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Digital Dividend: Sharing Experiences

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Data over mobile is doubling every year….

Growth of Mobile

- We will hit 6 billion connections this year
- 91% of global connections are made using the GSM family of technologies
- 4 out of 5 new connections are being made in the emerging markets
- On the horizon, technologies will evolve such that most people in developing countries will visit the internet for the first time using a mobile phone
- The largest underserved markets are in remote, rural geographies

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The benefits of using the DD for mobile

An increasing number of countries are looking to transition from analogue TV to digital in order to reap the benefits of the digital dividend

- Greater efficiency of digital broadcast networks could result in release of some spectrum for other uses, notably mobile broadband
- Two harmonised UHF bands have been identified for mobile broadband:
  - ***800MHz band*** (790–862MHz) in ITU region 1 (Europe and Africa)
  - ***700MHz band*** (698–806MHz) in the rest of the world
  - Sub-band 2 – ‘extended DD’ under discussion for region 1 for implementation by 2015 (694-790MHz)

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Obstacles to awarding DD band

The obstacles faced by regulators and governments to award the 700MHz/ 800MHz bands vary

Justification

- ***Economic***
- ***Structural challenges***

Clearing historic users

- ***Completion of the ASO(1)***
- ***Clearing DTT from the band***
- ***Clearing PMSE(2) use from the band***
- ***Clearing military users from the band***

Interference considerations

- ***DTT use beneath the 700MHz/800MHz band***
- ***Cable TV use within the 700MHz/800MHz band***
- ***Uses in neighbouring countries***

(1) Analogue switch-off

(2) Programme-making and special events. The primary use in the 700MHz/800MHz band is for radio microphones, and in-ear monitors

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Obstacles faced by our case study countries

	Australia	Finland	Germany	Mexico	UK
Justifying the clearance of the band	Qualitative evidence sufficient to justify 700MHz band	Justification of the 800MHz band straightforward as was not used for TV	Split spectrum responsibility between national government and Länder meant 800MHz band adoption was complicated	Qualitative evidence sufficient to justify 700MHz band	Detailed quantitative assessment of benefits was undertaken
Obstacles faced to clear historic users from the band	Large number of DTT channels in 700MHz band - could only be relocated after ASO Large number of PMSE users	No DTT use in the 800MHz band PMSE use in the 800MHz requires relocation	DTT/mobile TV use in the 800MHz band, which could only be relocated after ASO Large number of PMSE users	Legacy analogue TV use prevents mobile use before ASO No planned DTT use in the band	Planned DTT use in Ch61& 62 requires relocation Large number of PMSE users in Ch69 require relocation
Ensuring that other spectrum uses are not negatively impacted	DTT use beneath the 700MHz band required protection No neighbouring countries	Agreement that protected Russian military use (ARNS) prevented mobile use in the 800MHz band nationally, in effect	DTT use beneath the 800MHz requires protection Concerns that mobile could interfere with cable TV	DTT use beneath the 700MHz may require protection Neighbours expected to use 700MHz band for mobile	DTT use beneath the 800MHz requires protection

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Justifying clearing the 800MHz band

Germany and the UK needed to overcome obstacles to justify the clearance of the 800MHz band

Germany

- The government based the case for reallocating the 800MHz band to mobile use on the ability to provide wireless broadband in **rural** areas

UK

- A “Digital Dividend Review” estimated the value of the digital dividend to be **GBP5–10 billion**, based on a wide range of potential alternative uses of the released spectrum, including use for mobile broadband and additional television channels

(1) Net present value over 20 years

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Solutions employed to clear DTT from band

Our case study countries have deployed a range of solutions to clear DTT from the band

Actions to accelerate ASO

- **Australia:**
  - training of retail advisors in electronics stores
  - “digital readiness” logo
  - training of TV and antenna installers, and a programme of “endorsed” installers
  - series of targeted subsidies, such as a free decoder for vulnerable collectives, and subsidies for households located outside of coverage areas to receive TV via satellite

Actions to relocate historic uses from the 700MHz/800MHz band

- **Germany:**
  - compensation scheme for PMSE users affected by interference from mobile and needed to be relocated to channels 51 to 60 (which required the purchasing of new equipment)

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Solutions employed to protect users

Our case study countries have deployed a range of solutions to protect users in neighbouring bands and in neighbouring countries

Actions to protect DTT use below the 700MHz/800MHz band

- **Australia**:
  - regulator ACMA implemented an additional 4MHz of guard band (9MHz in total) between the 700MHz band and DTT in order reduce any risk of interference

Actions to resolve interference issues with neighbouring countries

- **Finland**:
  - Russia currently uses the 800MHz band for ARNS.(1) Existing coordination interference agreements with Russia effectively prevented neighbouring countries (including Finland) from using these frequencies for any other use. Finland, along with several of Russia's other neighbours, entered into negotiations with Russia regarding the 800MHz band, as well as other issues. In the second half of 2011, FICORA reached an agreement with Russia which allowed a full coverage mobile 800MHz network to be placed 55km from the Russian border

(1) Aeronautical radio navigation services

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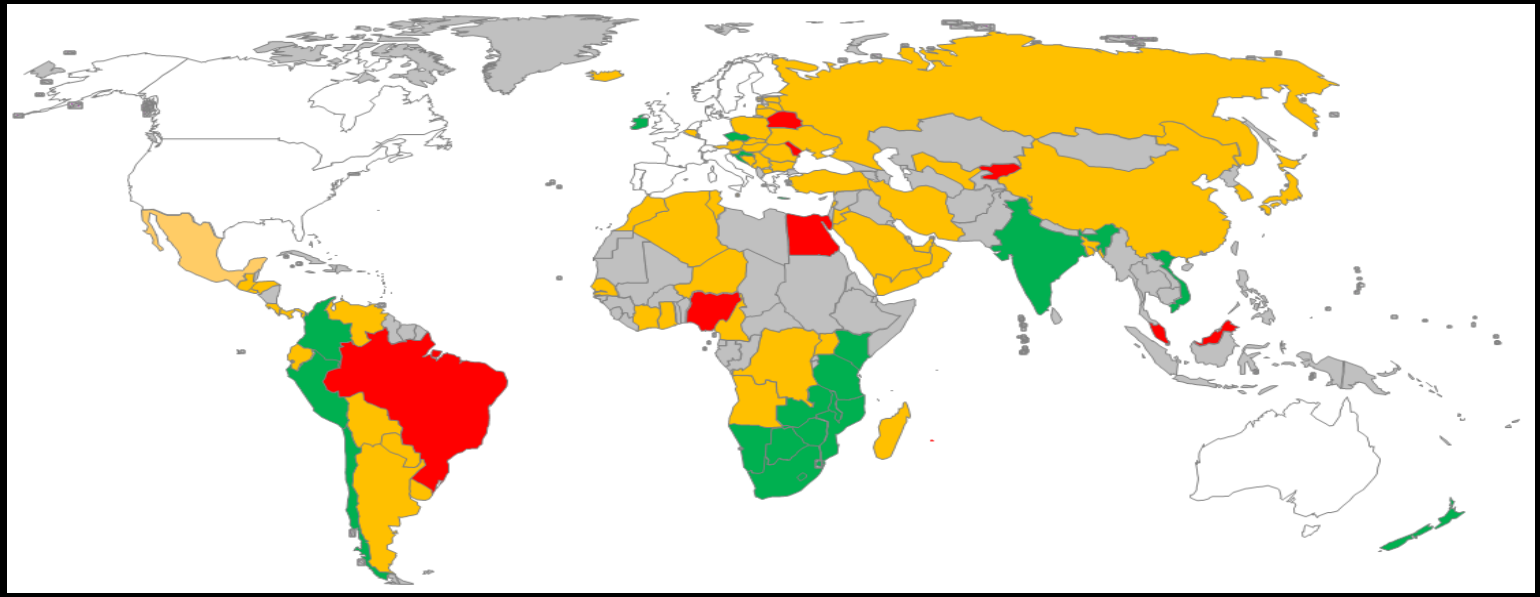
Digital Dividend Auctions (Value/MHz/Pop, USD PPP adjusted)



Source: Plum Consulting

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Still a long way to go…..



Key

- Positive and final outcome achieved
- Moving towards positive outcome, not yet finalised
- Moving slowly due to minor problems, lack of motivation or internal conflict
- Major issues lie in way of allocation which may affect regional solutions
- No information yet

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Thank you

www.gsmworld.com/digitaldividend

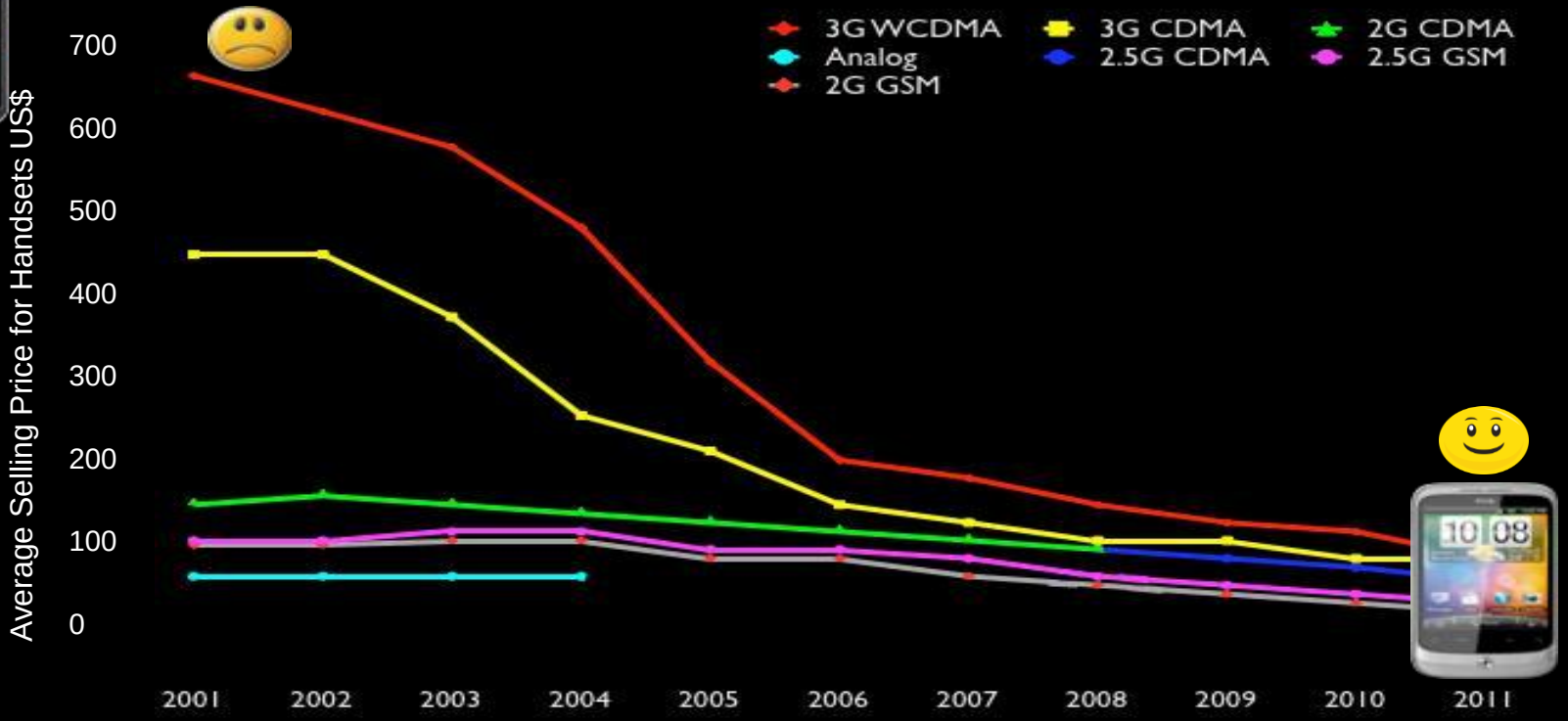
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Impact of Economies of Scale

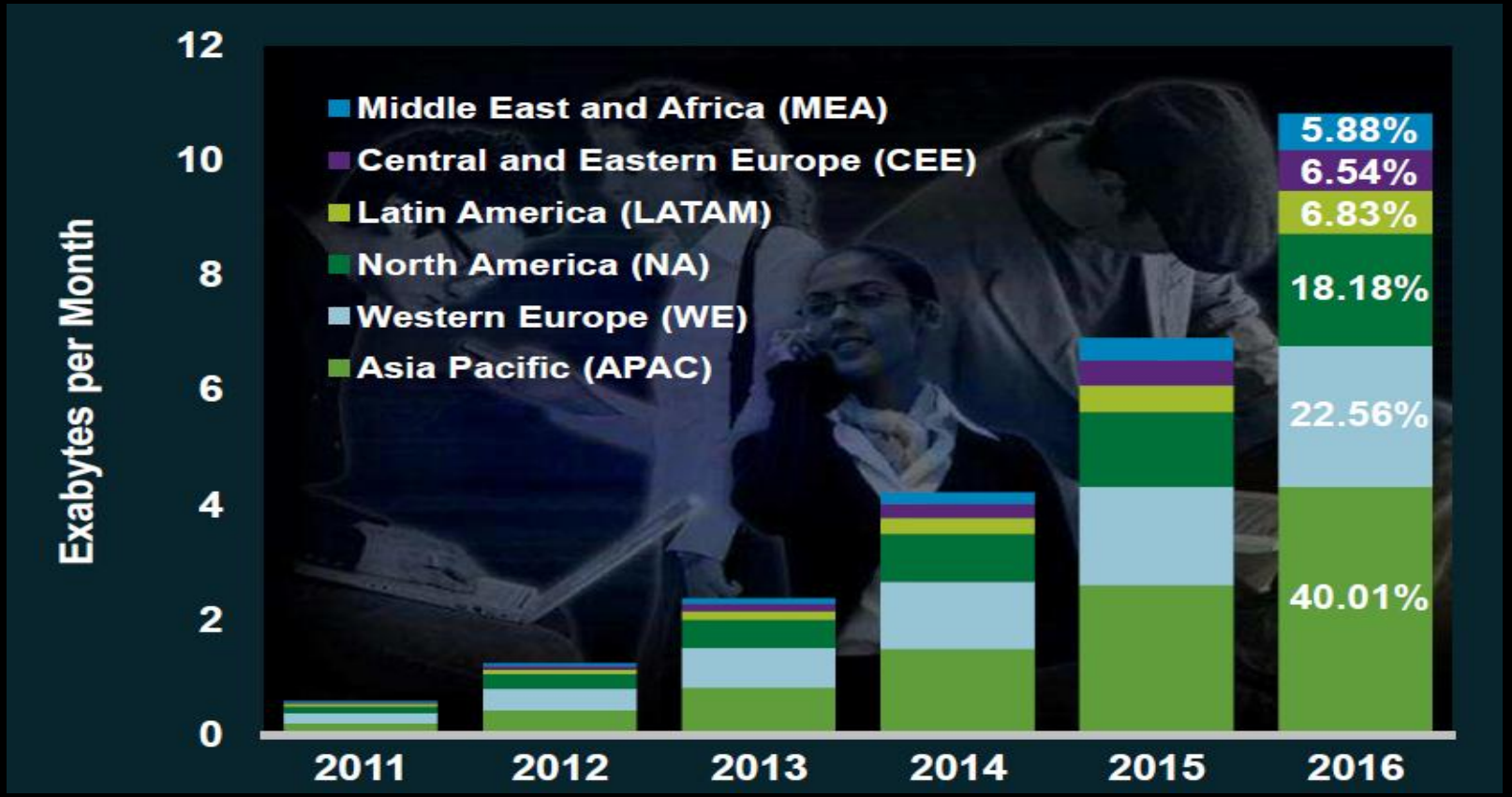




Volumes mean initial 3G WCDMA prices drop from $600+ to around $100 now

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Global Mobile Data Traffic Growth/Regions



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