

# The State of TVWS Globally

*So where are we?*

We have been talking about Spectrum sharing and TVWS for a long time!

First FCC discussion in 2002

Formal rules proposed in 2008

Final rules in 2010

First commercial TVWS deployment in 2012





Was hyped as ...



But been more like ...



What Happened?

The potential of TVWS was over sold as “Super Wi-Fi” and “Wi-Fi on Steroids”

Regulation was started in the UK and US

- Big well-resourced regulators
- Big well-financed incumbents

The result is they boiled an ocean to protect existing services

- FCC mask is impossible to meet (economically) and not compatible with BB modulation envelopes
- Ofcom pixel approach is unrepeatable

Incumbent-centric rules, lack of consistency on approach and lack of standards has resulted in meager support from radio vendors to build products and solutions

Rules and requirements in the UK and US are not the same as most other countries

- Lack of incumbents in many developing countries
- Need to balance incumbents against benefits of more wireless broadband



Until late last year the only market opportunity was the USA

- Today we have commercial operation in Singapore (hybrid approach)
- Commercial operation likely in the UK and Canada by the end of 2015

Where are all the other Regulators?

- In many cases they are scared to act
  - They don't have the resources of Ofcom or the FCC to take this on
  - They think it is too complex
  - Many don't know if, or why, they need it
  - Because of the slow adoption they wonder if it is real





# Why should Regulators care?

TVWS is a fundamental step in changing the way spectrum is managed and used

It is a place for Regulators to get ahead rather than keep playing catchup

It will make Regulators jobs easier

It enables important services

- Like addressing the nearly 4B underserved
- Current mobile networks not appropriate for IOT



## Dynamic Policy Management

- Frequency and technology agnostic
- Supports licensed, unlicensed, and hybrid access schemes
- Policy decisions made today will not haunt for decades
- Ensures compatibility with evolving technology and changing markets



DPM and DSA are cloud based services – the policy is in software in the cloud, not in the device

Simple and straight forward policies can strike the right balance between protecting incumbents and new services

Leveraging DPM and DSA a regulator could start to enable and manage TVWS (and other bands) immediately

- Little or no resources necessary from the regulator

- Less work for regulator going forward

Existing radio technologies can be used immediately if appropriate regulation defined

Establish policy that is appropriate today they will be able to adjust and refine the policies as market needs and technology evolve

They will get Feedback loops – for insights and effective optimization





TVWS has potential but not everyone is convinced

- Set realistic expectations
- Make balanced policy decisions
- Don't over complicate

The ecosystem needs help

- If we believe TVWS is the example that leads to wide scale spectrum sharing then we need to ensure policy promotes commercial viability and sustainability
- Most deployments to date are small scale static 'experiments' that borrow spectrum, i.e. they are not dynamic
- Incentivize entrepreneurs and industry to commit to large scale deployments through more flexible rulemaking.



# Thank You

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