHz and 50 MHz unpaired

Spectrum roadmaps



Tie between band and technology broken

900 band:

- 10 years ago = GSM
- Today = GSM and/or UMTS/HSPA?
- Tomorrow = GSM, and/or UMTS/HSPA and/or LTE?

Complexity will continue to increase:

- LTE FDD in 700?
- LTE FDD in 700/1800?
- LTE FDD in 700 and LTE TDD in 2.3?
- LTE FDD in 700/2.6?

Mobile operators will face a complex scenario when making future investment decisions

Vendors face a complex scenario when determining the road from standardisation to commercial launch

Governments should publish spectrum allocation and award roadmaps!

- Tell us what you'll do next year
- Tell us what are your 3 year allocation and release plan
- Tell us what are your 10 year allocation and release plan

- Increased complexity when assessing combinations of spectrum bands and technologies
- Decision making under uncertainty is one scenario that reduces the price of the assets to acquire (and government revenue!)
- Mobile operators needs to know what spectrum they should expect to be allocated and awarded in the future when making investment decisions
- Equipment manufacturers needs a spectrum availability roadmap when deciding upon their go-to-market strategies

Awarding spectrum/licenses

- Stages of awarding spectrum
 - Deciding objectives
 - Economic efficient outcome for society or short term maximizing of revenue collection for the government?
 - Specific competition issues to be solved? Market structure, caps etc
 - Defining what to sell
 - License design – definition of usage rights
 - Other terms and conditions which will have impact on the business cases for “bidders” such as coverage and roll out obligations, potential technology and service restrictions, annual fees/charges, sharing models, tradability etc
 - Designing the award procedure
 - Open, transparent, non-discriminatory
 - Specific exercise, tailor-made, not a one-size-fits-all exercise
 - When demand exceeds supply a competitive award procedure is normally used (“money auctions”, “beauty parades”)
 - Implementing and executing the award
 - Open, transparent, non-discriminatory

Market structure issues

- Promote competition in down stream markets
 - Competitive markets for delivering innovative services, high quality services, at lowest possible prices for consumers
 - Number of operators does not necessarily define how competitive a market is (but monopolies are of course not competitive)
- Determining “the right market structure” is complicated and a risky exercise for any government to take full responsibility for - observation of current trends
 - Using more flexible award designs to determine exact number of operators (whether e.g. three, four or five is the right number of licenses in a band)
 - Recognising that going broadband means more bandwidth per operator – including loosening up on previous stricter spectrum caps
 - Allowing more commercially based arrangements around spectrum and network sharing, infrastructure sharing etc
 - Considering more than one band as relevant if considering to implement spectrum caps – the more bands and more technologies per band issues means bands can be substitutes – and the growing interests in the “multi-band auctions”
 - Consider mechanisms to avoid spectrum being left idle because of a pre-defined license not being “sold” in an award procedure

Connecting the Philippines through Mobile Broadband

Mobile Broadband Regulatory Seminar
10 May 2011, The Shangri-La Hotel
Makati, Philippines



Thank you
kduehague@gsm.org

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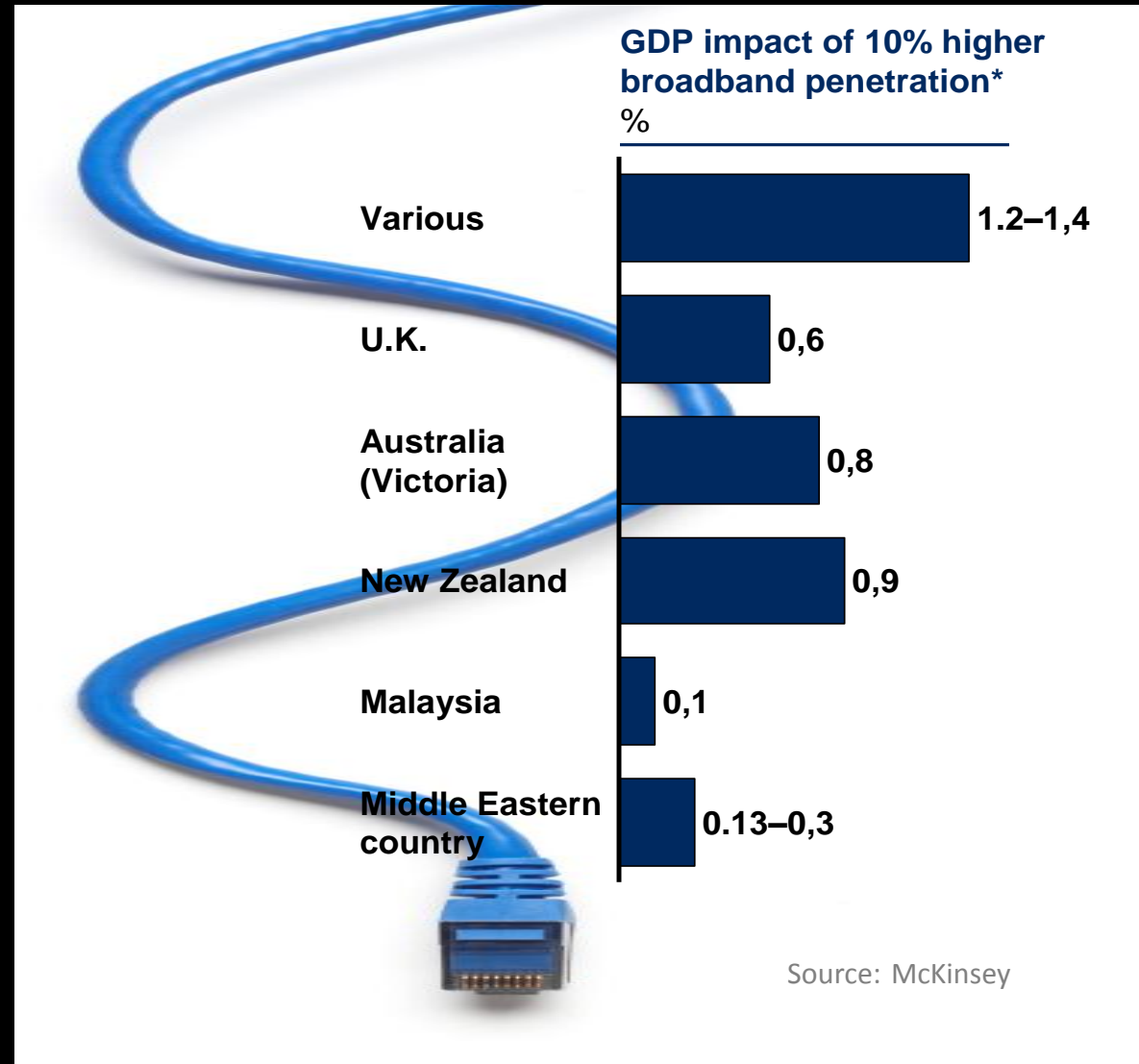
Connecting consumers to Internet – socio-economic impact

Kristin Due Hague,
Spectrum Director, GSMA

- A number of analysis of economic impact and/or social impact of connecting consumers to the Internet, of broadband adaption and of mobile broadband adaption have been carried out
- Who uses the approach of social and economic impact analysis
 - Governments
 - Analysis carried out internally
 - Use of external expertise – academics and consultants
 - International organizations involved in policy making
 - Organizations involved in economic development
 - Regional example: EU uses economic impact analysis when developing their broadband policies and spectrum policies
 - Market players engaged in businesses in various sectors
 - Socio-economic impact analysis used by mobile operators and vendors
 - Trade organizations
 - A telecom example: GSMA commissions socio-economic impact analysis

Broadband and GDP growth

- World Bank econometrics analysis of 120 countries (Qiang 2009):
 - 10% increased broadband penetration
 - 1.3% economic growth
- The growth effect of broadband is significant and stronger in developing countries than in developed economies
- The impact can be even more robust once the penetration reaches a critical mass



Society / consumers benefits from Internet

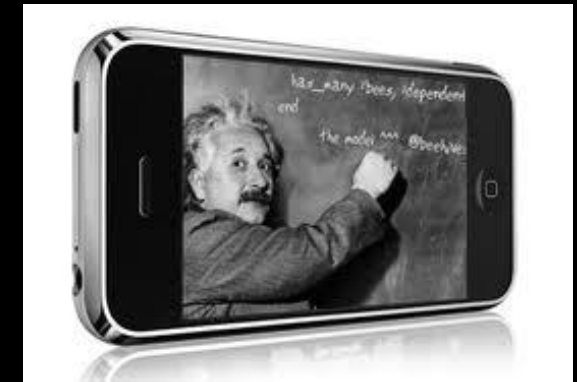


Improving healthcare

- Tool for gathering and managing health information
- Disease surveillance tool
- Remote diagnoses via telemedicine
- Access to health information, health hotline
- Health education, training and emergency support tool
- Coordinating drug and medical supply distribution tool
- Enhancing rapid disease testing via mobile phone microscopy applications

Education

- Improved quality of teaching
- Online courses and classes
- Online libraries
- Higher education opportunities



Creating jobs

- In the ICT industry
- Enabler in job creation in other sectors

Mobile money

- Mobile money for everyone
- Mobile money for the unbanked



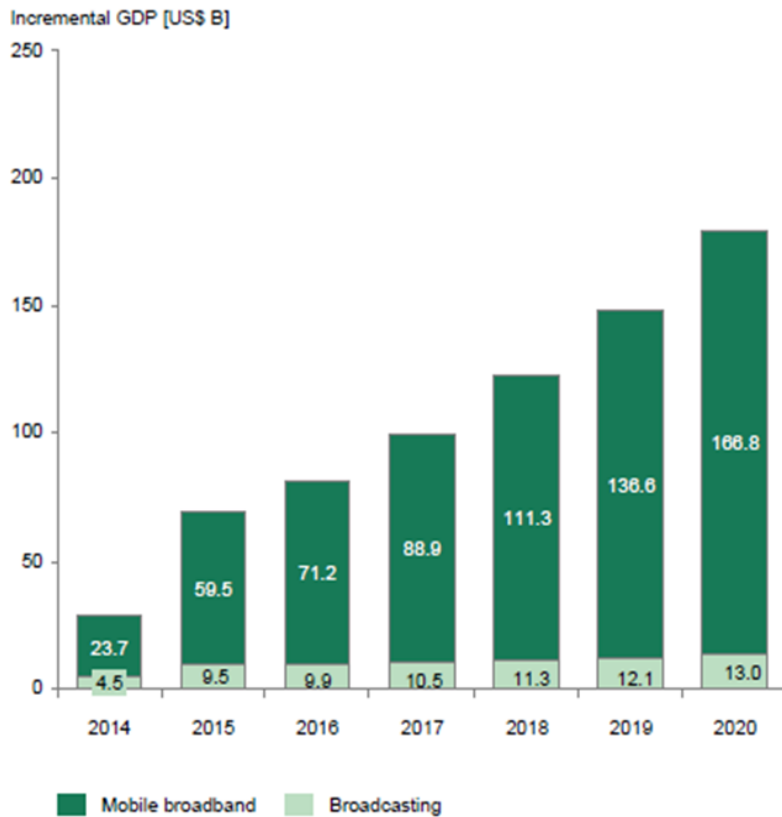
Agriculture

- Farmer helplines
- Seed information
- Weather warnings

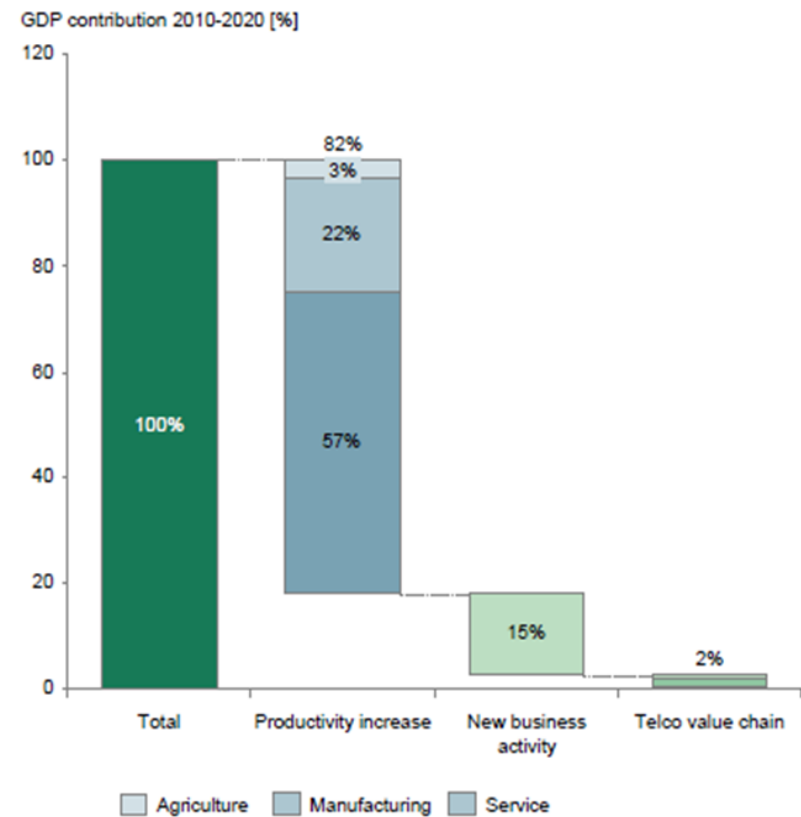
700 band to mobile: GDP impact in APAC



**US\$ 657.9B increase in GDP
(Net Present Value of US\$501.6B)**



Largely driven by productivity increase



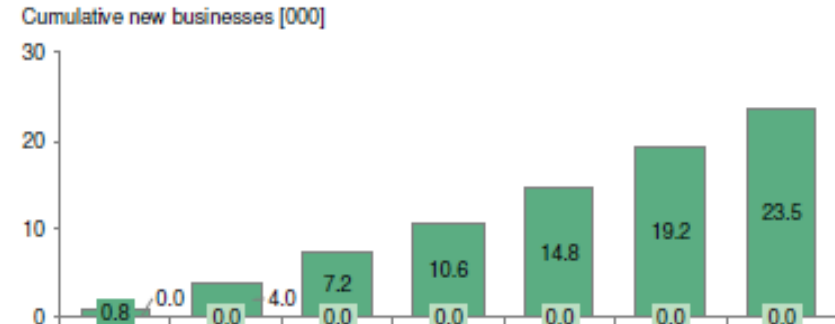
BCG: total GDP will increase US\$ 658B for the period 2014-2020

Cluster B: Philippines

**GDP increased US\$ 7.1B 2014-2020
(US\$ 5.2B¹ NPV)**



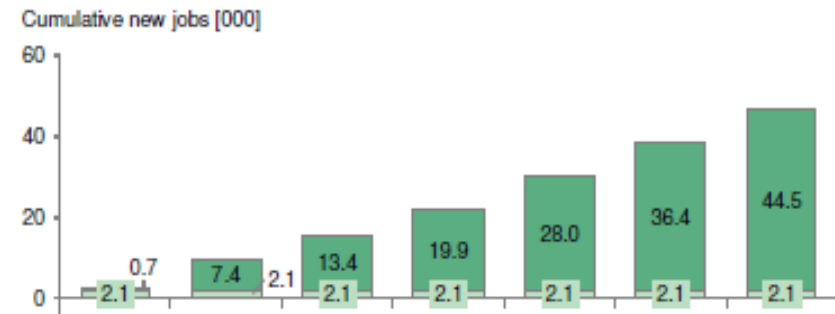
24K new businesses by 2020²



**Government revenues up US\$ 1.7B
(US\$ 1.3B¹ NPV)**



45K additional jobs created by 2020



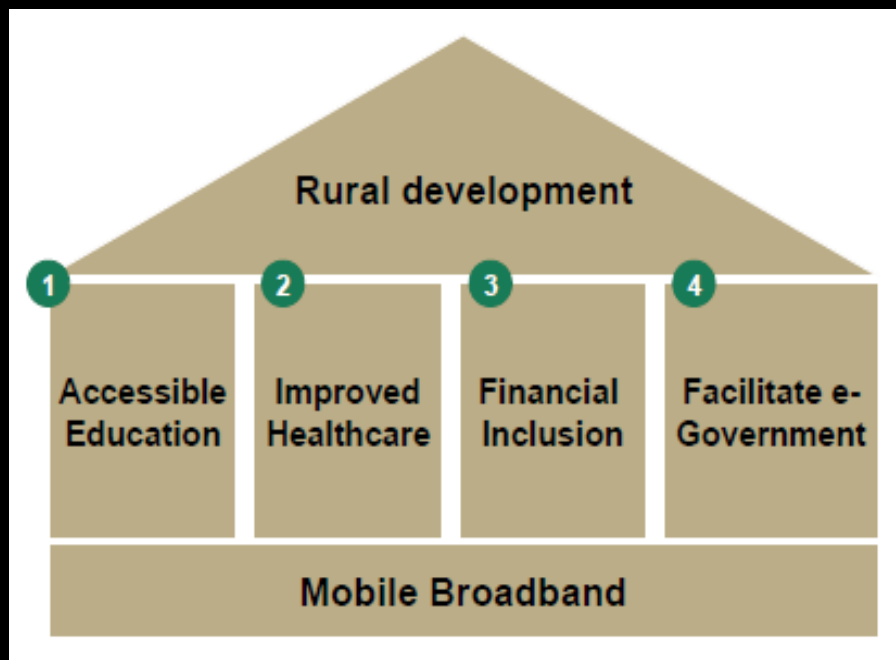
■ Mobile broadband ■ Broadcasting

1. Net Present Value 2010-2020 based on discount rate of 3.4% 2. Includes establishment of new independent businesses as well as new departments/units/business areas within existing firms
 Note: Results are derived based on extrapolation from a representative study country within the cluster
 Source: Datamonitor; EIU; OECD; World Bank; National statistics units; BCG analysis

Social inclusion and development

- Allocating 700 MHz band to mobile broadband in APAC
 - Can increase rural Internet subscriptions by 14-23% by 2020
 - Overall number of Internet subscriptions expected to increase 2-8%
 - 1.1M new business activities could be created by 2020
 - Could contribute additional US\$ 103B to government revenues for 2014-2020

Mobile broadband is a powerful tool for facilitating rural development



Accessible education to rural areas lacking adequate facilities, resources and teachers

Improved healthcare services for rural and under-privileged groups

Provide much-needed financial intermediation to unbanked poor and rural areas

Reduce bureaucracy and improve government interfaces towards businesses and consumers

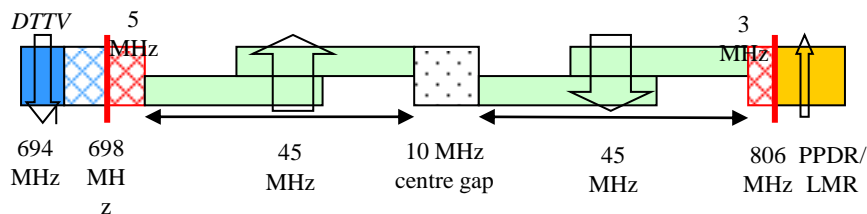
Source:  THE BOSTON CONSULTING GROUP

Allocation of sufficient and harmonized spectrum has been assumed in the analysis of socio-economic benefits

Sufficient bandwidth needs to be allocated to mobile

2 x 45 MHz needed to provide sufficient bandwidth for effective rollout

- APT harmonized UHF bandplan for IMT within the 698-806 MHz band
- Lower guard-band between 698-703 MHz and an upper guard-band between 803-806 MHz



Adequate bandwidth will facilitate competition between operators, enhancing efficiency and consumer choice and price benefits

Harmonization of spectrum across region necessary to reap full benefits

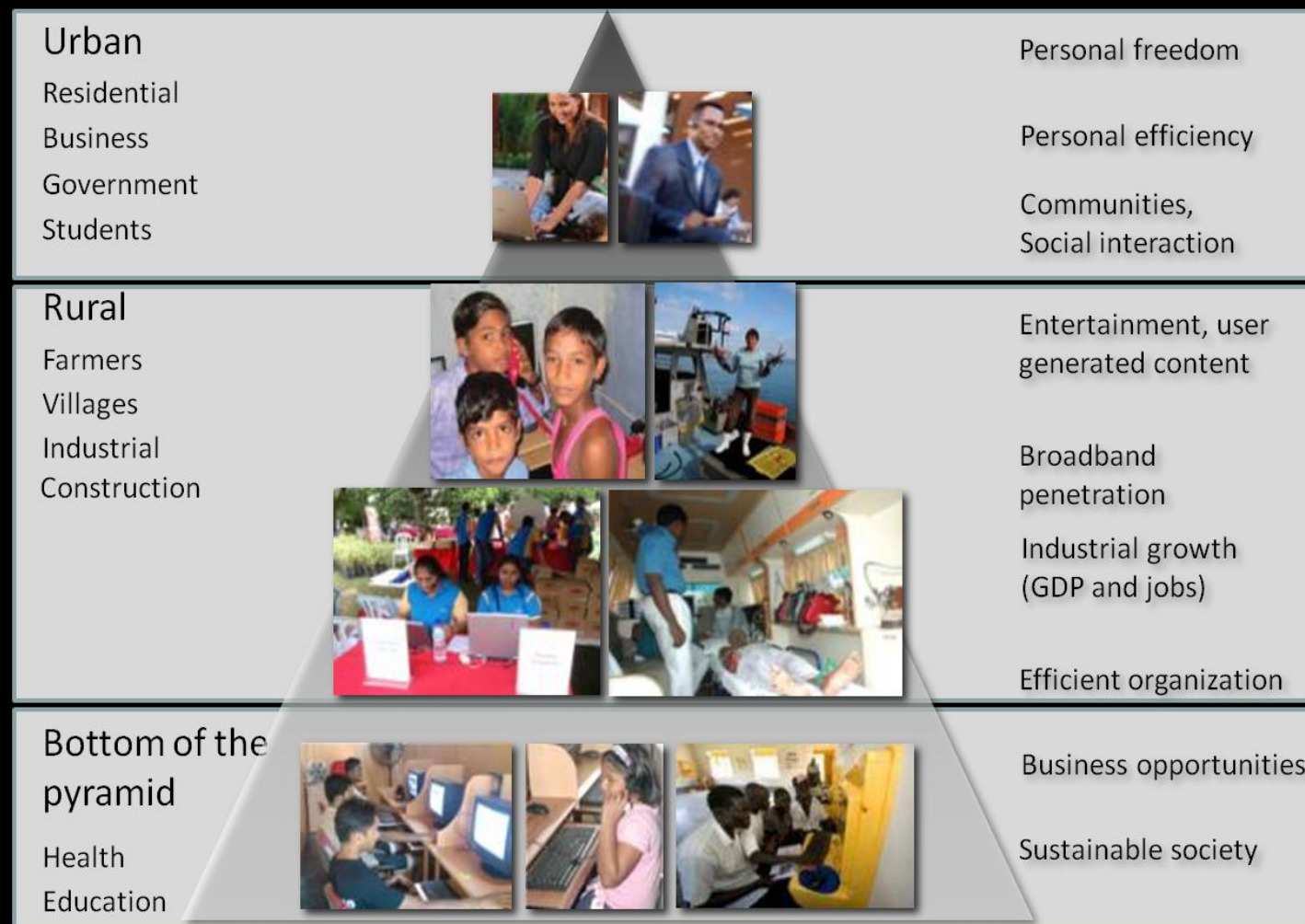
Non-harmonization will drive up cost of hand-sets and make them unaffordable to lower-income consumers

- Lack of frequency harmonization can drive up terminal costs, as providers will not be able to enjoy economies of scale
- Small un-harmonized markets risk being marginalized by equipment manufacturers
- Harmonization will reduce cross-border interference and facilitate improved usage quality

The impact of Mobile Broadband in emerging markets is transformative



- Mobile Broadband will be the first Internet connection for many consumers in emerging markets
- Social and economic impact of the first connection is significant
- Impact of mobile broadband in emerging markets are more significant than in mature markets where consumers already are connected



Mobile broadband will do for Internet connections what GSM did for voice communications in emerging markets

A selection of socio-economic analysis

- **World Bank Information and Communication for Development Report (IC4D 2009):**
<http://www.infodev.org/en/Article.384.html>
- **Boston Consulting Group analysis of socio-economic impact of allocating 700 band to mobile in APAC:**
<http://www.gsmamobilebroadband.com/upload/resources/files/277967-00-Impact%20of%20700-22Oct10-EG-SIN.pdf>
- **Analysis Mason Assessment of Economic Impact of Wireless Broadband in India:**
http://www.gsmamobilebroadband.com/upload/resources/files/AM_India_Exec_Summary_Final.pdf
- **McKinsey&Company Mobile Broadband for the masses:**
<http://www.gsmamobilebroadband.com/upload/resources/files/MBBforMasses.pdf>
- **Boston Consulting Group Towards A Connected World, Socio-Economic Impact of Internet in Emerging Economies:**
http://www.telenor.com/en/resources/images/Towards%20a%20Connected%20World_tcm28-50426.pdf
- **Analysis Mason / DotEcon / Hogan&Hartson Report for the European Commission 'Exploiting the Digital Dividend' – a European approach:**
http://www.analysismason.com/EC_digital_dividend_study

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Executive Roundtable Panel Discussion: Mobile Broadband Today in the Philippines





Closing Remarks and Vote of Thanks

www.gsmamobilebroadband.com