

The Digital Dividend: Spectrum in Transition

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The Digital Dividend



➤ Digital Dividend (DD) and the Digital Switchover (DSO):

- Related concepts – DD is a consequence of Digital Switchover – spectrum freed up once terrestrial TV services convert to more efficient digital transmission techniques.

➤ Why is it Important:

- Many new technologies and services available
- Spectrum below 1 GHz is scarce

➤ How much spectrum is there available:

- Initially around 100 MHz
- In some regions, the spectrum is re-assigned
- Depends on the type spectrum (cleared or whitespace)



The Digital Dividend



➤ Economic Considerations:

- How do we measure spectrum values
- What are the most valued uses – mobile, fixed, broadcast
 - Should industries be propped up?
- How do we compare – economic and social values
 - Social cohesion

➤ Technical Considerations:

- Spectrum availability, Spectrum Sharing, Whitespaces, and Standards

➤ Regulatory Considerations

- Analogue Shutoff -Potential for social and civic unrest
- Harmonization of allocations across regions
- Cross-border coordination



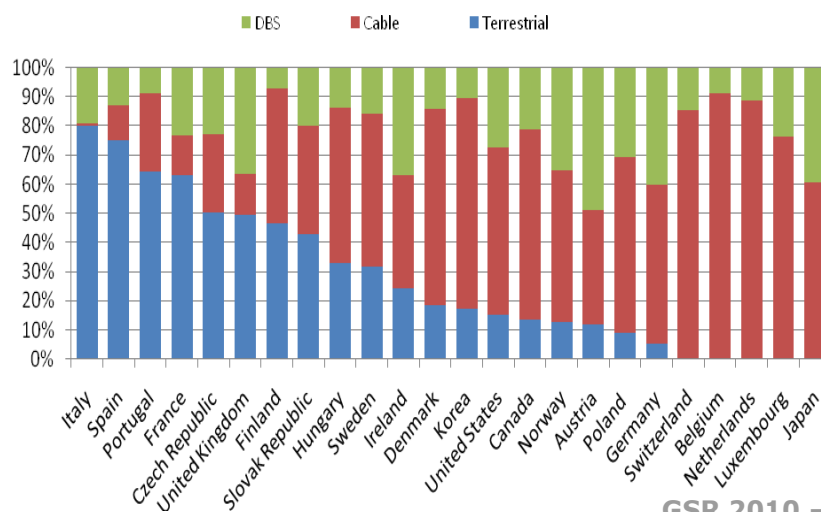
Spectrum in Transition

➤ Trends in the Use of VHF and UHF:

- Worldwide -TV and Radio continue to grow as popular ICT devices. Internet has now surpassed radio as the second most popular in OECD countries.

➤ Trends in Media Usage:

- Developed Markets - Traditional terrestrial TV viewership in decline being replaced by increased Internet TV.
- TV and radio continue to be primary means of news and entertainment access for elderly and underprivileged.



➤ Trends in Media Delivery:

- As behaviour is changing in response to new options, business organization and models are changing. Consolidation of content and delivery.



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Issues



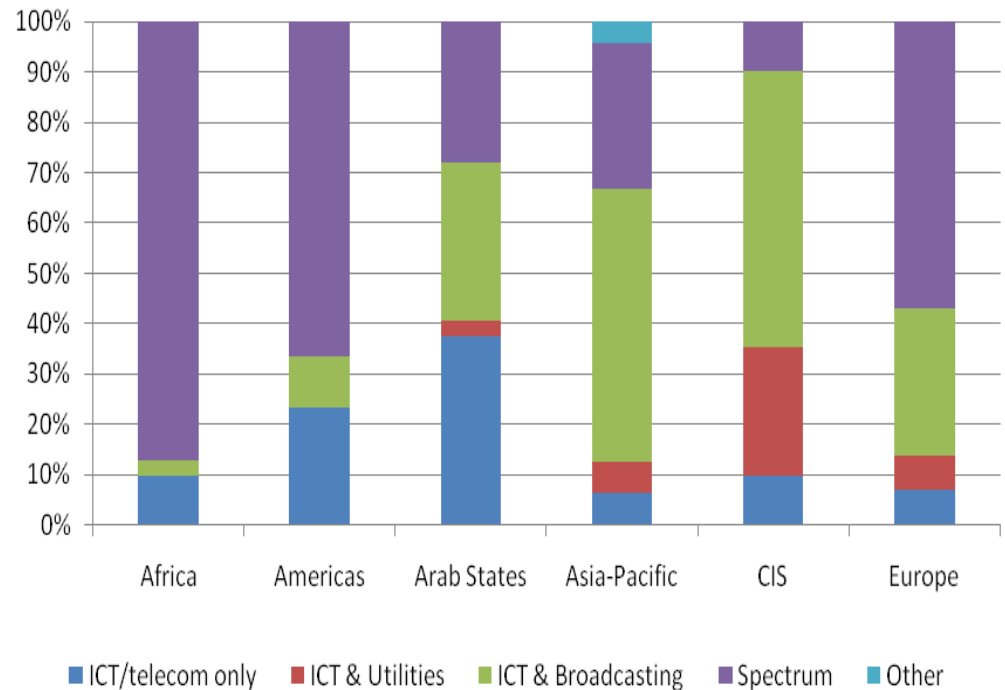
- Regulatory Frameworks do Differ
- Market led versus Interventions by Regulator
- Migration
- Refarming creates conflicts
- Reserving Spectrum for Future Use
- Interference

Regulatory Frameworks Differ

Decisions are made differently in the three ITU regions:

- Region 1 has multiple sovereign markets and attempts a unified approach;
- Region 2 developments have been dominated by the US and often reflects a single market approach whereas
- In across Region 3 encompassing Asia, Pacific, Australia and Oceania, there multiple sovereign markets and no real unified approach.

Mandate of the regulator, 2009



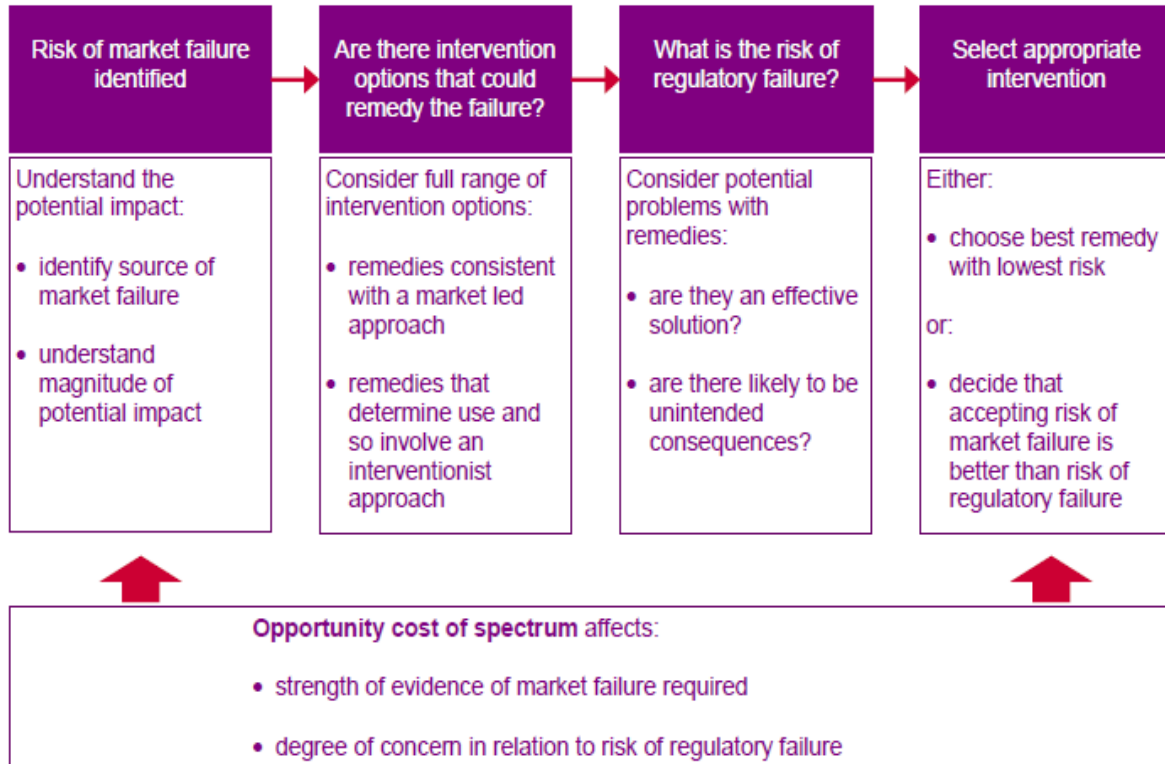
Source: ITU World Telecommunication/ICT Regulatory Database



Market Led vs. Intervention

Trading Off Market Led and Interventionist Approaches

- Regulators can choose between market led and regulatory intervention.
- Even in highly liberalized markets that allow for more flexibility through service and technology neutral licensing, policy makers and regulators usually consider social, cultural and developmental objectives.
- Simply put there are trade-offs between economic and value considerations and access to broad forms of media and content.



Source: Ofcom, Digital Dividend Review, 2007



Migration

There are decisions on when to move and then how to exploit the dividend.

- Migration requires organization and coordination and harmonization.
- Who leads – Digital Switchover is a political decision and can work if properly organized.
- Technologies and services are sorted out in the market.
- How the sector should function involves regulation.

Digital Dividend Decisions and Stakeholders

Required Decision	Entity/Stakeholders
Analogue Shut-off	Essentially a political decision taken by the political authority (the legislature) likely led by a ministry or a regulator
Digital Dividend - Size and Allocations	A complex set of issues combining economic, social, and technical considerations with a critical need to coordinate and harmonize results ensuring maximum benefits. The process and decisions are best suited for entities primarily responsible for policy assessment and policy setting aided by technocracy and user input (through public consultation processes, etc.).
Technical Standards	Requires decisions and collaboration amongst regulatory agencies.
Interference Management	Best suited to the spectrum management agency.



Lessons Learned

- Digital Dividend options and decisions seem to be better suited in liberalized (large single and federated) markets.
 - It is feasible when properly managed and organized. In some cases social unrest could occur – this will put the stop on most reform minded agenda (communication, education and incentives).
- Refarming can be a conflict ridden process involving delay and court challenges.
- Resolving interference problems is very complex especially in relation to service neutral options...more process of nudging towards a solution
- Industries may be transformed and businesses fail.
 - Is DTT competitive in the face of HD-3D, IPTV and Satellite?

GE06 Planning Process

- The Geneva 2006 Frequency Plan (GE06) Agreement replaced the Stockholm Plan of 1961 (ST61) that established the broadcast frequency plan for Europe, Africa and many parts of Asia. 17 June 2015 is the date the analogue services will no longer be protected and frequencies can be assigned for transmission of domestic digital services.
- Implementation of the GE06 digital plan can also occur during the transition period (between 17 June 2006 and 17 June 2015) but requires prior agreement of neighbouring countries that may be affected.



THANK YOU

International Regulation of the Digital Dividend

➤ ITU:

- Recommendation ITU-R BT.798 published January 1, 1994 stipulates "that digital television terrestrial broadcasting should fit in the channels (6, 7 and 8 MHz) intended for analogue television emission in the VHF/UHF bands"
- WRC-07 - 790-862 MHz sub-band in Region 1 (covering the European Broadcasting Area and Africa) for IMT technologies such as 3G, 4G, WiMAX) on a primary basis, except for aeronautical mobile, and on shared basis with the broadcasting service until of 17 June, 2015.
- WRC-12 – Review of Sharing
- JTG 5/6



Guidelines and Roadmaps for the transition from analogue to digital broadcasting

- Guidelines developed for African countries (involved in GE-06) and posted on ITU web for free download
www.itu.int/publ/D-HDB-GUIDELINES.01-2010/en
- ITU is currently providing assistance in developing roadmaps in Africa, Asia and Pacific regions through projects and expert assistance

