

# INTERNATIONAL TELECOMMUNICATION UNION



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# Content

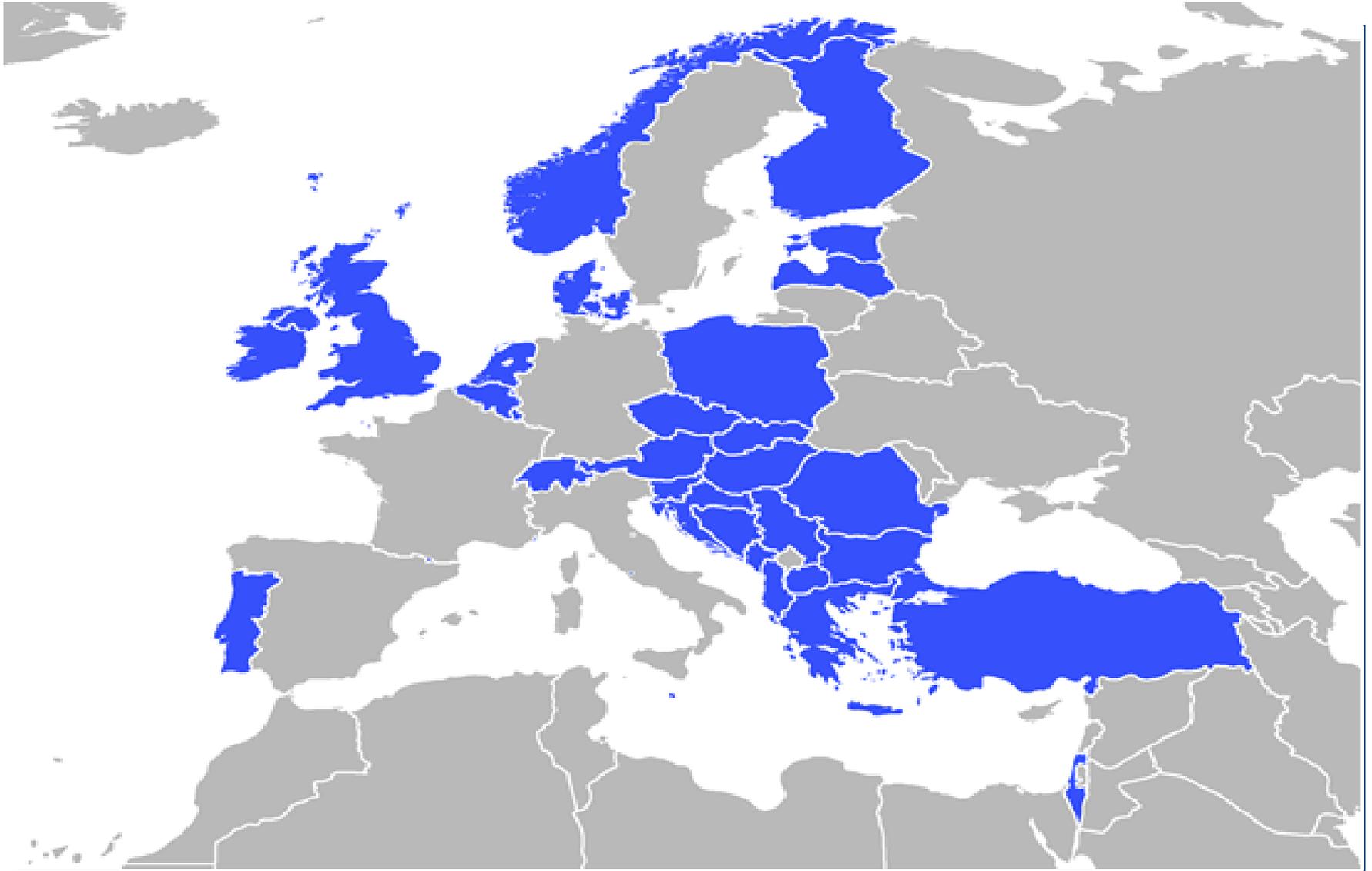
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- Digital Terrestrial TV
- Digital Dividend
- DTT Spectrum Licensing
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# Background

- This Questionnaire was developed after the **ITU Regional Seminar for Europe on Transition to Digital Broadcasting and Digital Dividend** held in Budapest, Hungary, on 5-7 November 2012.
- For more information regarding the Seminar please visit the ITU website <http://www.itu.int/ITU-D/EUR/ri/broadcasting/seminar>.
- The purpose of this activity was to collect information on digital broadcasting transition in order to enhance the advantages that it will bring to the region of Central-Eastern Europe.
- Total of [35] administrations (sent to 43) have completed and returned the Questionnaire form (see map on the next slide). Report on the evaluation in close cooperation with BR is under preparation and will be posted to the web. Contact details for the administrations will be given in Annex to the evaluation report.
- The questionnaire is comprised of six (seven) sections. For each section, the evaluation report will provide a summary of the responses and responses for individual questions are given in tables, charts or graphs as appropriate.

# *Countries replied*

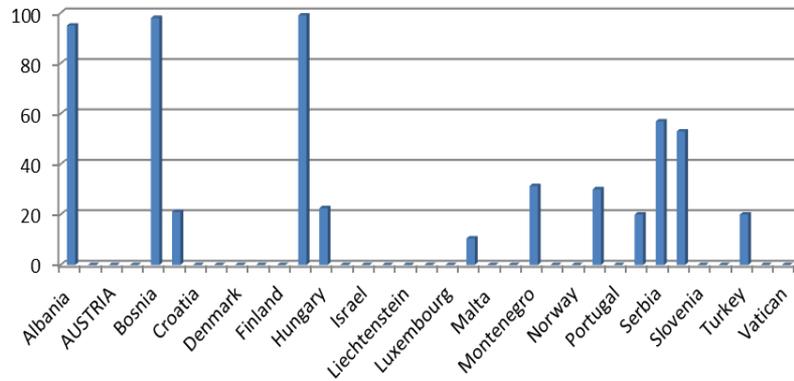


# Analogue television

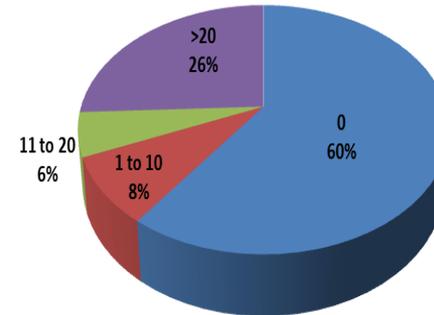
- Many countries in Europe have either completed or nearly completed the switching off their analogue television network (ASO).
- Few countries in the eastern and southern Europe have not started their ASO.
- The majority of countries followed a smooth ASO strategy including simulcasting of analogue and digital transmissions, 3 countries implemented the big bang or very short simulcasting approach.
- On the question of subsidy of set-top boxes,
  - 13 countries do not provide any subsidy for STB purchases;
  - 10 countries implement or plan to implement some scheme of subsidy.
  - 9 countries have either not decided or did not reply to this question.
- In countries where a subsidy scheme is implemented, criteria to determine whether a household would receive subsidy generally take into account the economic and social needs of the households.
- In Austria and Bulgaria, all subscribers of the public TV automatically qualify for the subsidy.
- Hungary presented the scheme for ITU-D Q11-3/2

# Analogue charts

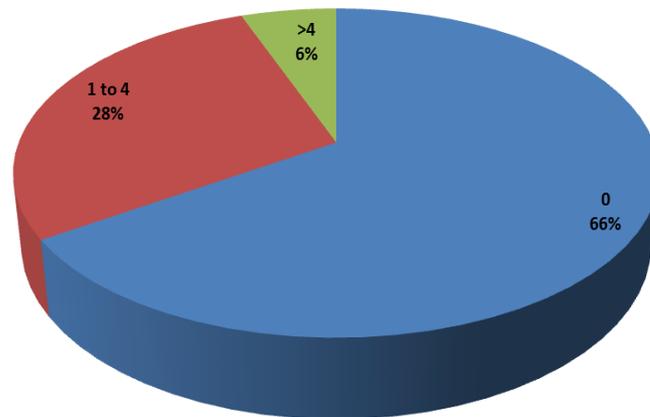
Terrestrial analog TV penetration (%coverage analog terrestrial TV)



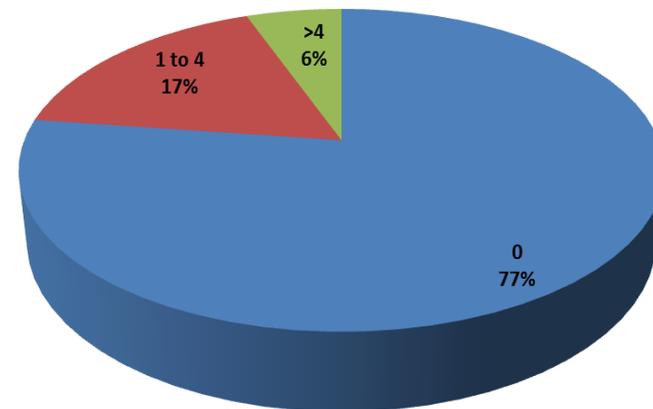
Number of Regional/local networks (public or commercial)



Number of Nationwide analog networks (public)

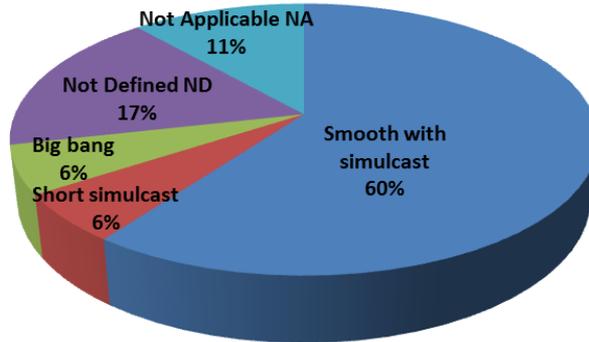


Number of Nationwide analog networks (Commercial)

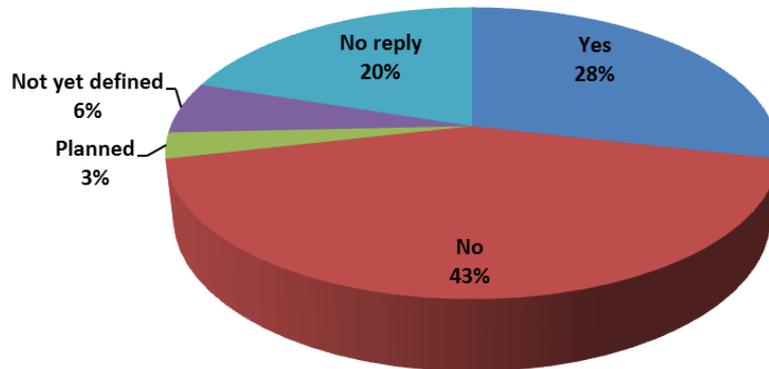


# Switch-off strategy and STB

Switch-off strategy



Set-top boxes subsidies



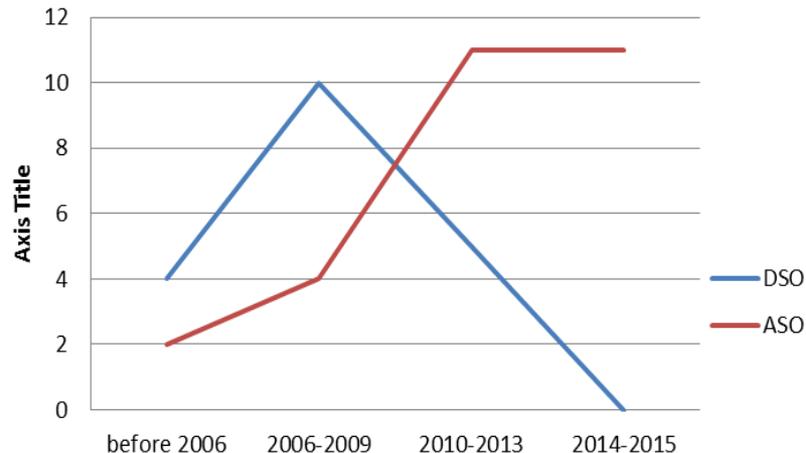
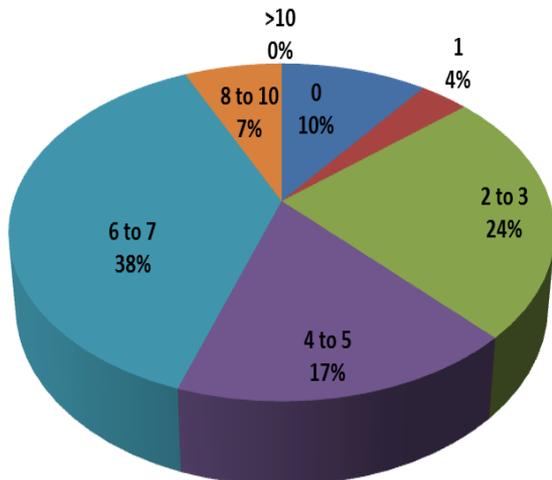
# Digital Terrestrial TV

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- 62% of participating countries have more than 4 national multiplexes.
- The number of national DTT multiplexes ranges from 1 to 10 throughout the countries concerned.
- There are few local multiplexes.
- By the end of 2015 all countries would have ended the analogue switch-off and the digital switch-on.

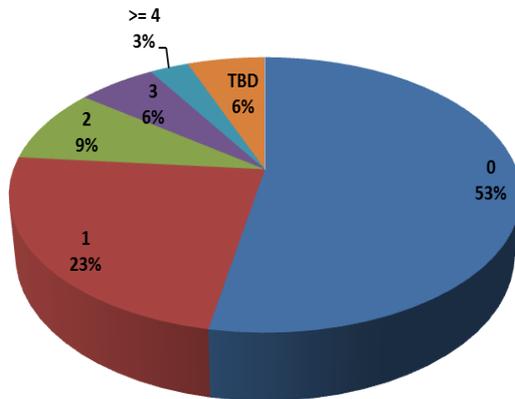
# Multiplexes and switch-off day

Number of Nationwide MUX (public or commercial)

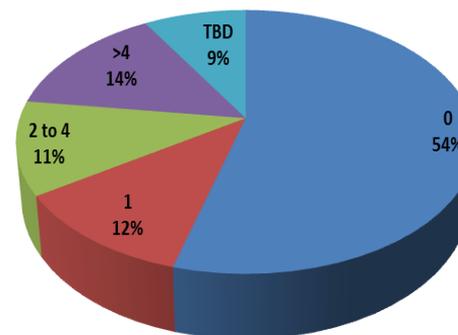


*There were 2NA, 2NR and 3 TBD*

Number of Regional MUX (public or commercial)



Number of Local MUX (public or commercial)

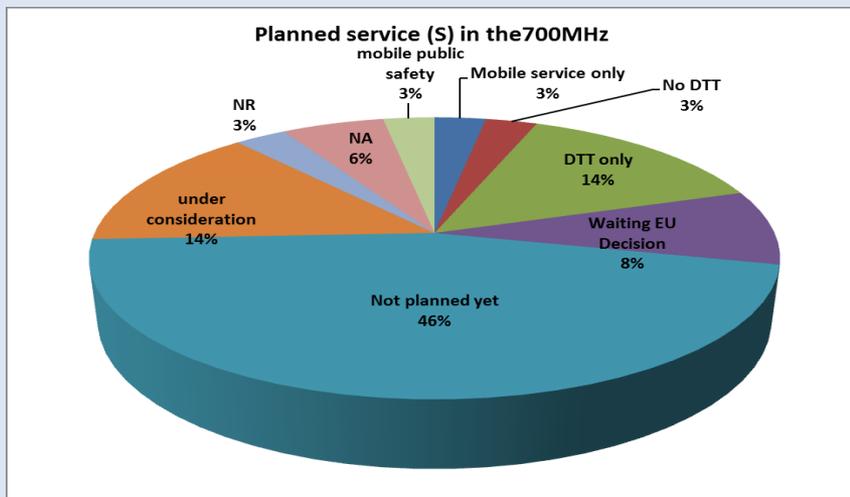
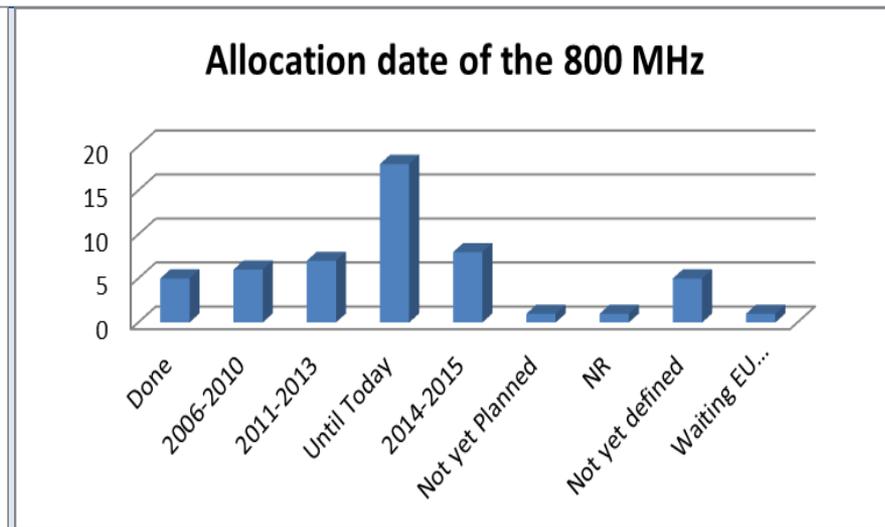
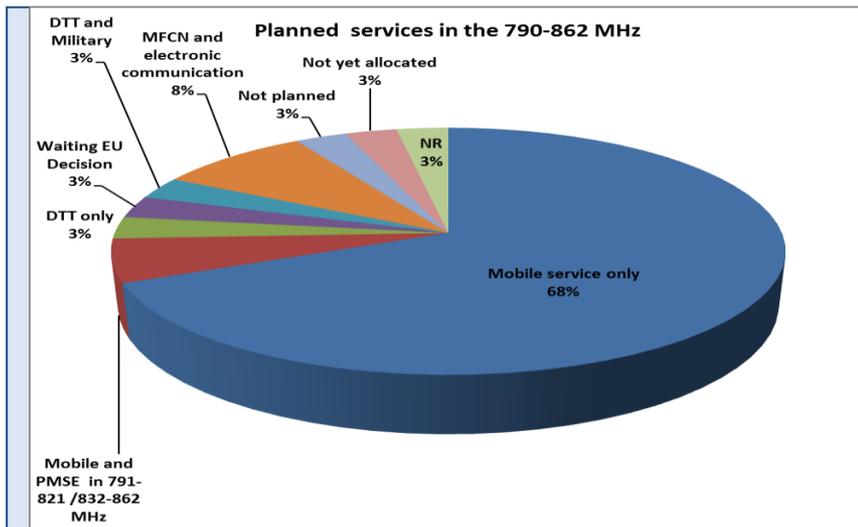


# Digital Dividend

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- In many participating countries the 800 MHz digital dividend has been or is being allocated for mobile services.
- On the contrary, concerning the 700 MHz digital dividend band, the majority of countries have neither planned nor decided on what to do.
- Of the countries which have decided, three countries decided to use for DTT services, 1 for mobile services and 1 not DTT.
- The first country allocated the 800 MHz digital dividend in 2006.
- To date 16 has completed the allocation.
- Seven more countries are to allocate by 2015.

# Allocation of Digital Dividend

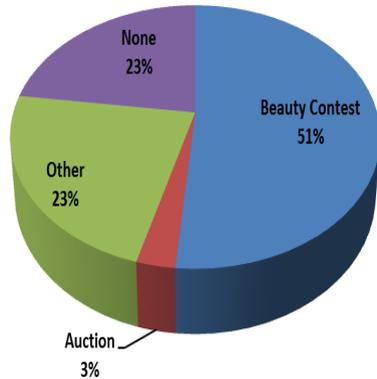


# DTT Spectrum Licensing

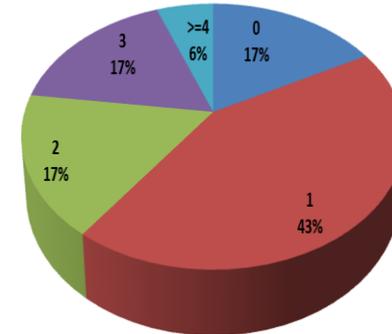
- In the majority of countries the licensing of network providers has been or is issued following beauty contest process. Only one country chose to use the auction process.
- In most countries, licences for network providers are issued on national basis. Licence duration ranges from 1 to 15 years.
- However, just over half of the participating countries did not provide the information on the licence duration..
- Concerning spectrum licences, there appears to be an equal split between licensing per MUX and per layer.
- There is no criterion applied to assign the channel order of programs in a MUX. When there is a need (in 3 countries) beauty contest process is used.
- Concerning spectrum fees, in most cases an one time or annual fees are applied. 7 countries do not impose spectrum fees.
- The spectrum usage (MUX) is overwhelmingly based on the GE06 plan entries. In most cases, some roll out licence conditions such as must carry, coverage are imposed.

# Licensing charts

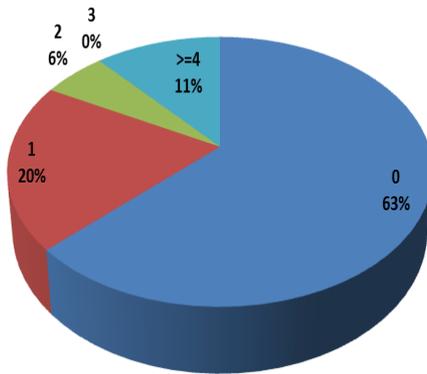
Network Provider Licensing Process to be followed or have been followed (e.g. auction, beauty contest, other)



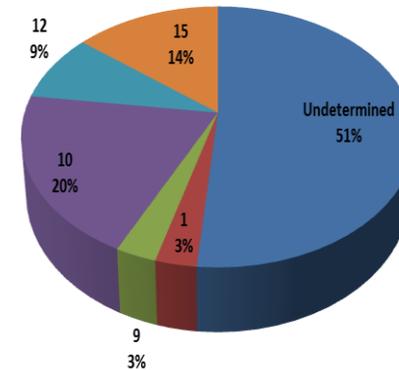
Number of National Licensed Network Providers.



Number of Regional Licensed Network Providers

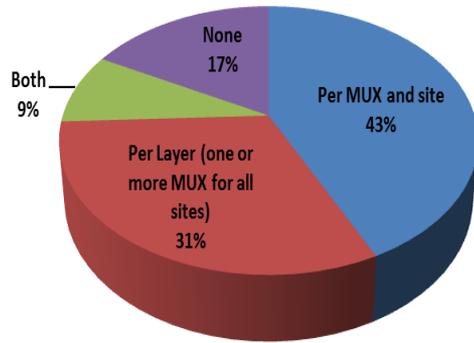


License Duration (years)

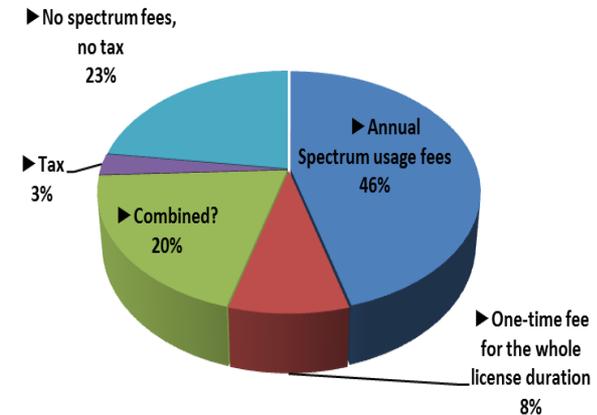


# Licensing scheme and fees

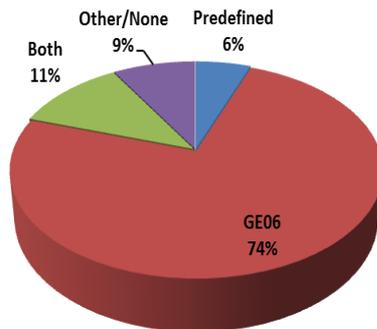
Spectrum Licensing Scheme (e.g. per MUX and site or per layer – layer(s) consisting of one or more MUX for all sites in the country)



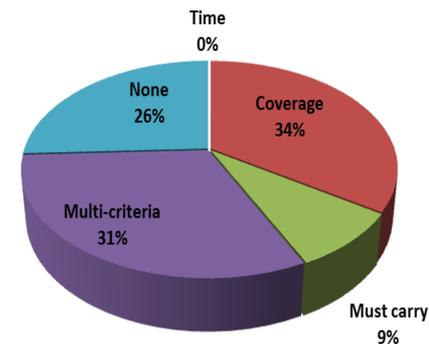
Fees:



The frequency usage (MUX) was/is based on a predefined network topology or only to GE 06 entries?



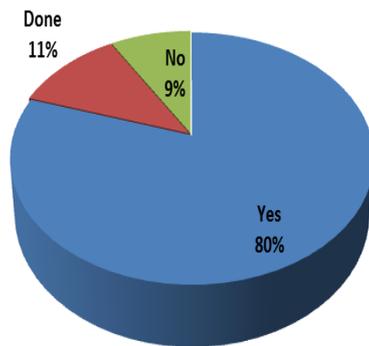
Roll-out obligations (e.g. time, coverage, must carry)



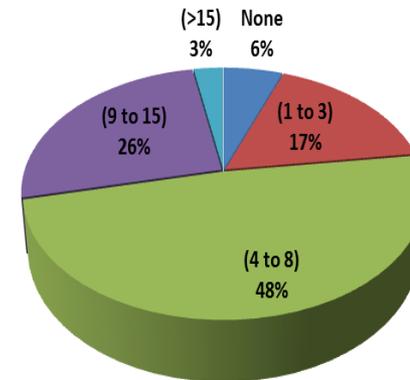
# International coordination

- The results indicate clearly that international coordination activities have already started in many European countries.
- The number of countries involved in international coordination process varies according to the number of countries that share borders.

Has the international coordination process started?



Estimated number of countries involved in international coordination process (DTT and DD)

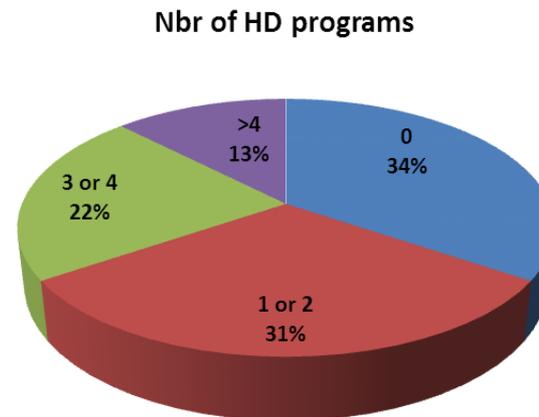
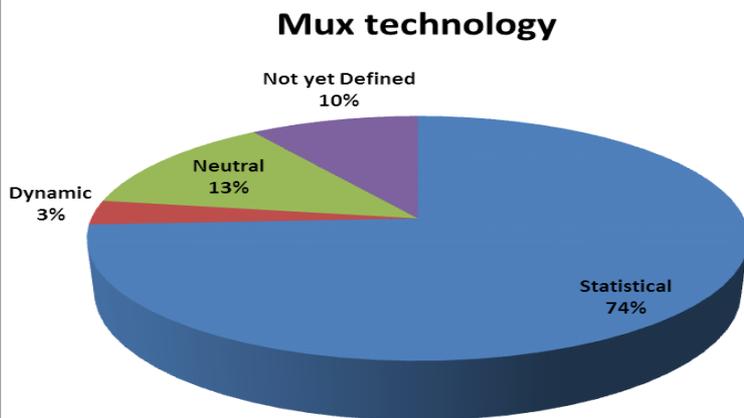
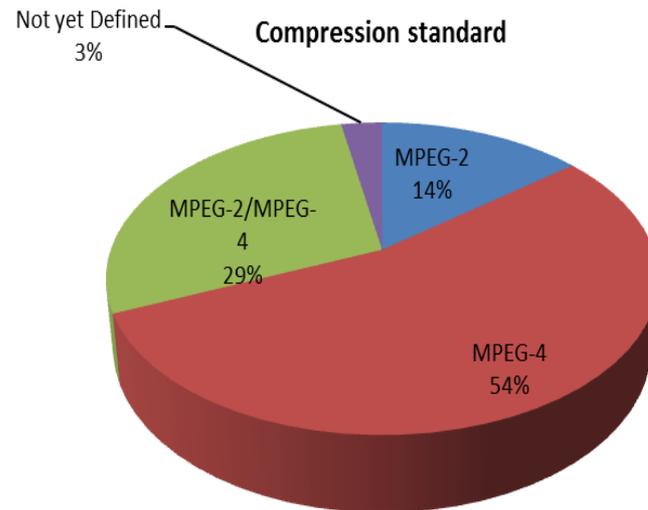
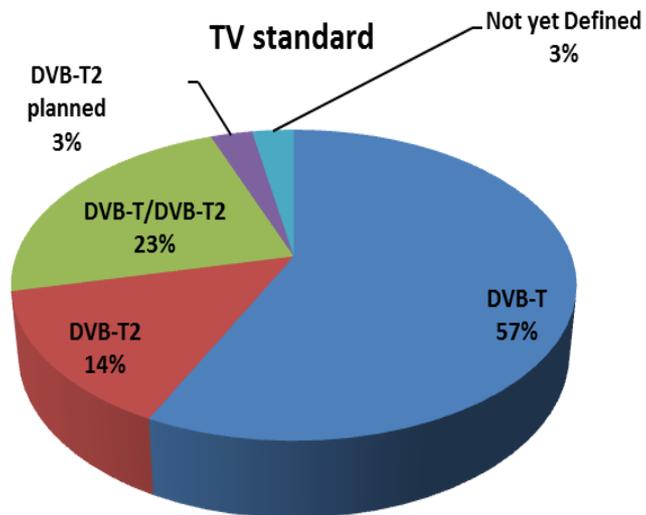


# DTT Technical

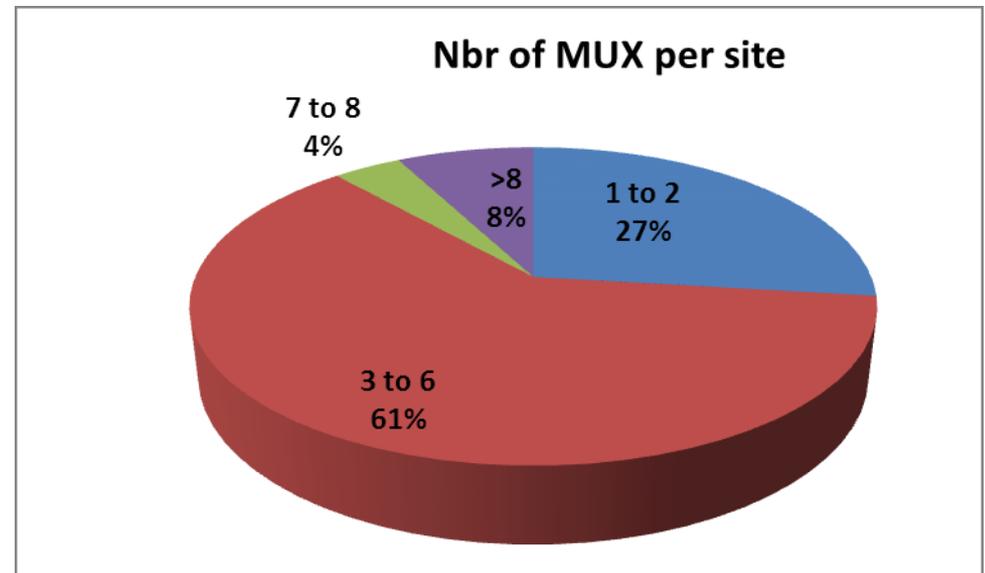
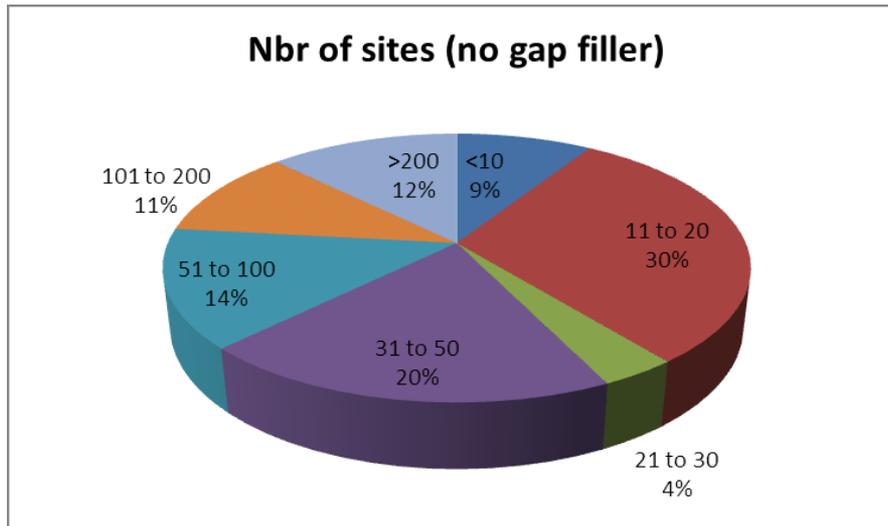
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- Over 50% of countries implemented DVB-T or a combination of DVB-T and DVB-T2.
- Only 3 countries started with DVB-T2.
- Over 50% chose MPEG-4. 10 countries use both MPEG-2 and MPEG-4 and only 3 countries use MPEG-2 the ones use DVB-T only).
- The number of sites varies naturally according to geographical sizes and terrain of the countries concerned.
- The majority of countries plan for 3 to 6 layers.
- 9 countries plan for 1 or 2 layers and 4 countries with 7 or more layers.
- Approximately 75% of countries select statistical multiplexing.

# Technology and video coding, HD



# Number of sites and MUX per site



# Coverage, bit stream, payload, gap filler

- Average digital coverage for the 35 countries is 95.05%
- Bit stream payload (bit rate of MUX)
  - For DVB-T and MPEG2, Bit stream payload ranges generally from 15 to 20 Mbps.
  - For DVB-T and MPEG4, Bit stream payload ranges generally from 22 to 25 Mbps.
  - For DVB-T2 and MPEG2, Bit stream payload ranges generally from 32 to 36 Mbps.
- Gap filler technical characteristics
  - Many countries indicated that gap fillers should be implemented as part of the SFN of the main stations. However, only two countries provided specific values of ERP: 22 and 30 dBW. Few countries allowed gap fillers to operate on different frequencies from the main stations (MFN).
- In nearly all countries mobile TV is permitted in the DTT licences, however, mobile TV has not been implemented.

# Others

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- Recycling scheme
  - Almost all countries have adopted some form of recycling scheme for obsolete analogue equipment. In some countries it's the responsibility of the operators for implementing such a scheme.
- Wireless microphone
  - In many countries the usage of wireless microphones is licensed on secondary basis.
- Any other plans for the future
  - In many countries future plans are under consideration
- Regulation for EMF (electromagnetic radiation)
  - In general, ETSI standards are in force and included as licence conditions in some countries.

# Further steps

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- Additional maps
- Conclusions
- Short summary table
- Draft report for comments
- Posting the updated/finalized report to the web with country replies attached

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# Thank you !

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