

# **Spectrum for wireless broadband communications: *Why the mobile industry needs more spectrum***

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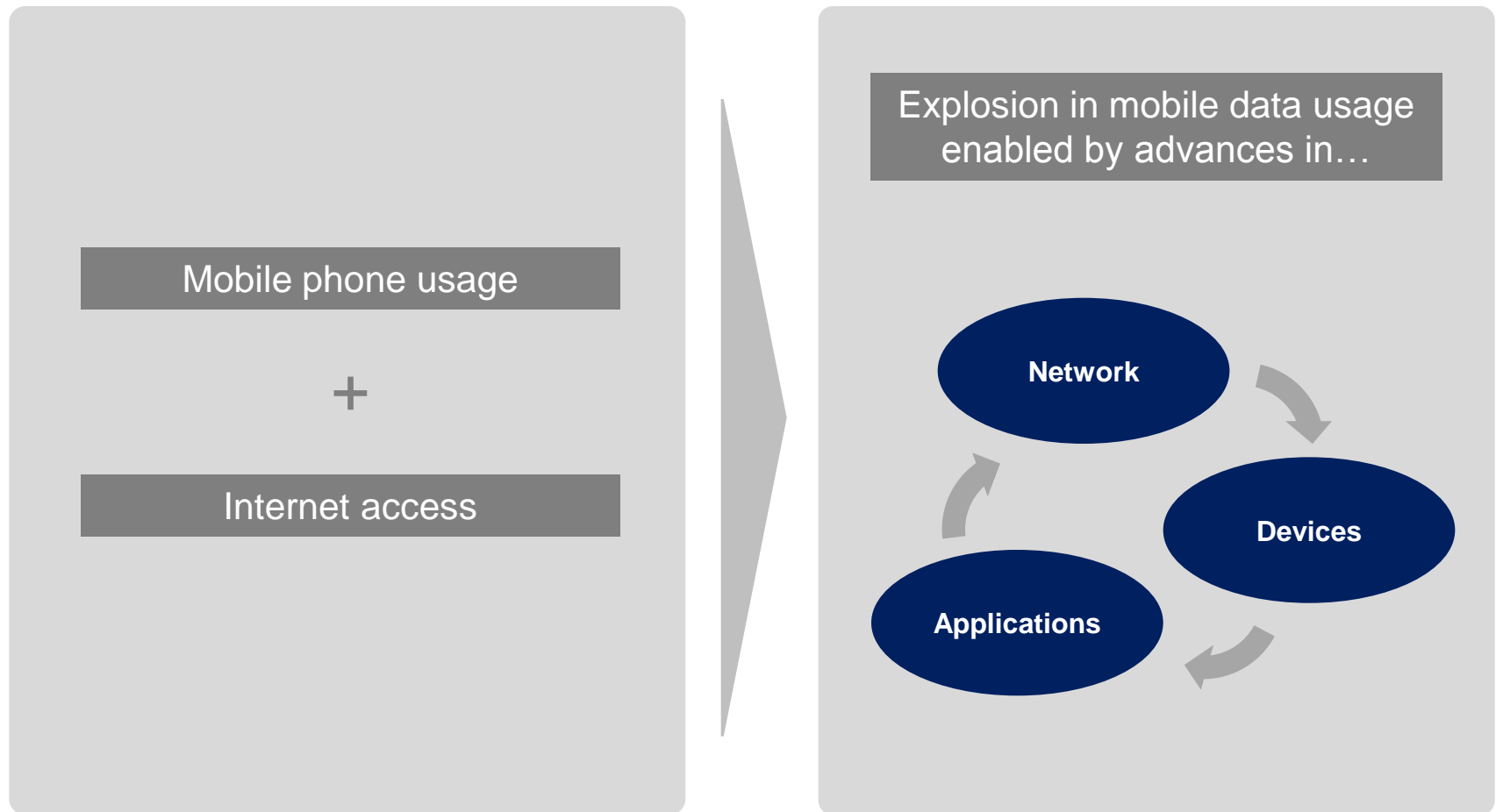
Head of Spectrum Policy

Brussels, 14 Dec 2010

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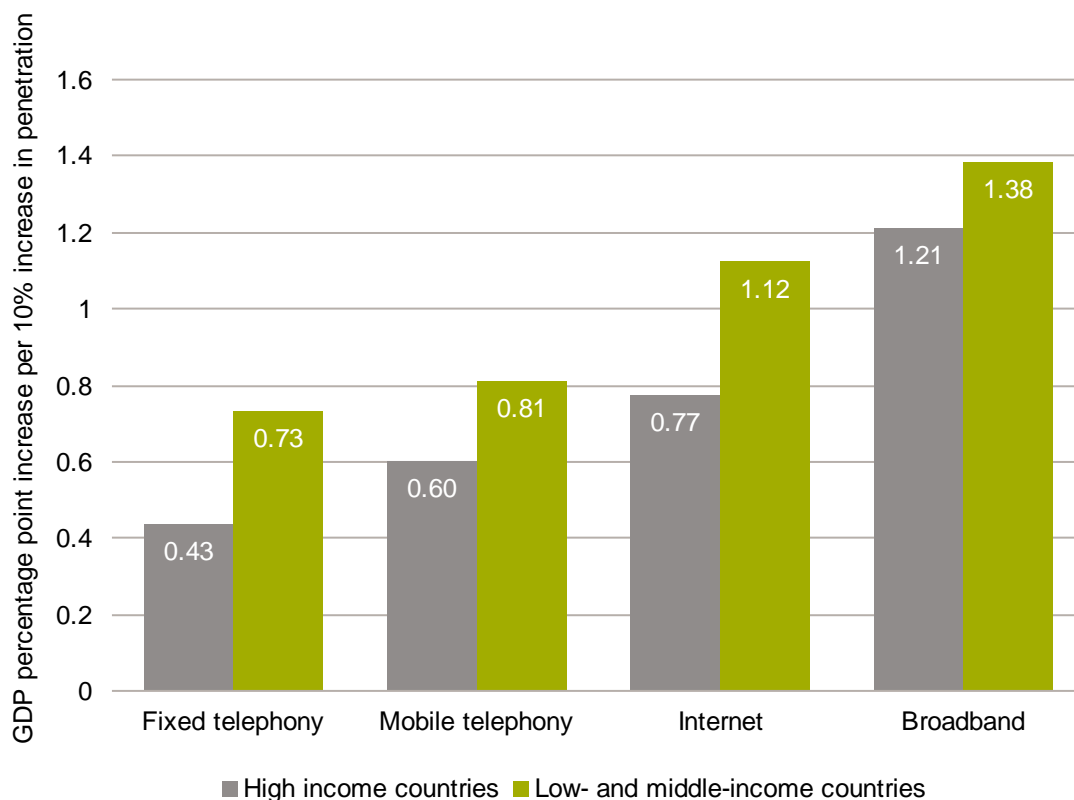
- Increase in demand for mobile data
- How operators' networks can meet increased demand
- Importance of spectrum in meeting long term demand
- Next steps...
  - Refarming
  - Release digital dividend & 2.6GHz spectrum
  - Assess future long-term demand

# An explosive increase in demand is driven by trends in the way we communicate and is enabled by advances in key technologies



# Increased penetration of communications services supports economic development

## Growth impact of telecommunications



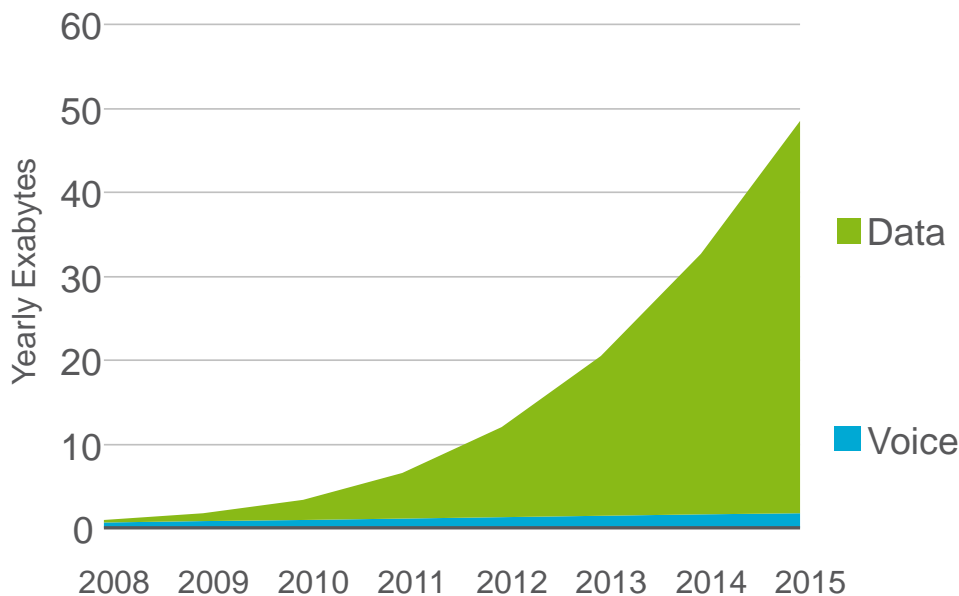
## Key points for policy makers

- >Policy should focus on improving the availability and penetration of modern communications services as an enabler for economic growth
- >Policy should create the conditions to support investment and the creation of viable competition
- >Broadband may be delivered by a combination of fixed and mobile technologies

Source: Qiang, World Bank 2009

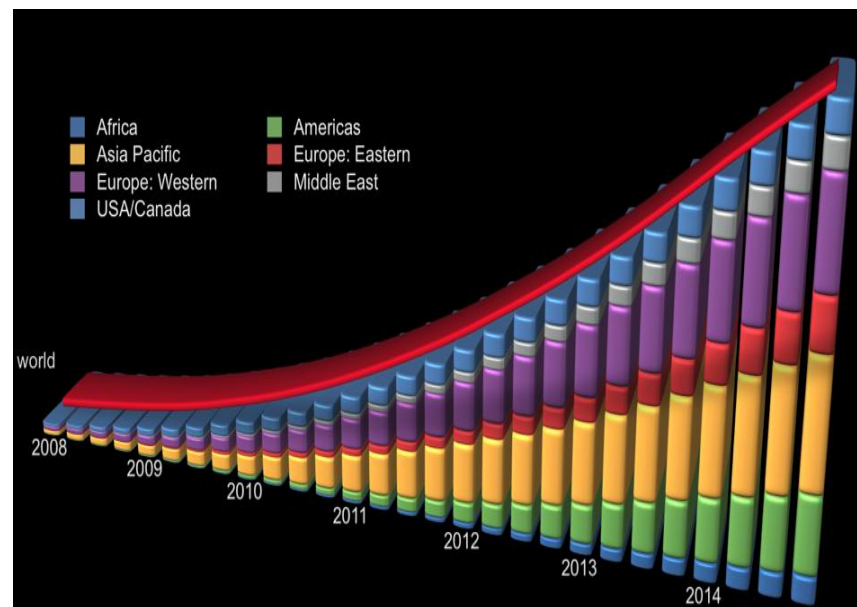
# Data demand continues to increase rapidly...

## Mobile traffic forecast



Source: Ericsson

## Mobile Broadband

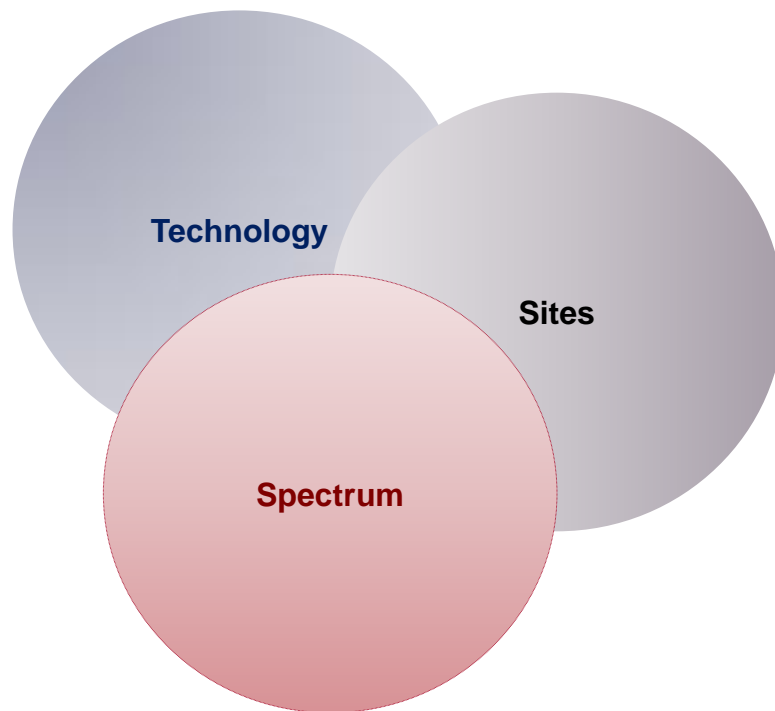


Source: GSMA, Maradevis, 2010

By 2015, networks will need to support over 700% more traffic than they do today  
Source GSMA, ABI research: Feature Phone / Smartphone / iPhone / Laptop (1:50:400:1250)

# Operators have three ways to meet increased demand...

Migrate to newer, more efficient, technologies  
*(refarming)*

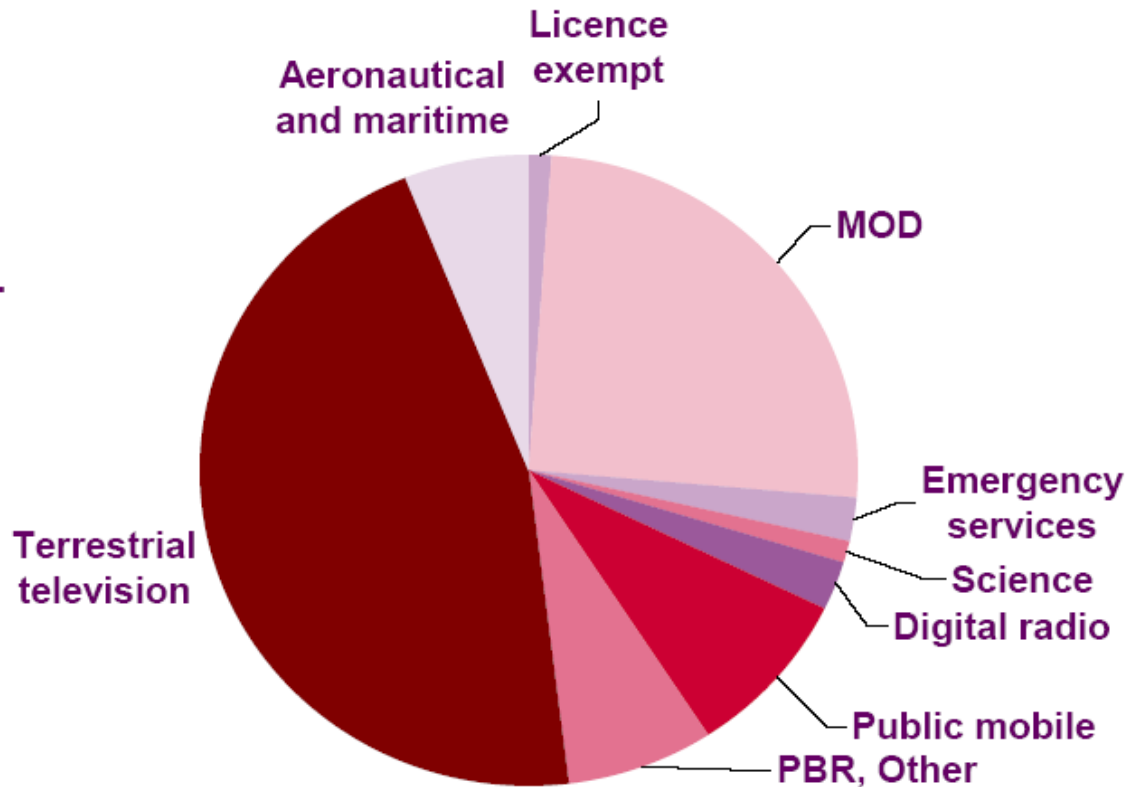


Build more basestations, smaller cell sizes  
*(needs adequate fibre/microwave backhaul)*

More spectrum increases capacity and performance  
*(spectrum is needed for (i) wide area coverage layer & (ii) capacity)*

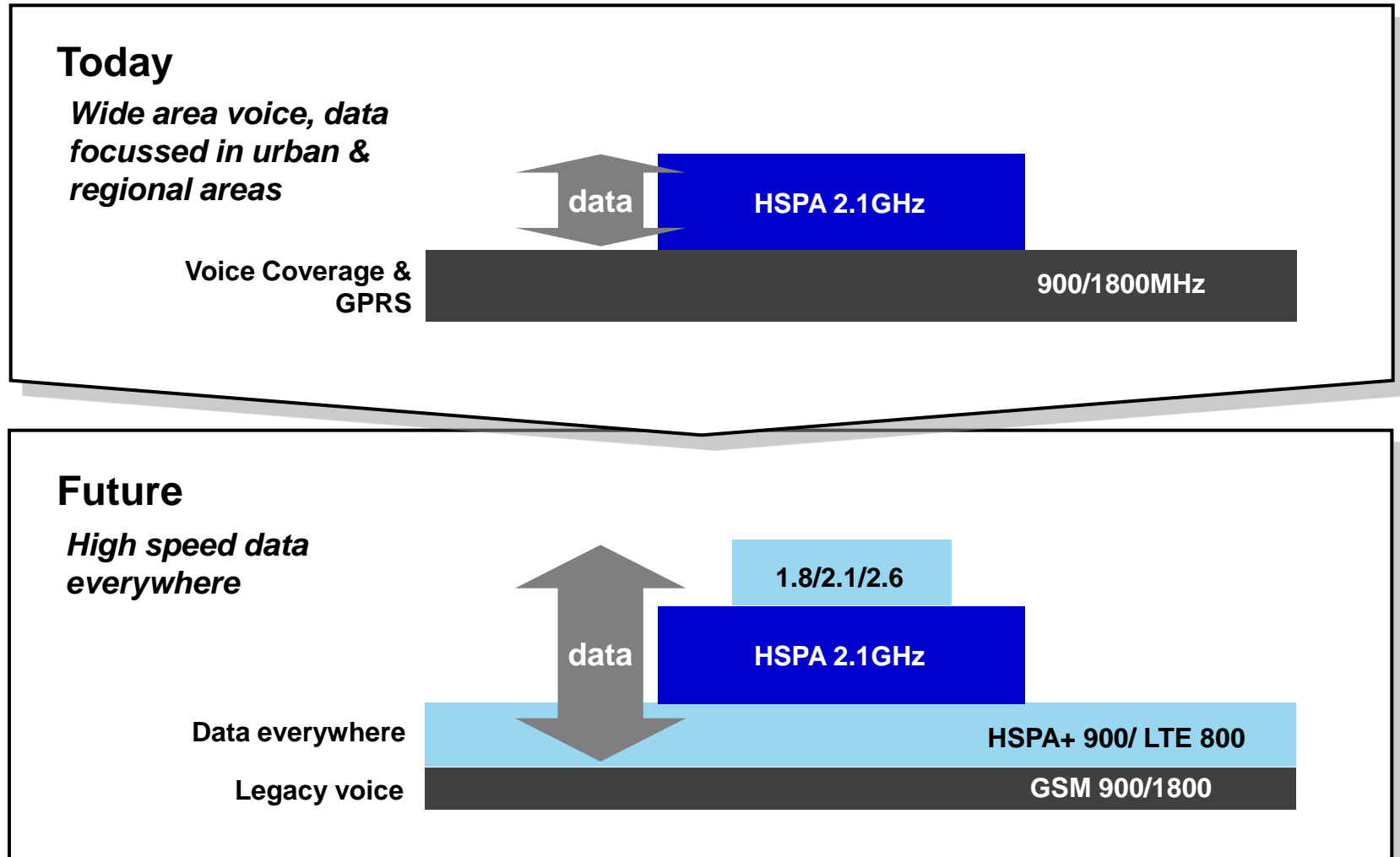
The most appropriate approach depends on the specific situation

# How much spectrum is currently allocated to mobile services: UK example, pre Digital Dividend



*Spectrum in 200MHz-1GHz band  
- current uses in UK*

# The 'digital dividend' spectrum supports the deployment of high speed data everywhere



# Guiding principles for spectrum licensing

- Technology neutrality
  - Revised GSM directive allows refarming 900/1800MHz (promotes efficient use)
- Spectrum trading
  - With an efficient secondary market
- Harmonisation
  - Fragmentation reduces economies of scale
  - Must not stifle innovation
- Release additional spectrum (at the right frequency at the right time)
  - Move forward now to reap the benefits of digital dividend spectrum
  - Plan for 2020+

# US National Broadband Plan: we need a similar level of ambition

“The United States should lead the world in mobile innovation, with the fastest and most extensive wireless networks of any nation.... Spectrum policy must be a key pillar of U.S. economic policy”

(Connecting America: The National Broadband Plan, March 2010)

- Mobile technologies have become a key economic input that will continue to grow in importance, what the American's call 'critical public infrastructure' that enables innovation and growth in many parts of the economy
- It intends to find another 500 MHz of spectrum for mobile services over the next decade, with detailed plans outlined for the release of 300MHz within the next 5 years

# Next steps...

## 1. Enable refarming

*(cannot keep finding new spectrum)*

- Use existing 900/1800 spectrum more efficiently
- Remove local barriers to implementation
- Other efficiency gains: femtocells, data offload etc.

## 2. Release new spectrum

*(progress, but need to follow through)*

- Early auctions for digital dividend and 2.6GHz
- Progress in many countries is slow
- Rapid adoption of RSP
- Pragmatic approach to interference concerns
- Use of other bands, e.g. 3.4-3.8GHz

## 3. Assess future demand

*(quantity & type of spectrum)*

- Monitor existing use and emerging needs
- Spectrum allocated in 2016 not available until 2020
- Where is capacity needed (high or low frequency)