



Integrated system for the assessment of coverage, QoS and transmission capacity of TV broadcasting

Marina Boumis



ITU-D Meeting - Rome, 2017 - Session 3 - Towards effective Uses of the Digital Dividend

# The 4 goals of Connect 2020 Agenda for Global Telecommunication/ICT Development



Goals and targets  
that Member  
States have  
committed to  
achieve by 2020



**Questions**

**Enable and foster access to and increased use of telecommunication/ICT**



GROWTH

**Bridge the digital divide and provide broadband for all**



INCLUSIVENESS

**Manage challenges resulting from telecommunication/ICT development**



SUSTAINABILITY

**Lead, improve and adapt to the changing telecommunication/ICT environment**



INNOVATION  
& PARTNERSHIP

## Questions



- what way to reach the goals?
  - what obstacles?
  - what way to drive the changing by Digital Dividend?
- and
- what spectrum???



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Innovative applications in sectors such as media and telecommunications as well as transport, healthcare or energy, impose new requirements on connectivity in terms of capacity, quality and ubiquity.

Audiovisual services are increasingly being delivered via alternative platforms, including wireless broadband (WBB) and the Internet.

Reliable, trustworthy, high-speed and affordable networks are therefore essential to deliver digital products and services.

Ref.: Impact Assessment - Proposal for a Decision of the European Parliament and of the Council on the use of the 470 - 790 MHz frequency band in the Union (European Commission)



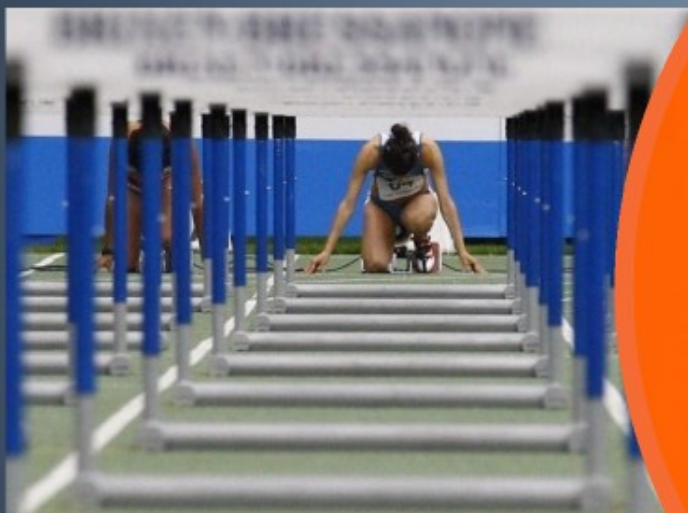
**Need for  
action**



**Obstacles**



**Solutions**



### *Need for action*

- EU harmonised bands for Wireless Broad Band are important to achieve the Union's connectivity targets set by Digital Agenda for Europe
- The ITU allows for the 694 -790 MHz frequency band to be used for WBB

Ref.: Executive Summary of the Impact Assessment (EU Commission)



## *Obstacles*

- There is a conflicting demand for this 'prime' spectrum
- In EU the whole UHF band (470 - 790 MHz) is currently used by DTT (and for other services)
- EU countries have very different DTT needs

Ref. : Executive Summary of the Impact Assessment (EU Commission)





## *Solutions*

**Option 3 - Coordinated designation and authorisation of the 700MHz band for wireless broadband by 2020 and coordinated designation of the sub-700MHz band for flexible use for audiovisual and wireless broadband services [in downlink-only mode], according to national demand**

Ref.: Impact Assessment - Proposal for a Decision of the European Parliament and of the Council on the use of the 470 - 790 MHz frequency band in the Union (European Commission)



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## Some figures on Italy

700 MHz  
band in Italy

# MUX & Tx

DTT &  
Internet

## 700 MHz band in Italy

In Italy 700 MHz band comprises about 30% of the available spectrum for broadcasting in UHF band and 12 TV channels are allocated in that part of the spectrum

Ref. AGCOM Del. 40/17/CONS

## # MUX & Tx

According to the current plans of the national Authority (AGCOM), 8 national MUX and about 90 local MUX are allocated on those 12 channels

About 5700 transmitters (national and local network) are currently operating on that band. They correspond to the 31% of the whole amount of transmitters active in UHF band

Ref. AGCOM Del. 40/17/CONS



## DTT & Internet

Italy has a total DTT penetration of over 80% (Source: European Commission)

Italian Internet users are 66% of population (Source: wearesocial.com - Jan 2017)



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The release of 700 MHz band in Italy it's not so easy...



## Helpful tips??

A tool for the analysis of different scenarios based on:

- Impact assessment on the use of more efficient spectrum technologies (DVB-T2) and more advanced compression technology (MPEG4/HEVC) to upgrade the DTT Italian networks
- Coverage computation according to recommended algorithms, Quality of Service, analysis of the true transmitting capacity used on Italian MUXs



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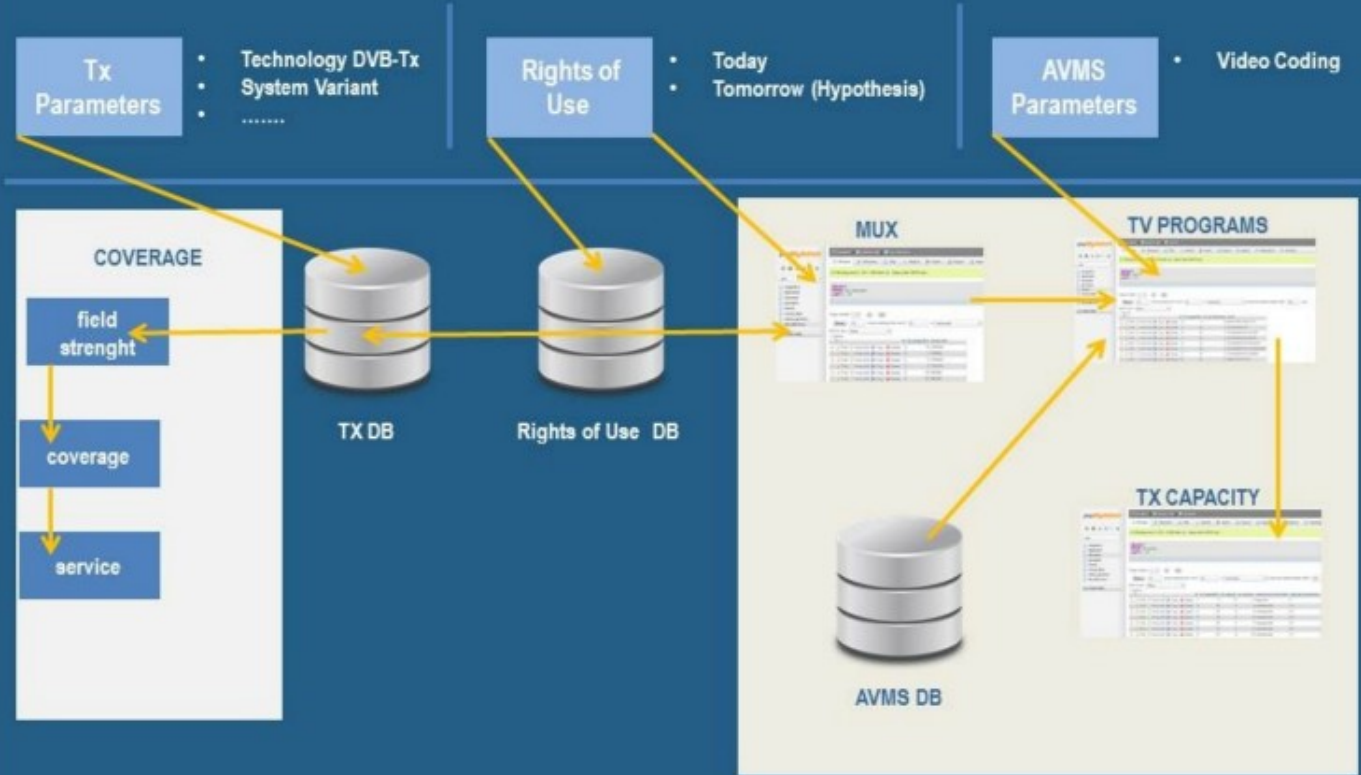
# Virtual Control Panel

FUB Tool





- Logical interaction among different functional units
- Parameter values define different scenarios
  - technological options
  - reallocation of rights of use
- Impact assessment on:
  - program diffusion
  - served population
  - internal interference



**Integrated system for the assessment of coverage, QoS and Tx capacity of DTT services in Italy**



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# State of Art



## Computation Engine

- field strength
- coverage (with internal interference)
- service

READY

## TX Database

- National TV networks
- Local TV networks

READY  
IN PROGRESS

## Rights of Use Database

- National TV networks
- Local TV networks

READY  
IN PROGRESS

## AVMS Database

- National and local TV

READY





Work in progress towards the future



Work in progress towards the future

Thanks a lot for your kind attention





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