CTO
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MAXIMISING THE OPPORTUNITY OF THE DIGITAL DIVIDEND

Development and harmonisation of spectrum policy to achieve broadband connectivity

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Regulatory Framework of the Digital Dividend

- The spectrum allocation for analogue television

470 MHz 862 MHz

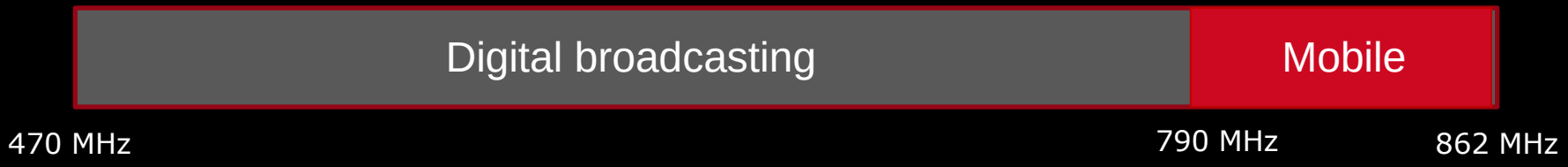
- In 2006, the Geneva 06 Agreement (GE-06) planned the migration from analogue to digital TV broadcasting for Europe, the Middle East and Africa, with the analogue switch-off (ASO) deadline set for June 2015.

470 MHz 862 MHz

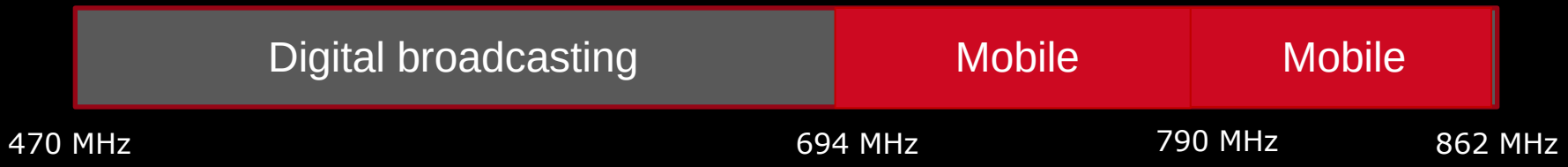
- This transition will provide:
  - Significant improvement in programme choice and picture quality for viewers
  - An opportunity to use some of the radio spectrum currently used for TV for other purposes, such as expanded mobile broadband service.

Regulatory Framework of the Digital Dividend

- Digital Dividend 1: In 2007, an international decision (ITU treaty – WRC-07) allocated the 790-862MHz band to mobile broadband.



- Digital Dividend 2: In 2012, as proposed by the African Telecommunication Union (ATU), a second international decision (ITU treaty – WRC-12) allocated the 694-790MHz band to mobile broadband after 2015.

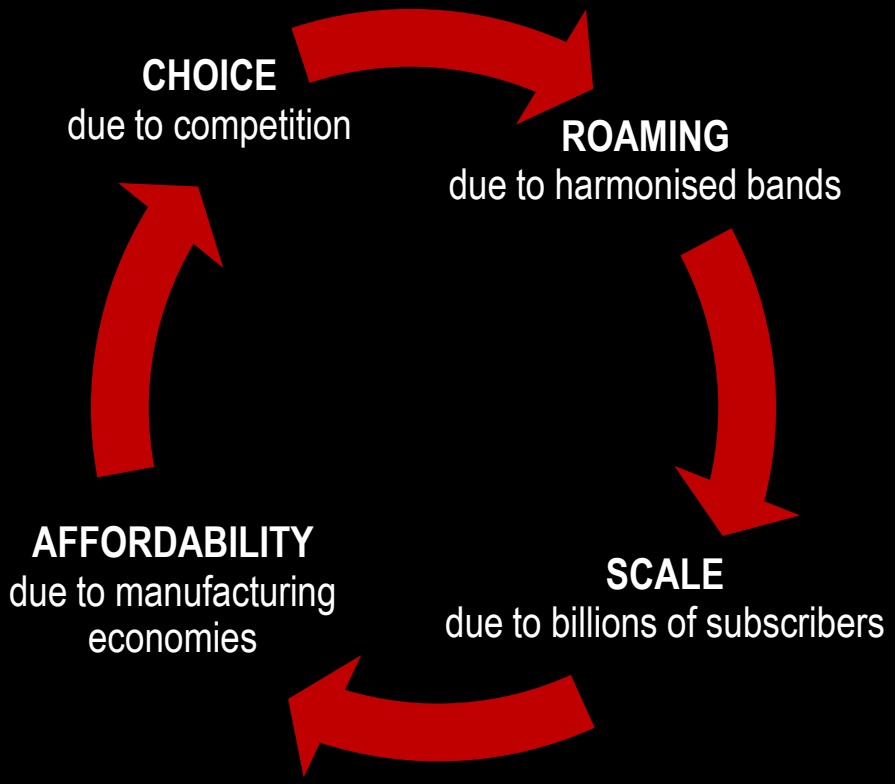


- In October 2012, the ATU positively concluded that it is feasible to limit broadcasting to 470-694MHz, for four multiplexes with nationwide coverage.

Maximising economies of scale through harmonisation

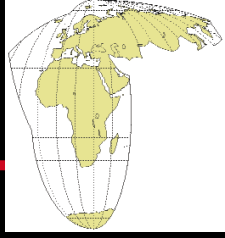
Importance of aligning spectrum rights, and regulatory and technical conditions with the internationally harmonised mobile spectrum bands

- Facilitate roaming
- Enable economies of scale and bring down the cost of mobile devices
- Respond quickly to market needs and bridge the Digital Divide
- Help manage cross-border interference

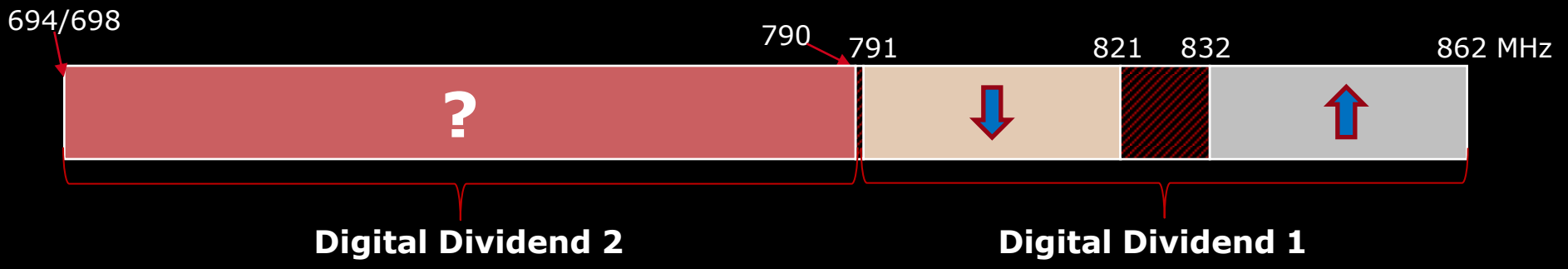


Digital Dividend 2

Use of the 700MHz band by mobile services

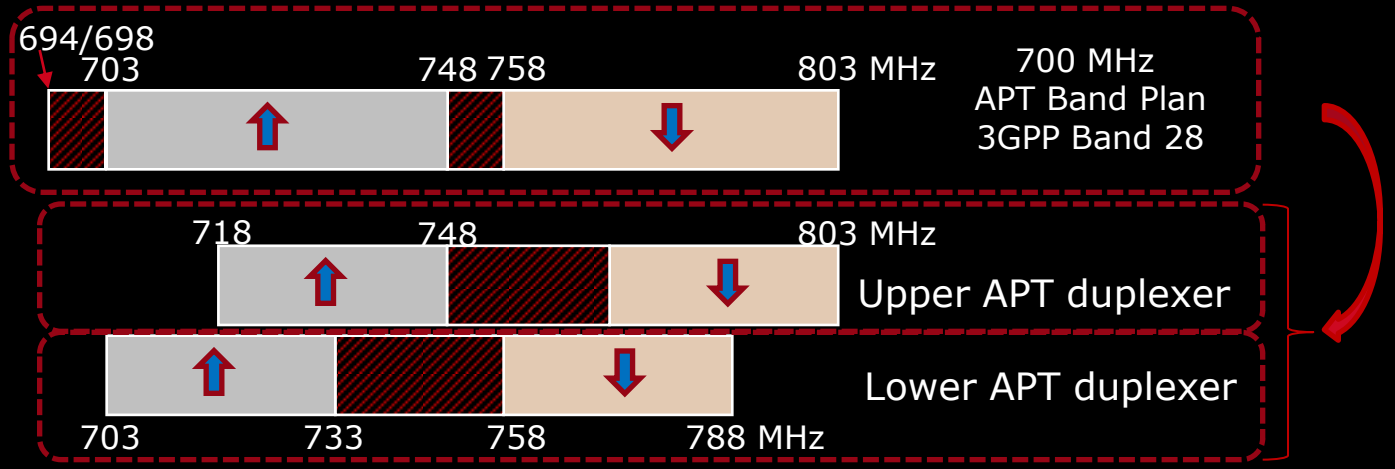


- A decision at WRC-12 created the possibility of allocating the 694–790MHz frequency band (aka the 700MHz band) for mobile services.
- The outcome of the WRC-12 was based on a commitment to seek **harmonisation** of that band and the **adjacent band** (790-862MHz) already allocated to mobile services (and identified for IMT) in Africa, the Middle East and Europe
- What should the preferred band plan in 700MHz for the region be?



Situation of the 700MHz band in other regions

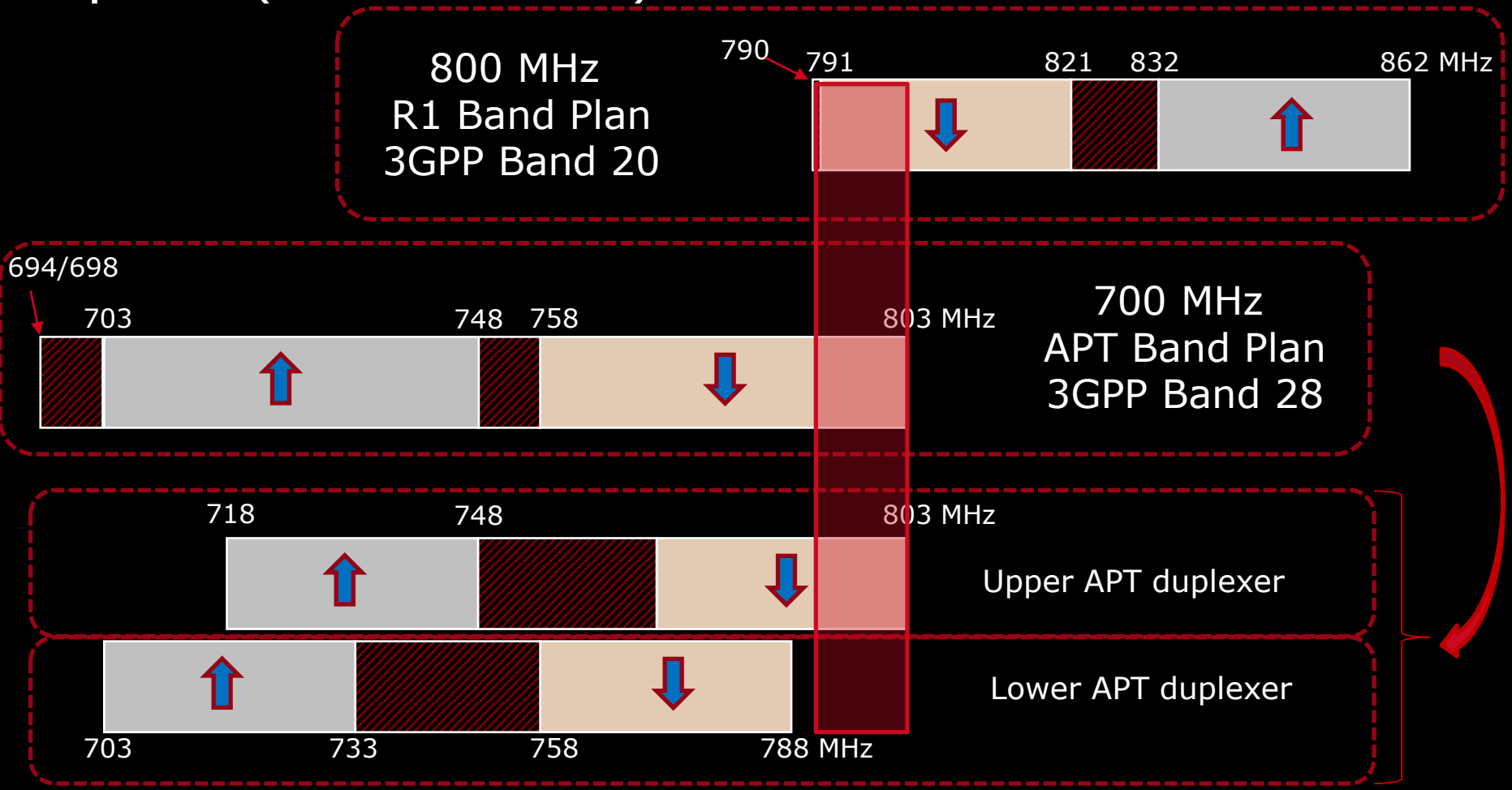
The APT band plan (3GPP Band 28) is a close-to-global ecosystem opportunity



Allow nations to opt for the full bandwidth or restrict to the upper 2x30 MHz or the lower 2x30 MHz to allow for related services in the band and provide overall band plan efficiency

- Large parts of the Asia Pacific region have declared support for that band plan, typically in its 2x45 MHz format.
- Most of Latin America such as Brazil, Chile, Colombia and recently Mexico have expressed their support.

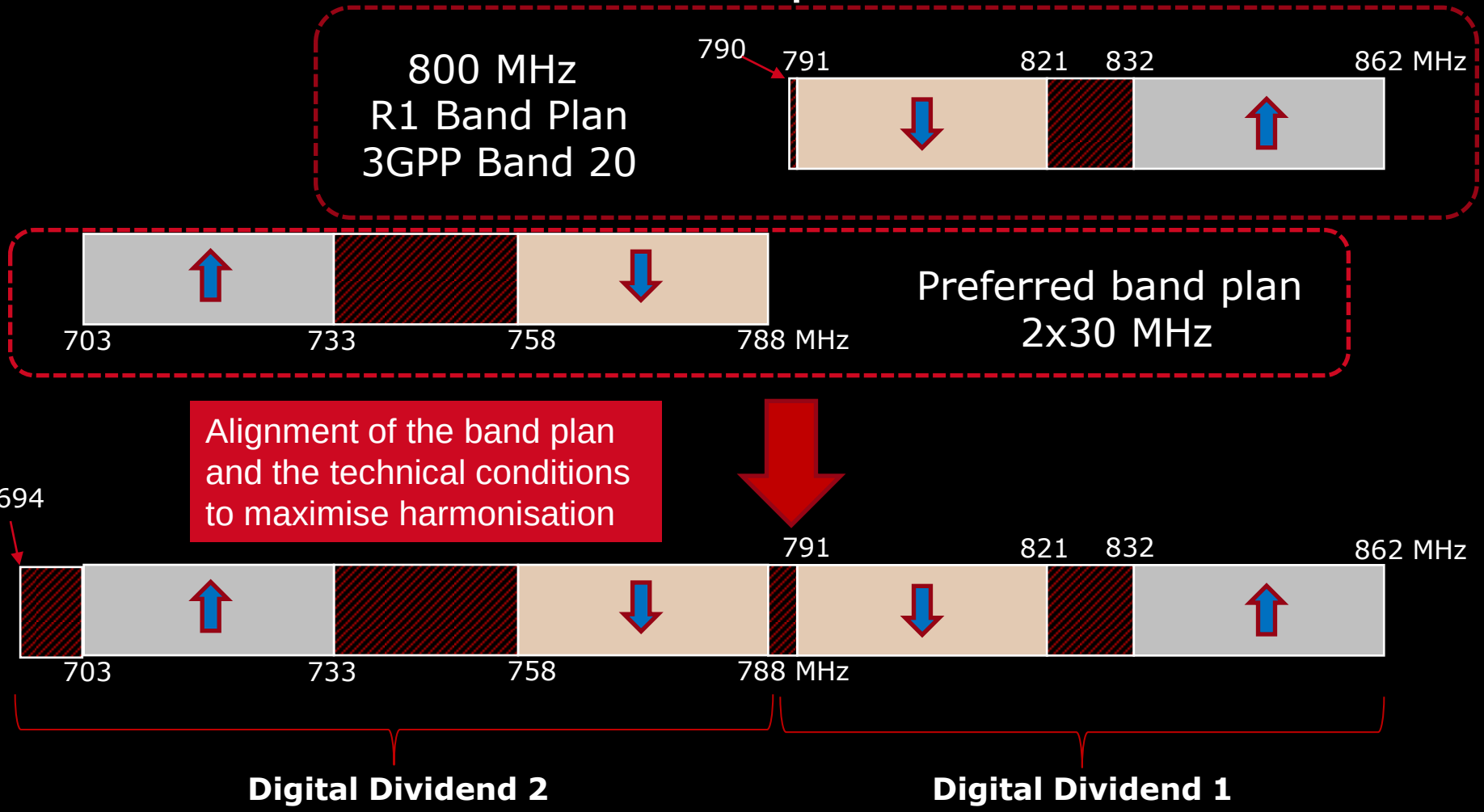
Overlap between the 700MHz and 800MHz band plans (790-803 MHz)



Overlap between the 700 MHz and the 800 MHz band plans

Preferred 700 MHz band plan - 2x30 MHz

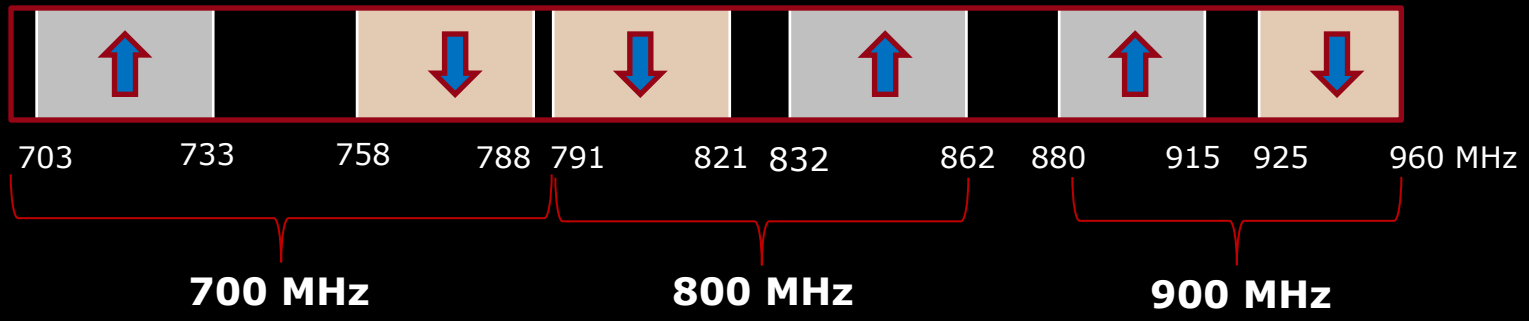
Based on the lower APT duplexer



Maximising the benefit of bands below 1GHz to deliver mobile broadband

- In summary, there is a unique opportunity to deliver mobile broadband, especially in rural areas.
- The unique physical characteristic of the bands below 1GHz favour larger coverage.

- Combination of spectrum bands to deliver mobile broadband
  - Below 1 GHz (interesting for coverage)



  - Complemented for capacity with 1800 MHz, 2.3 GHz and 2.6 GHz

THANK YOU - MERCI
Questions?

TV White Space

The TV white space scenario relies on the licence-exempt model with “no individual rights of use” as well as “no individual frequency planning/coordination”.

Capital markets and investors favour exclusive licensing models that protect incumbents on the basis of temporal, geographical or frequency-based exclusivity, rather than moving directly to more uncertain options created by TVWS:

1. non-homogeneous geographical coverage and fragmented bandwidth availability;
2. lack of availability of a single, well-standardised technology solution, usable in all nations/regions, implying a lack of scale economies and related high costs for network and user equipment due to needed customization of proprietary solutions;
3. lack of coexistence studies to evaluate interference effects

The use of TV white space should not impact the preparation process for WRC-15. Deployment of TV white space systems should not distort the possible evolution of use of the TV UHF band, especially when considering the discussions on the Digital Dividend 2. Their possible use, on a secondary unlicensed basis, requires careful interference avoidance towards primary users such as existing TV broadcasters, as well as services in adjacent bands.