# WP5A-WP5B-WP5C Workshop on Preparation for WRC15

## *Motivation for IMT/Mobile Broadband*

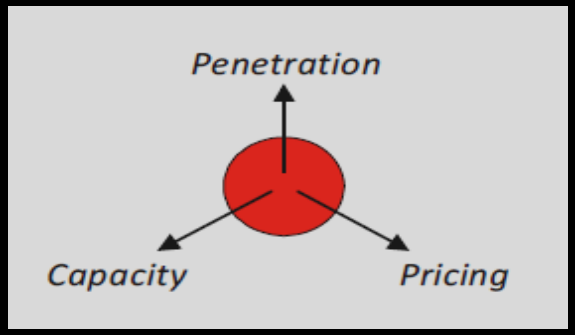
**Roberto Ercole GSMA**

**May 2012 ,** Geneva

# Agenda

- Rise of IMT/cellular
- Why IMT is important for wider social reason
- How this relates to the JTG

Broadband =

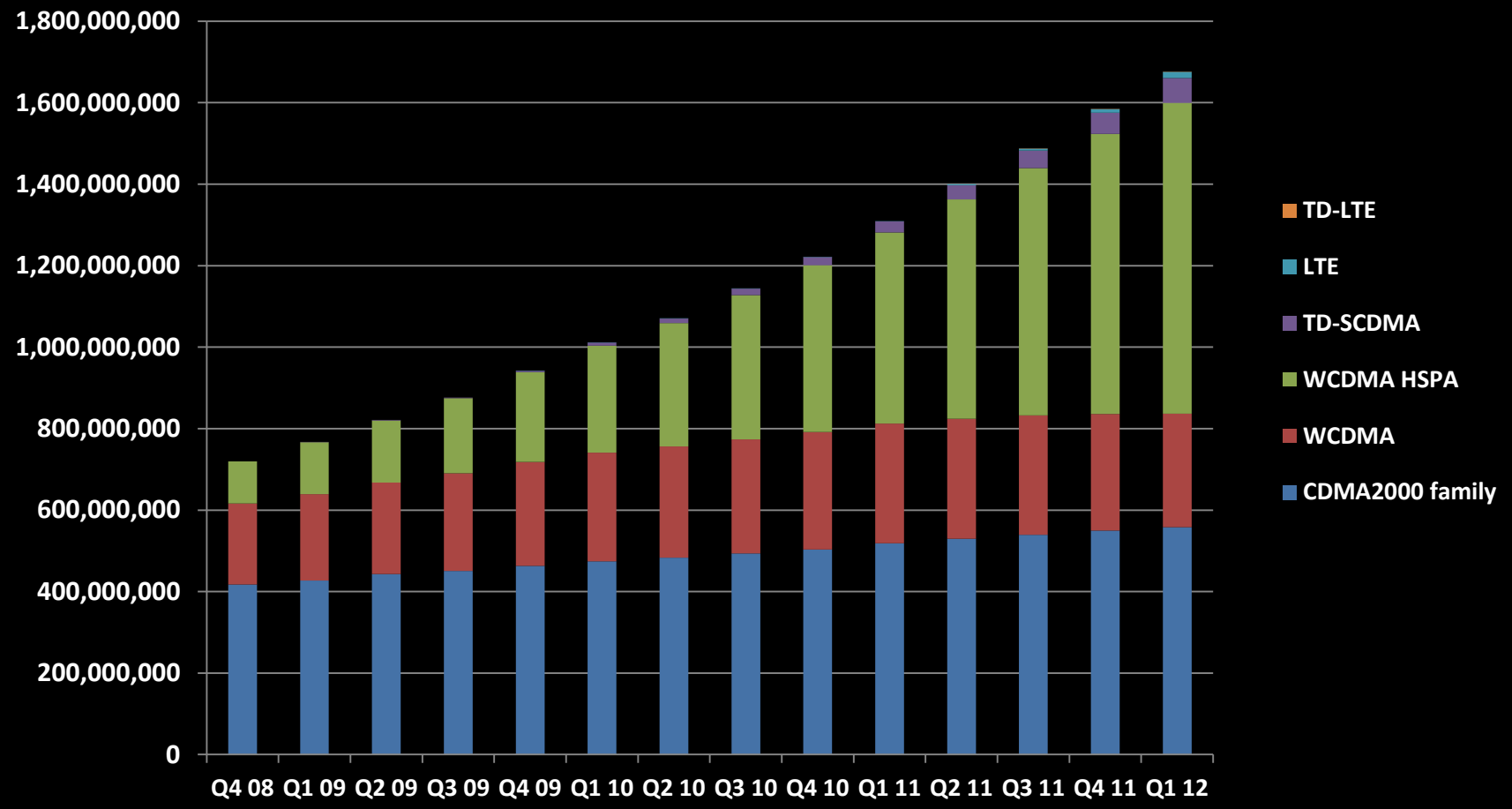



Source - ITU Report :
“Trends in Telecommunication Reform 2012”

# Rise of IMT/cellular –

smartphones and tablets arrive and drive data growth, touch screens make mobile devices the technology of choice for accessing the internet for many (particularly the young and those in developing market).

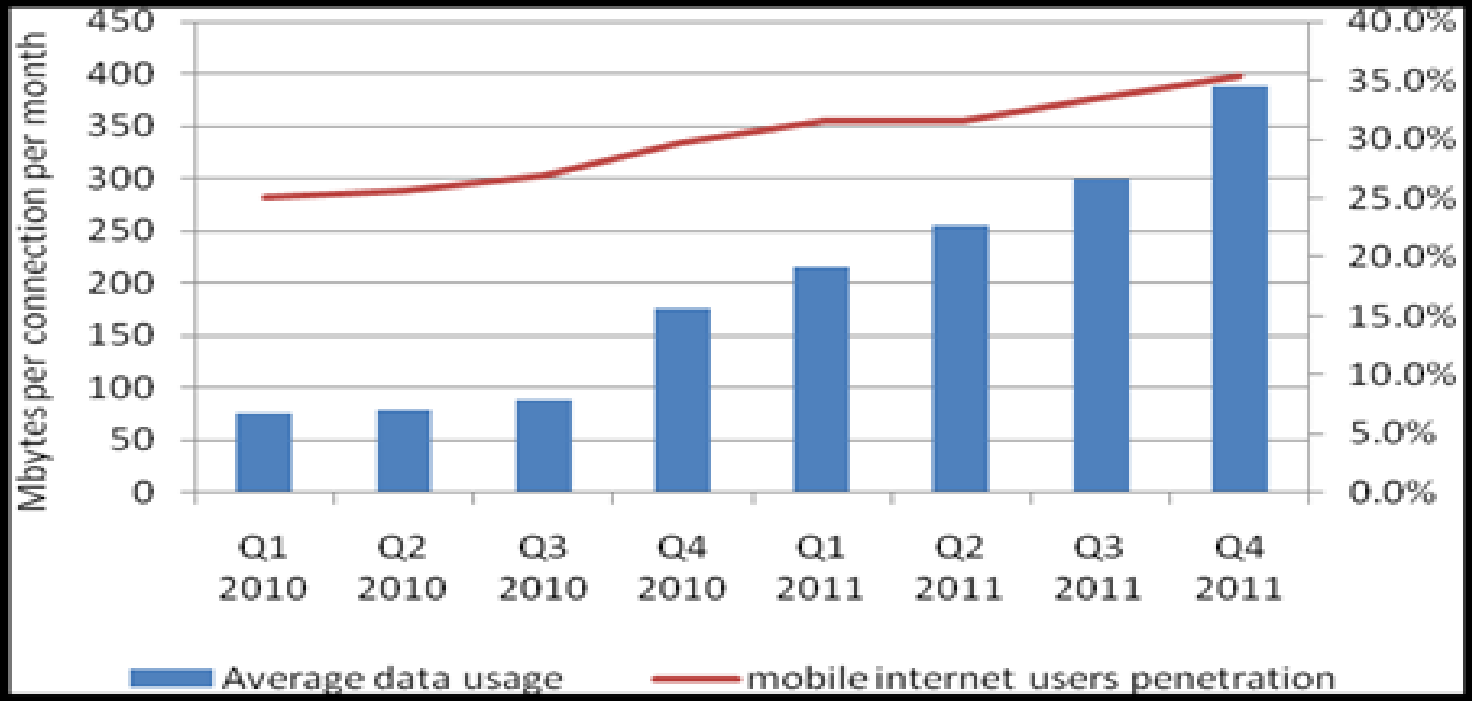
# How Mobile Broadband has grown (IMT)




connections

Source: Wireless Intelligence

# Growth of mobile cellular data in Russia




**But not the whole story – this is blended 2G/3G.**
**On 3G went from 210 MB in December 2010 to 1 GB in March 2011.**

*Source: MTS annual report: average data usage and mobile internet users penetration in Russia*

# Rise of Smartphones

| Comparative Data on Key Mobile Device Markets<br>*Basic Phones, Feature Phones and Smartphones* | | | | | |
|---|---|---|---|---|---|
| **Indicator** | **2011** | **2012** | **2013** | **2014** | **2015** |
| **Unit Shipments (Millions)** | | | | | |
| Basic Phones | 379 | 375 | 369 | 358 | 338 |
| Feature Phones | 739 | 780 | 823 | 861 | 899 |
| Smartphones | 270 | 335 | 396 | 449 | 489 |
| ***Total (All Mobile Phones):*** | ***1387*** | ***1490*** | ***1589*** | ***1668*** | ***1727*** |

| Mobile Handset Revenues - Worldwide (USD, Millions) | | | | | |
|---|---|---|---|---|---|
| **Phone Type (1)** | **2011** | **2012** | **2013** | **2014** | **2015** |
| Basic Phones | $ 13,200 | $ 12,239 | $ 11,287 | $ 10,203 | $ 8,986 |
| Feature Phones | $ 75,274 | $ 74,686 | $ 73,945 | $ 72,572 | $ 70,938 |
| Smartphones | $ 77,020 | $ 90,023 | $ 98,999 | $ 104,825 | $ 105,323 |
| Total - Worldwide: | $ 165,494 | $ 176,948 | $ 184,230 | $ 187,600 | $ 185,247 |

www.generatorresearch.com May 11 report on worldwide smartphone markets

# *Why is this important outside of the ITU*

*"I strongly believe that broadband should be regarded as part of a country's critical infrastructure and as important as roads, airports, and electricity. Congruent with its level of importance, well-articulated broadband strategies and plans are now needed to ensure that all citizens get to benefit from new applications, services, and business that the broadband world helps bring into being."*


Source - ITU Report :
"Trends in Telecommunication Reform 2012"

# Governmental view of broadband benefits

**Table 2.1: Comparison of example countries**

| Country | Year | Name of the Plan | Vehicle | Horizon | Goals | Benefits |
|---|---|---|---|---|---|---|
| **US** | 2009 | Broadband Stimulus Program | Stimulus Program | Short term | Raise national average | National recovery |
| **Germany** | 2009 | National Broadband Plan | Two phase plan | Medium to long | Dual targets of penetration | GDP growth and jobs |
| **Republic of Korea** | rolling | ICT Master Plan | Broad consensus | Long term 5 yr stops | Global leadership | National growth |
| **Japan** | rolling | i Japan Strategy | Broad consensus | Long term | Global leadership | National growth |
| **New Zealand** | 2010 | UFB and RB initiatives | Broadband Plan | Medium term | Economic development | National growth |
| **Australia** | 2010 | NBN Plan | Nat'l B'band Network | Medium term | Infrastructure platform | National growth |
| **Dominican Republic** | 2007 | eDomenicana | Universal service | Short to medium | Extend infrastructure | National development |

*Source: Author's research*

Source - ITU Report :
"Trends in Telecommunication Reform 2012"

# If we want broadband then we need IMT

- Recent ITU report: trends in telecommunication reform 2012

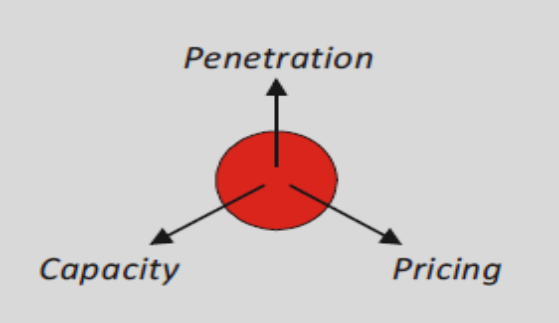
**Table 4.1: Mind the Gap, Access across the World, 2011***

| Region | Internet Users per 100 inhabitants | Mobile Broadband (Active) Subscriptions per 100 inhabitants | Fixed Broadband Subscriptions per 100 inhabitants | Mobile Cellular Subscriptions per 100 inhabitants |
|---|---|---|---|---|
| Africa | 12.8 | 3.8 | 0.2 | 53 |
| Arab States | 29.1 | 13.3 | 2.2 | 96.7 |
| Asia- Pacific | 27.2 | 10.7 | 6.2 | 73.9 |
| CIS | 47.6 | 14.9 | 9.6 | 143 |
| Europe | 74.4 | 54.1 | 25.8 | 119.5 |
| The Americas | 56.3 | 30.5 | 15.5 | 103.3 |

**Estimate*

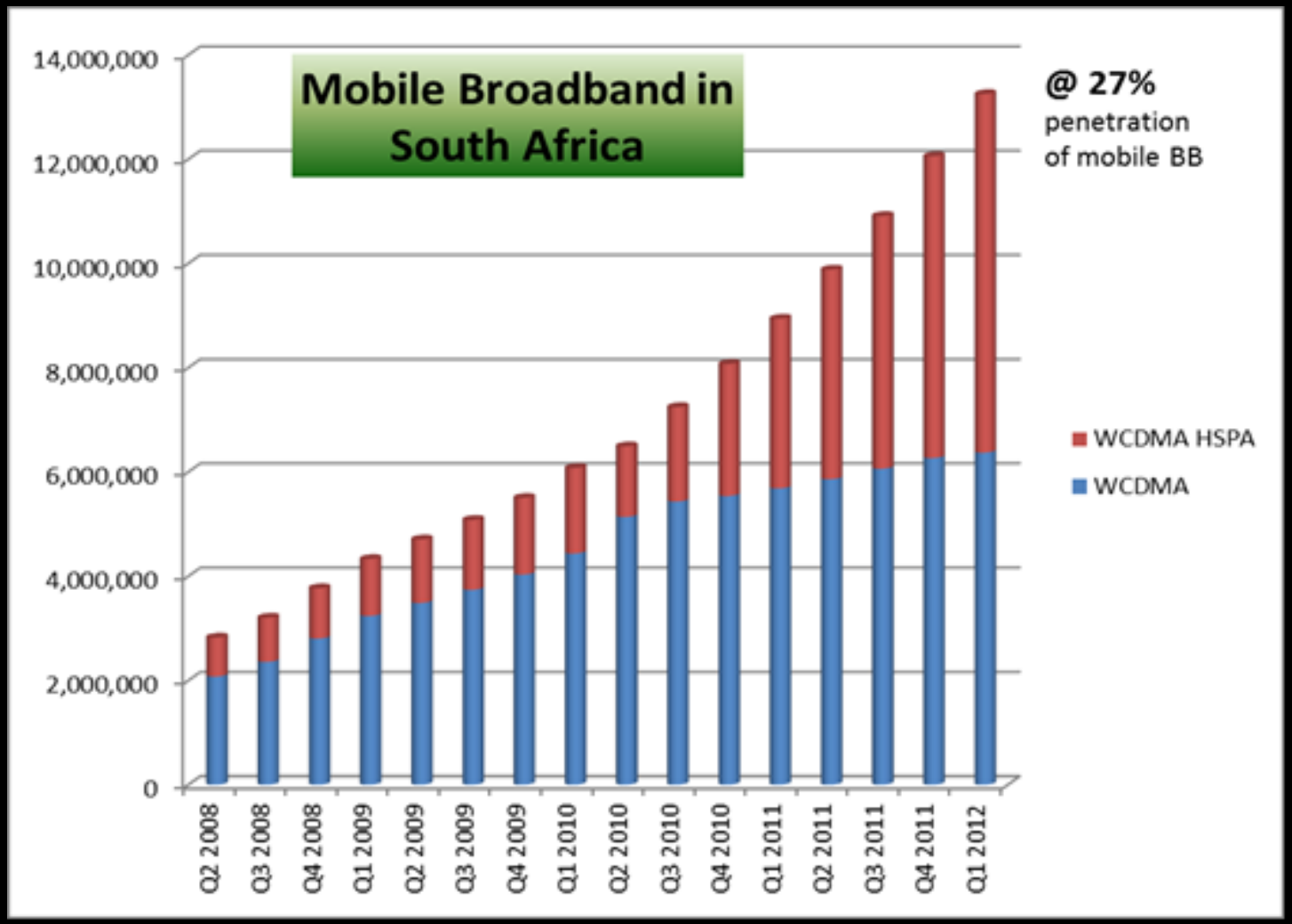
*Source: ITU Key Global Telecom Indicators for the World Telecommunication Service Sector*

***www.itu.int/ict***




IMT can deliver, especially in developing markets

# Mobile Broadband grown in South Africa




Source : Wireless Intelligence

*Key issues for JTG to decide:*

- *Spectrum Requirements for IMT*
- *Candidate Bands*
- *Interference studies*

# Spectrum prior and post WRC07

| User demand setting | Predicted total (MHz) | Region 1 | | Region 2 | | Region 3 | |
|---|---|---|---|---|---|---|---|
| | | Identified (MHz) | Shortfall (MHz) | Identified (MHz) | Shortfall (MHz) | Identified (MHz) | Shortfall (MHz) |
| High | 1 720 | 693 | 1 027 | 723 | 997 | 749 | 971 |
| **Identified at 07** | | ***400+*** | ***700*** | ***200+*** | ***800*** | ***+200*** | ***800*** |

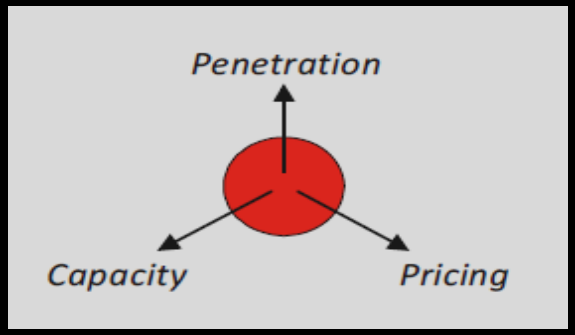
Need to add in UHF and 2.3/2.4 GHz all Regions as well as C band in R1

**Also need to consider developments like femto cells, wifi offload etc**

Source (prior wrc07): Swedish/Finnish input to WRC07 – doc 127. Uses spectrum demand model developed by WP5D for WRC07

# Candidate Bands for IMT

- Need to be in an appropriate frequency range for wide area cellular to promote



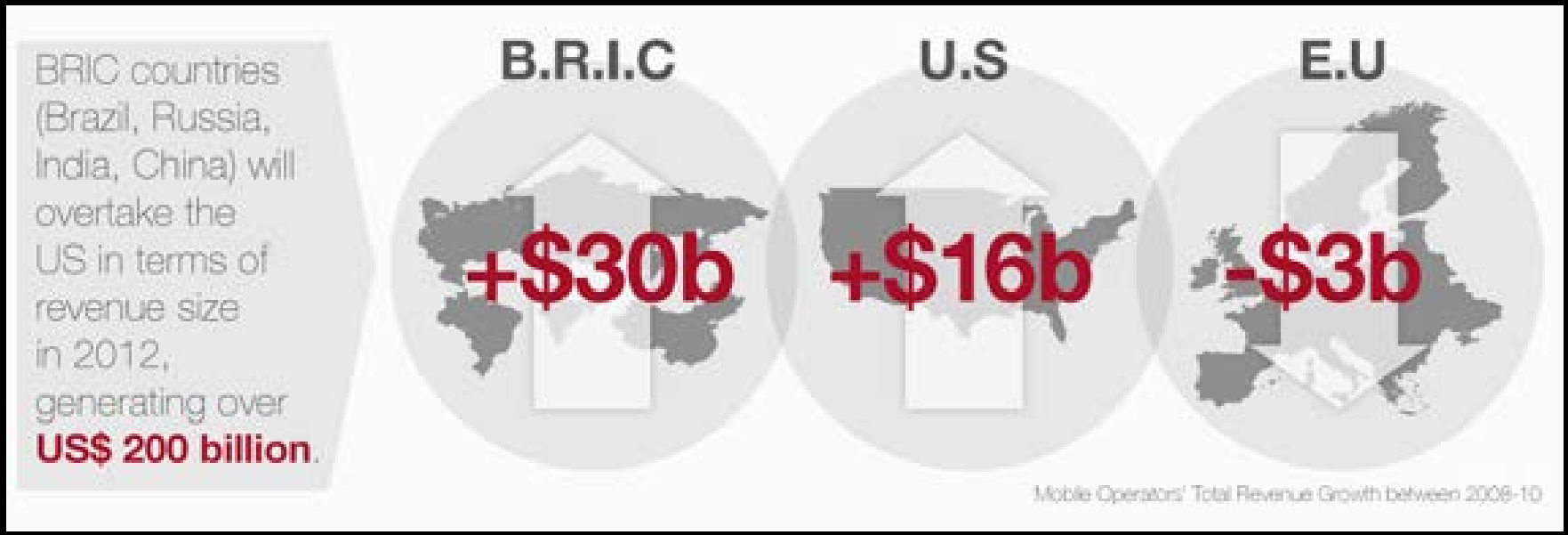

- Implies spectrum for coverage and capacity - 400 MHz to 5 GHz?
- That new technologies like LTE need (ideally) wider channels for OFDM – contiguous blocks of 100/200 MHz?
- That harmonised band plans will drive device affordability through economies of scale.

# How will JTG work with other SG's/WP's

- Clear from CPM15-1 and JTG TOR that JTG is "sovereign", has sole responsibility for drafting CPM text on 1.1 and 1.2.
- However efficient working may suggest that WP5D plays an important role – "in developing sharing studies and draft CPM text, JTG 4-5-6-7 is to *consider*":
  - the results of studies from Working Party 5D on the spectrum requirements for the mobile service, including suitable frequency ranges, and other specific requirements as well as results of studies from any concerned Working Parties on technical and operational characteristics, spectrum requirements and performance objectives or protection requirements of other services;
- Not much time to do the work on 1.1 and 1.2 – this will be a challenge!

# Supporting Slides

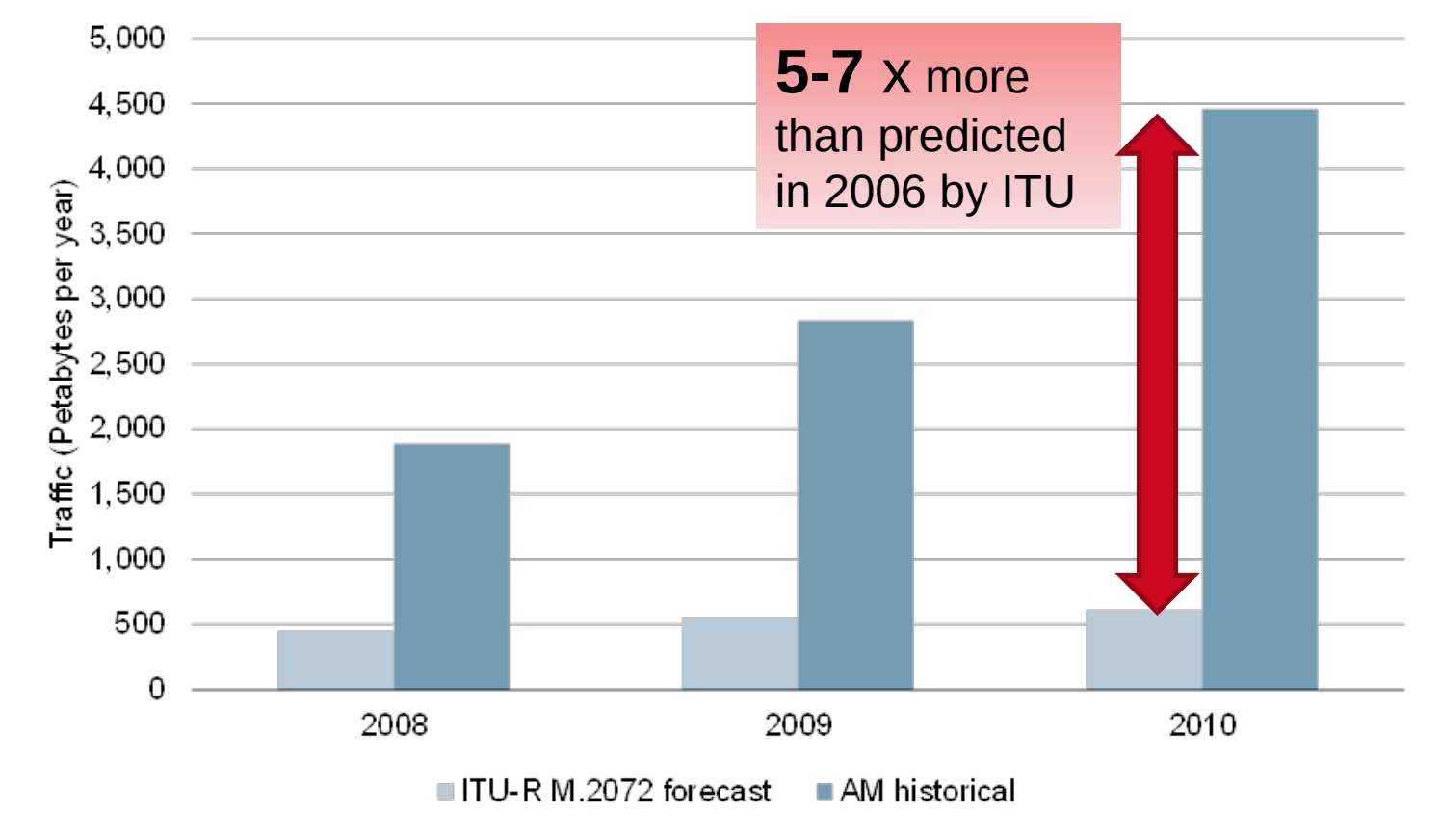
# Mobile Operator Revenue Growth 08-10




Global cellular is a $1.1 trillion (USD) industry a year

| | Universal Broadband Access Policy Framework | | | | Public Funding Model, State Sees Itself As: | | |
|---|---|---|---|---|---|---|---|
| | Broadband Programme | Targets and Service Details | Estimate of Investment Expenditure | Tackling Unserved Areas | Financer of Infrastructure | Owner/ Operator of Infrastructure | Demand Stimulator |
| **Australia** | New NBN | ≤ 100 Mbits/s for 90% by 2018; ≤ 12 Mbit/s for the remainder | Yes (Est. A$46 billion) | Yes | Yes | Yes | - |
| **Germany** | Federal Gov. Broadband Strategy | 1 Mbit/s nationwide by 2010; ≥50 Mbit/s for 75% by 2014 | Yes (Est. €36 billion) | Yes | Partly | - | - |
| **Finland** | National Broadband Strategy | 1 Mbit/s for 100% by 2010; 100 Mbit/s for 99% by 2015 | Yes $131m (est.) total NGN project cost | Yes | Partly | - | Yes |
| **United Kingdom** | Digital Britain | 2 Mbit/s as a universal service by 2012 | Yes | Yes | Partly | - | - |
| **Japan** | Next Generation Broadband Strategy 2010 | "Ultra High Speed" for 90% by 2010 | Yes | Yes | - | - | Yes |
| **Sweden** | Breidbandsstrategi for Sverige | 100 Mbit/s for 40% by 2015; for 90% by 2020 | No (Est. € 864 million) | Yes | - | - | Yes |
| **Korea (Rep.)** | Ultra Broadband Coverage Network | 100 Mbit/s for 14 million users by 2012; then Gbit/s upgrade | No | No | Partly | - | - |

# Traffic has also grown rapidly **5-7x more than predicted**




Source : GSMA study submitted to ITU SG5, WP5D /1034

# Operator device portfolio's

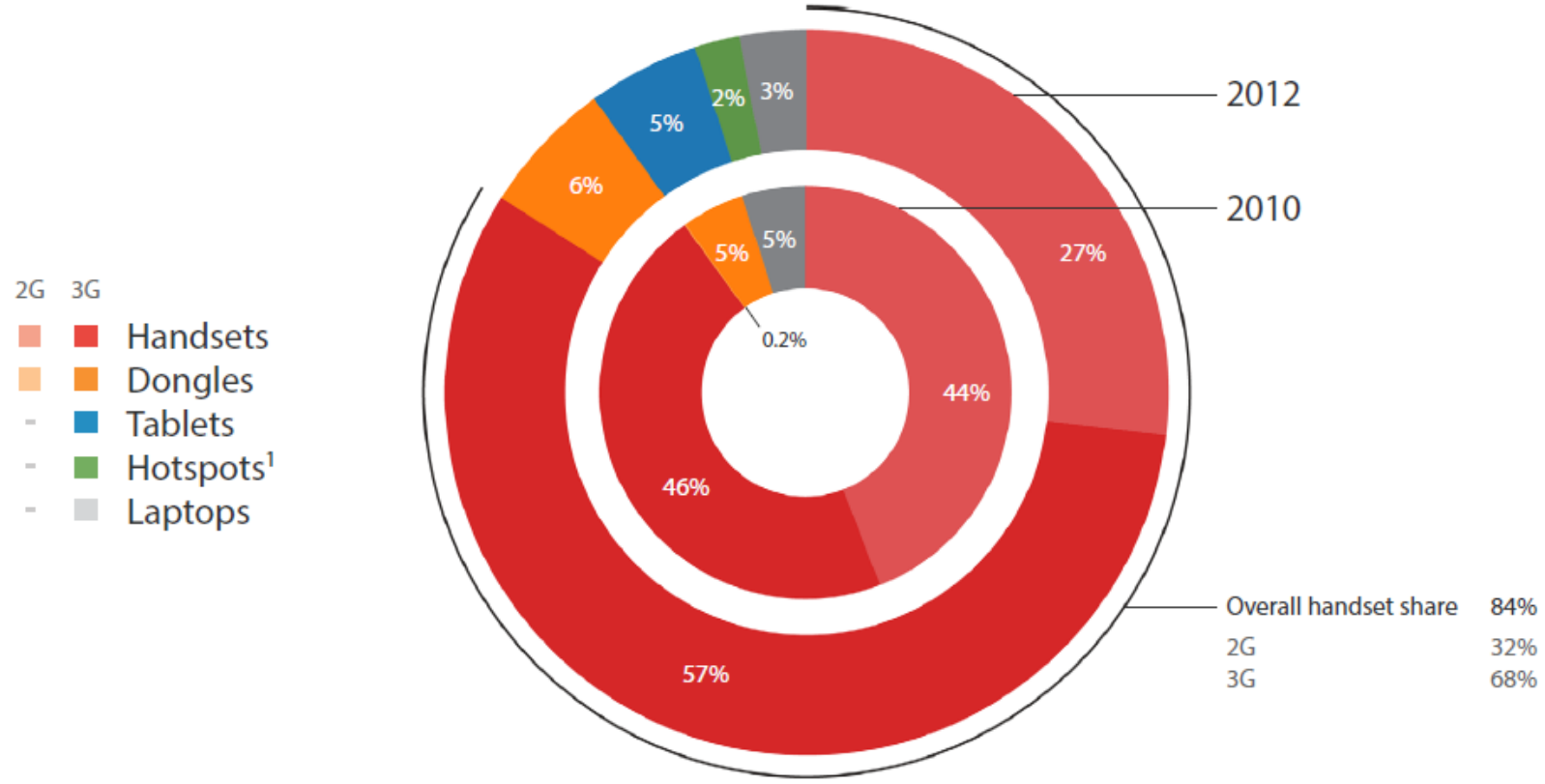
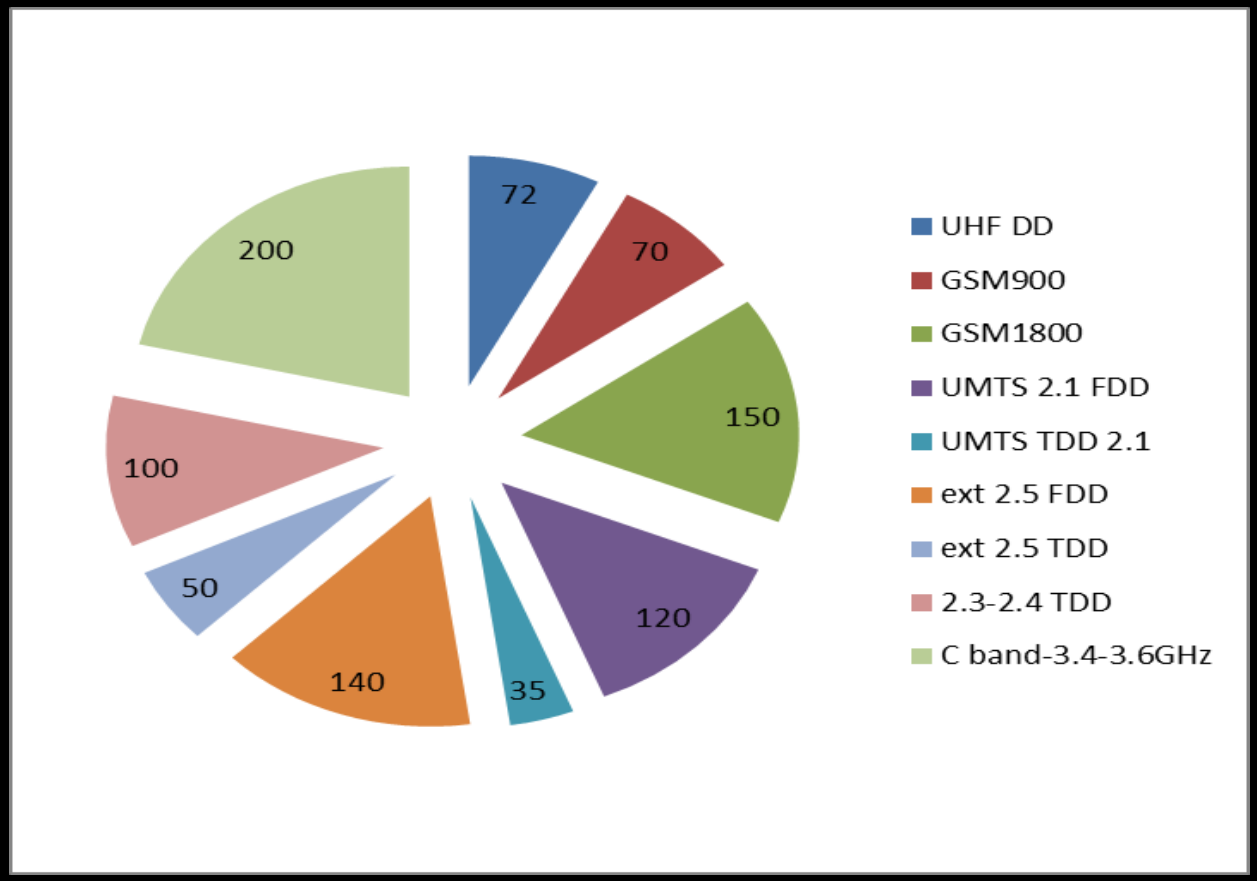



**Figure 1: Operator device portfolio, average segmentation**

*Source: Wireless Intelligence*

# Core IMT bands (Region 1)




937 MHz in total

# Global Cellular - $1.1 trillion business

## Analysis: Infographic: The global cellular industry balance sheet

Data as of **Q2 2011**, published August 2011