

AGENTSCHAP  
**Telecom**



# **Digital Dividend**

***‘the holy Grail?’***

# Digital Dividend

## Definition:

***“The digital dividend is understood as the spectrum made available over and above that required to accommodate the existing analogue television services in a digital form, in VHF (band III: 174-230 MHz) and UHF bands (bands IV and V: 470-862 MHz)”***

## Meaning:

- ✓ if analogue infrastructure bandcapacity is: **100%**
- ✓ the digital infrastructure requires **20% (MPEG2)**
- extra band capacity **80 %**

# ECC/TG4

- to explore the **technical feasibility** of relevant potential uses of the future digital dividend,
- to identify any major **coexistence limitations** of these potential uses due to interference issues, and
- to assess possible **spectrum management strategies** to address those issues.

# Deliverables

April 2007 **Report A:**

- **compatibility issues between "cellular" networks and "larger coverage"** type of networks.

- **the possibility of harmonising a sub-band for multimedia applications.**

July 2007 **Report B:**

**technical feasibility** of **harmonising a sub-band** of bands IV and V for **mobile applications** (including uplinks).

# Deliverables (cont)

December 2007 **Supplementary report** to address for example:

- band plans
- options for **the size** and the **location** of any duplex gap
- options for the **duplex spacing**
- **guard bands required** (for both FDD and TDD use)

# Deliverables (cont)

Spring  
2008

## Report C:

the **feasibility** of fitting new/future applications/services into the so-called "**white spots**".

## Technical roadmap:

- **relevant technical options** and **scenarios** to optimise the digital dividend,
- **indicating** steps required during the transition period before analogue switch-off.

# Report A

## Adjacent channel interference from multimedia broadcasting network into DVB-T service

### *Conclusions:*

**co-existence of “cellular / low-power transmitter” networks and “larger coverage / high power/tower” type of networks is possible within the GE06 Agreement by applying the available mitigation techniques together with careful network planning**

# Report A (cont)

**Possibility of harmonising a sub-band of bands IV and V for downlinks of multimedia applications**

## ***Conclusions***

**Two approaches:**

- **Approach 1: Implementation without a harmonized sub-band, based on the GE06 Plan entries**
- **Approach 2: Implementation based on a harmonized sub-band**



# Report B

## Technical feasibility of harmonising a sub-band for fixed/mobile applications (including uplinks), minimising the impact on GE06

### *Conclusion:*

“harmonisation of a sub-band of the UHF band for mobile communication applications (i.e. including uplinks) ***is feasible*** from a technical, regulatory and administrative point of view, provided that it is **not made mandatory** and **any decision** about use of the harmonised sub-band **is left to individual Administrations**, within the framework of the GE-06 Agreement, and without prejudice to existing national licence obligations.”

# Report C

**Possibilities for fitting new/future applications/services into non-harmonised spectrum of the digital dividend:**

*The holy grail??*



# fiction or reality ?

**fitting new/future applications/services  
into [*non-harmonised*] spectrum of the digital dividend:**

➤ holy Grail ?

- ✓ all intentions are bound to the law of physics
- ✓ results often unpredictable with regard to its evolution

# threat or opportunity ?

for broadcasters YES and NO:

## **yes**

- *less spectrum for assumed extra demands (more programs; HDTV etc)*
- *blocking growth*

## **no**

- *opportunity to adapt more quickly to new type of consumer requirements (distribution of programs to “mobile” clients)*
- *position decision (content provider? or infrastructure operator?)*

# threat or opportunity (*cont*)

for “Telco's” and “new comers” YES and NO:

**yes**

if the digital dividend will be used to exclude competition

**no**

if released spectrum will be exploited based on new spectrum management philosophy

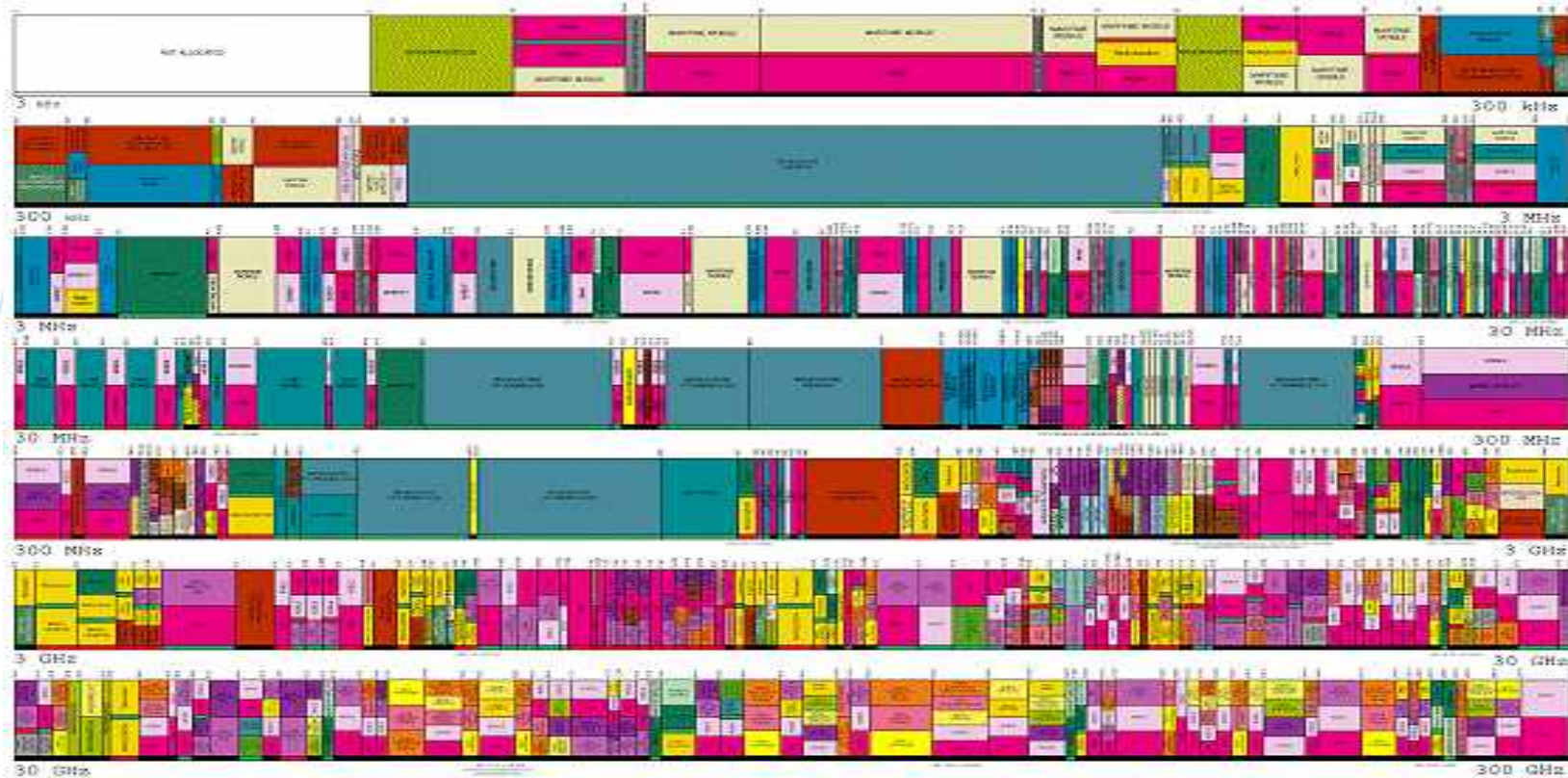
# Paradigm shift?

## transformation :

- ✓ from: system/device oriented planning, like analogue resulting in chaotic spectrum allocations
- ✓ to: application efficient planning (*spectrum is just a transportation means*)
  - ❖ service neutral
  - ❖ technology neutral

# Paradigm shift (cont)

- ✓ from analogue: (one (*program*) –to– one (*or many*) customer (s))  
structured spectrum



# Paradigm shift (*cont*)





# Paradigm shift (*cont*)

- to digital: (many (*programs*) -to- one (*and many*) **consumers**)
  - IMT environment
  - service neutrality
  - technological neutrality

# long term view

## necessity to improve spectrum usage

- consumer wants **content** wherever, whenever, leading to capacity requirements
- fast-developing market situation

## necessity to collaborate instead of competition !!

**driven by innovation and technological progress, engineering is the keyword:**

- ✓ Software radio
- ✓ Cognitive Radio

## **. . . some final observations . . .**

- ✓ **Innovation and technological progress are mainly hampered by lengthy (inter)national procedures**
- ✓ **On the other hand: international harmonisation fosters innovation and technological progress**
- ✓ **Timely collaboration between regulators and ALL other stakeholders will turn into co-evolution**

..... to be answered .....

***Digital Dividend***

**‘the holy grail’**

**or**

**‘a mini step to a new way in  
spectrum employment’**

*thank you very much  
for your attention*

Aljo van  
Dijken  
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