The 7th African Communication Regulation Authorities Network Conference
10-12 December 2013
Niamey, Niger

2015 – It's Tomorrow Challenges on the Road from Analogue to Digital Television

Pham Nhu Hai
Head, Broadcasting Services Division
Radiocommunication Bureau

International Telecommunication Union
Committed to connecting the w

Sannu! Fofo! Owyeen! Wushe!

- Tomorrow's Digital Television
- Challenges & Lessons learned
- Migration Status
- Conclusions

Viewers

More programs

Interactive

Better quality

Anywhere

Broadcast Equipments

Contents

New players

Better access

Small players

Competition

Diverse program

Government

Innovation

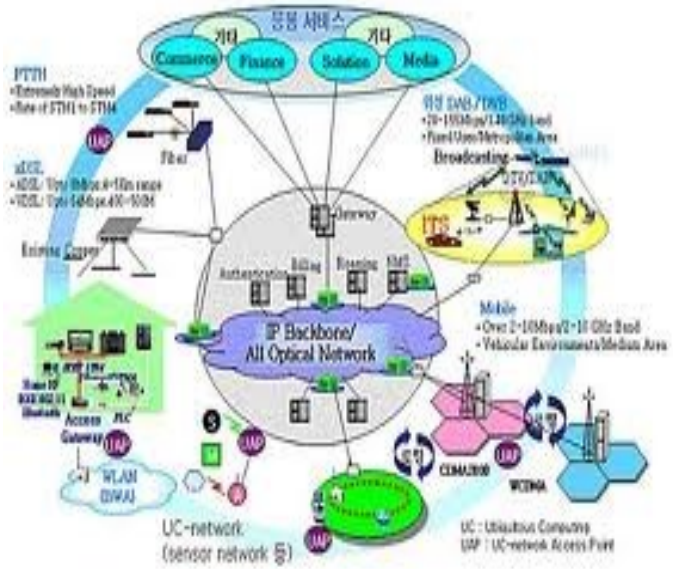
Competition

Market

Revenue

Convergence

CONVERGENCE



Spectrum Efficiency

Digital Dividend

- The digital dividend is the amount of spectrum made available by the transition of analogue television to digital.
- The digital dividend represents very significant amounts of spectrum.

Use of Digital Dividend

- Broadcasting services
  - provision of more programs, high definition, 3D or mobile television)
- Other services, such as the mobile service,
  - in a frequency band which could be shared with broadcasting (e.g. short range devices) or
  - in a distinct, harmonized allocation (e.g. IMT).

WRC 07 Decision

- 790-862 MHz – Region 1
  - 18% of the upper part of the UHF television broadcasting band
  - Broadcasting and Mobile equal right (co-primary)
  - Identify it for international mobile telecommunications (IMT)
  - Come into effect 17 June 2015

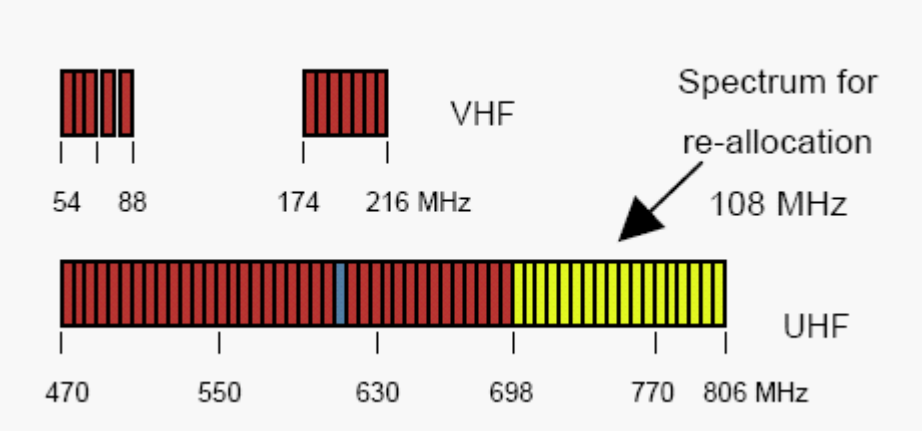
WRC 2012

- Spurred on by the African countries, together with those of the Middle East
- WRC-12, in a decision to be confirmed by WRC-15, broadened the field by adding a further 25 % of the band (694-790 MHz)

Concerted Decision

- Each Member State to decide whether to use the two bands for television or for mobile but potential interference requires a concerted decision
- ATU, and in particular its SG, Mr Abdoulkarim Soumaila, in securing the adoption of a concerted position on this matter on the part of all African countries.

The USA



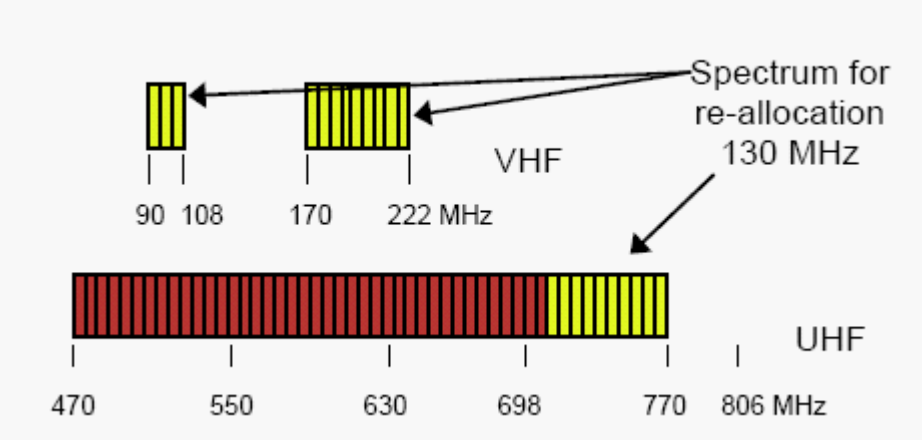
- Early identification
- Sold even before ASO – June 2009
- 18 X 6 MHz = 108 MHz

700 MHz Auction – Mar 2008

(Source: GSMA)

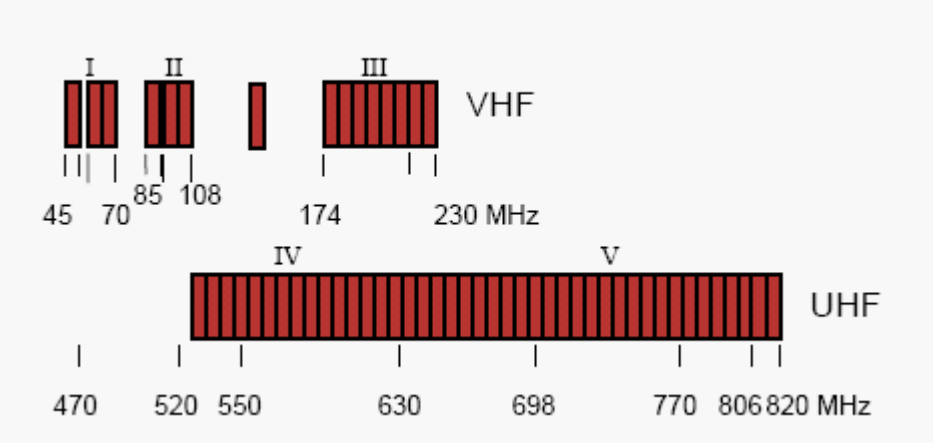
Verizon A, B & C	**$9.4 Billion**
AT&T Mobility B	**$6.6 Billion**
Frontier Wireless	**$711 million**
Qualcomm B&E	**$558 million**

JAPAN



- 10 UHF channels = 60 MHz
- VHF = 70 MHz
- A total of 130 MHz

Australia



- 126 MHz from 694-820 MHz
- Consultation on the digital dividend band configuration, licence design and the method of allocating the spectrum. The closing date for submissions is 6 Dec 2010.

Europe – 800MHz band to mobile

To be released (official decision already taken)

Considering release (waiting for official decision)

No information available

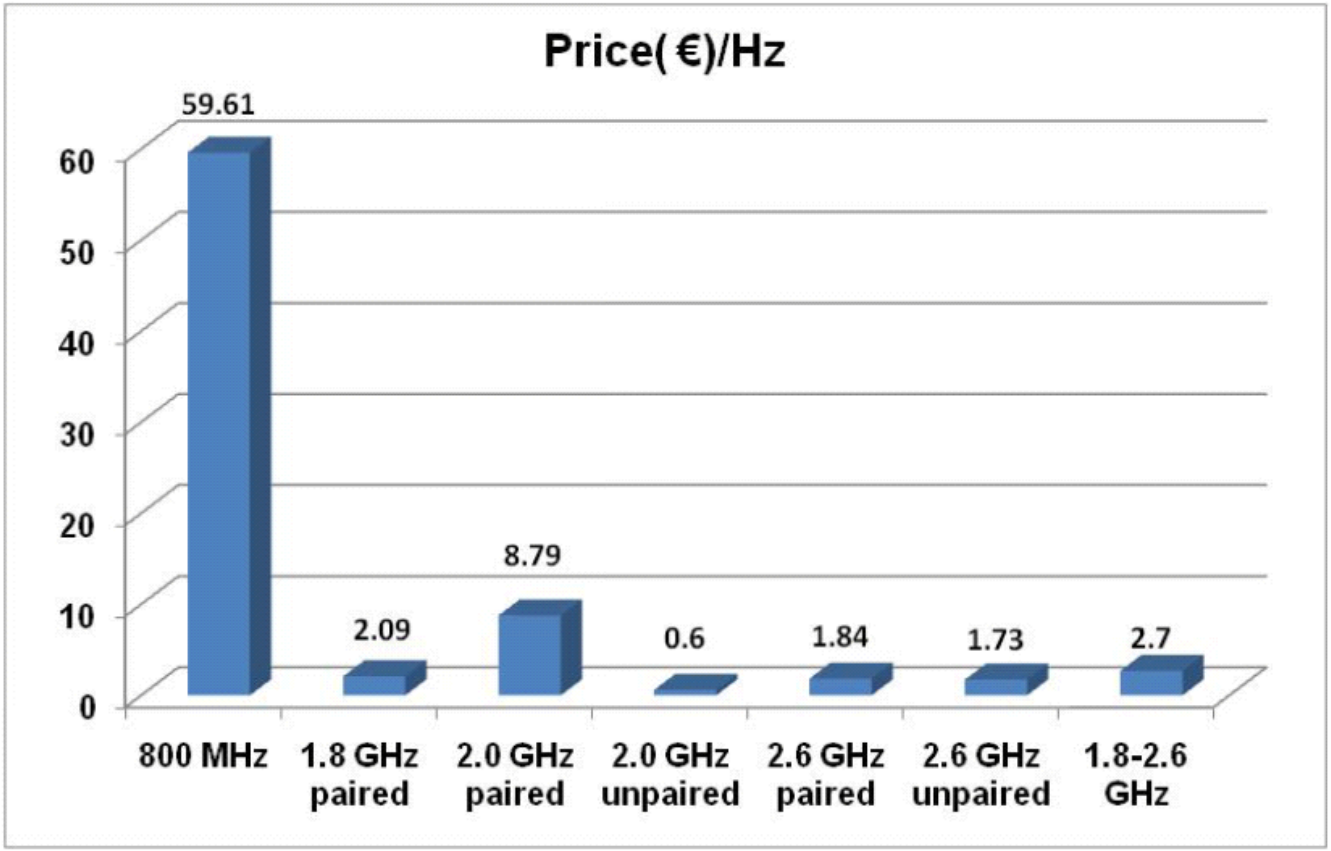
- **11 European countries** have already decided to release the 800 MHz band for non-broadcasting
- It includes **7 EU countries** out of 27

EBU·UER

International Telecommunication Union

Committed to connecting the w

Auction results - Germany



3.57/0.81 Billion for 60/300 MHz in 800MHz/other bands

Challenges

- Clear and timely legislative framework
- Well planned Analogue Switch-off
- Views communication and support
- Attractive digital offer
- Cooperation

Legislative framework

- Clear and predictable
- ASO time table
- Digital service requirements
- Licensing
- Access to spectrum
- Access to network (MUX)
- Create ONE entity to manage the process

Strategic questions

- Market structure
  - Competition or complimentary
- Services
  - SDTV, HDTV, Mobile, etc..
  - Pay or free-to-air
- Legal (licensing) framework
  - Delivery vs. content
  - Existing licences
  - Service access

Spectrum planning

- General frequency framework
  - GE06 Plan
  - Multi or bilateral plans
- Interim frequency assignments during transition period
- International coordination

Well planned ASO

- Clear strategies
- Clear timetable – Avoid confusion
- Good timing - avoid
  - Summer holidays period
  - Winter (difficult access to sites)
  - Weekends or major events
- Field measurements to ensure adequate digital coverage

Big or small bang!

- "Overnight" analogue switch off
  - Nation-wide or region by region
  - High risk, good planning required
  - Andorra, Finland, Luxembourg, Netherlands, USA
- Phase approach
  - Are by area
  - Australia, Austria, Czech Republic, France, Germany, Italy, Sweden, Switzerland, United Kingdom

Communication is the key!

(Source: OFCOM, UK)

Consumer awareness plan in UK						
	3-Years	2-Years	1-Year	<12 months	1 month	Switchover
National Launch of *SwitchCo*	"Get ready!"	"How to get ready!"	"Are you ready?"	Countdown: 'Switchover is happening!'	Countdown: 'Switchover is here!'	Switchover to 100% digital

Support is vital!

- Education
- Technical
- Financial
- Policy/legal

Viewers are Kings/Queens!

- Coverage of digital services
- "Killer" programs
- Availability of digital receivers or set-top boxes
- Publicity campaigns
- Assistance services

Cooperation is a must!

- Get everyone involved in ALL process
  - Governments and regulators
  - Public Service Broadcasters
  - Private and commercial broadcasters
  - Cable and satellite platforms
  - Manufacturers of professional and consumer equipment
  - Retailers and antenna installers

ITU's responses

- Disseminate information
- Conduct technical studies – sharing between mobile and other services
- Provide assistance to administrations
- Ensure effective use of spectrum

Report ITU-R BT.2140

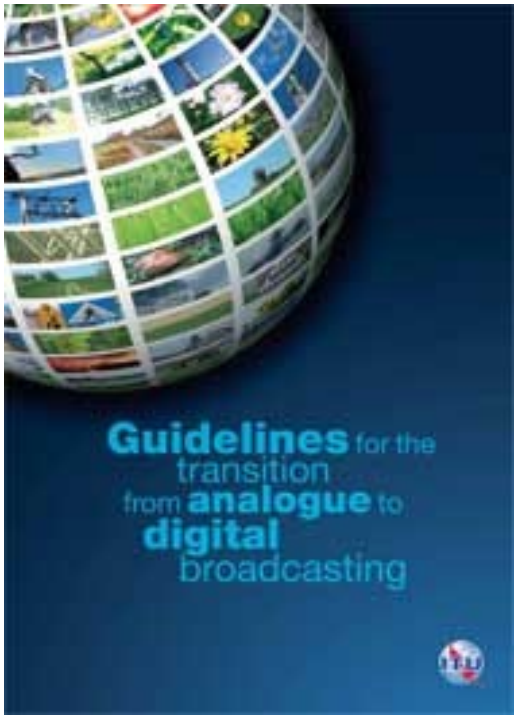
- **WP6E**
- Report on **Transition from analogue to digital terrestrial broadcasting**
  - **Overview of technologies**
  - **Available options**
  - **Route to follow**

Handbook on digital television implementation

- Digital TV principles
- Digital TV broadcasting
- Digital multimedia broadcasting
- Interactive TV
- Digital content protection and management
- Quality in digital TV
- Networks aspects
- DTV Receivers

Guidelines and Roadmaps for the transition from analogue to digital broadcasting

- Guidelines designed to provide information and recommendations on policy, regulation, technologies, network planning, customer awareness and business planning
- Guidelines developed for African countries (involved in GE-06) and posted on ITU web for free download http://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



International Telecommunication Union

Committed to connecting the w

Guidelines

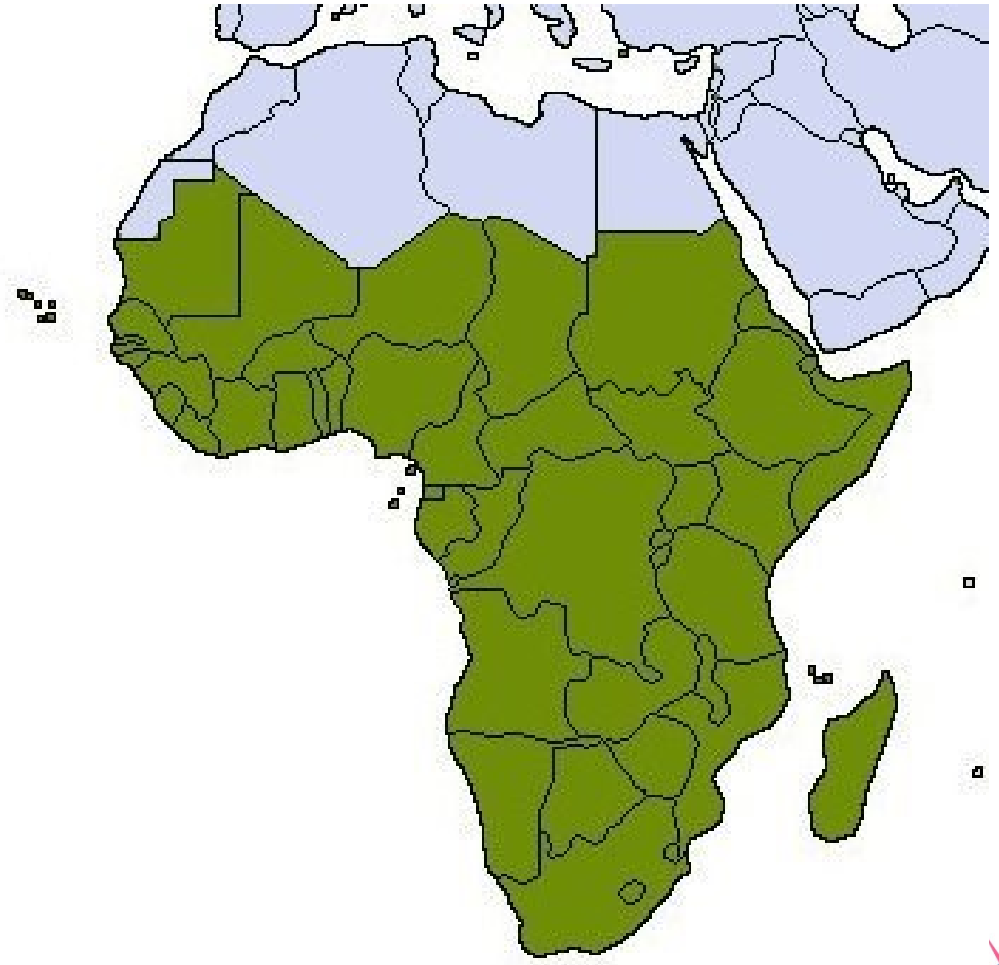
- Provide information and recommendations on
  - Policy & Regulations
  - Technologies
  - Network planning
  - Customer awareness
  - Business planning
- Available for download from ITU Website

Provide assistance

- Training Seminars
- Assist in coordination with neighbouring countries
- Develop and make available softwares
  - Planning software
  - Coordination software
  - Conformity software

MIGRATION STATUS WORLDWIDE

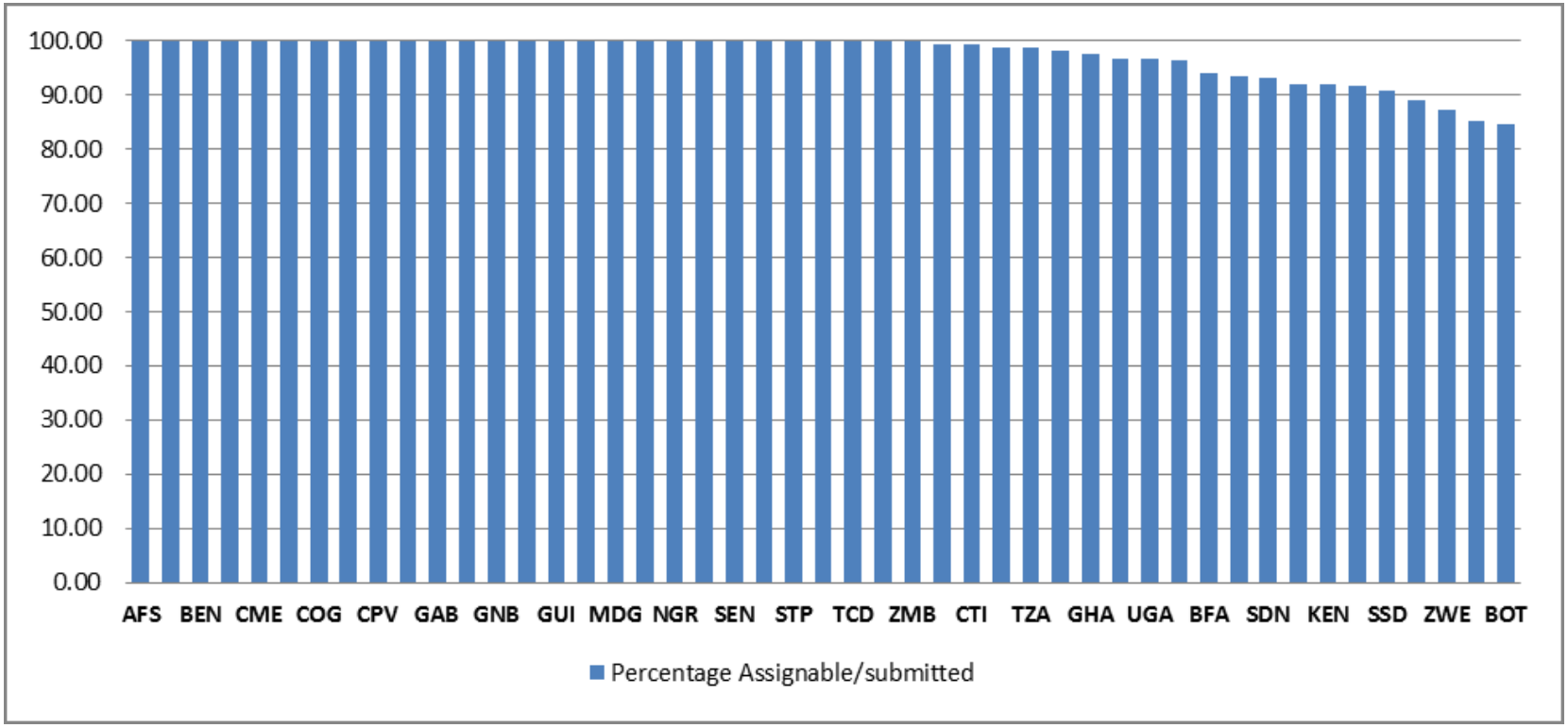
Sub-Saharan Countries



Planning Objective

- To identify a minimum of 4 coverage layers (multiplexes) for the territories of all sub-Saharan African countries
- Above 694 MHz for Mobile service (Digital Broadband)

Iteration 33



http://www.itu.int/ITU-R/terrestrial/broadcast/ATU/index.html

Asia Pacific ASO Timetable

ECONOMIES	Year	System	Mobile
AFGHANISTAN	ND		
AUSTRALIA	2013	DVB-T	
BANGLADESH	2015	DVB-T	
BHUTAN	2020	DVB-T/T2	
BRUNEI DARUSSALAM	2015	DVB-T	
CAMBODIA	2015	DVB, DTMB	T-DMB
CHINA, PEOPLE'S REPUBLIC OF	2018	DTMB	CMMB
COOK ISLANDS	2020		
DPRK	ND		
FIJI	2014		

Asia Pacific ASO Timetable..

HONG KONG (CHINA)	2015	DTMB	
INDIA	2015	DVB-T/T2	
INDONESIA	2018	DVB-T	
IRAN, ISLAMIC REPUBLIC OF	2020		
JAPAN	2012	ISDB	ISDB
KIRIBATI	ND		
KOREA, REPUBLIC OF	2012	ATSC	T-DMB
LAOS	ND		
MALAYSIA	2015	DVB-T	
MALDIVES	ND	DVB-T, ISDB-T	

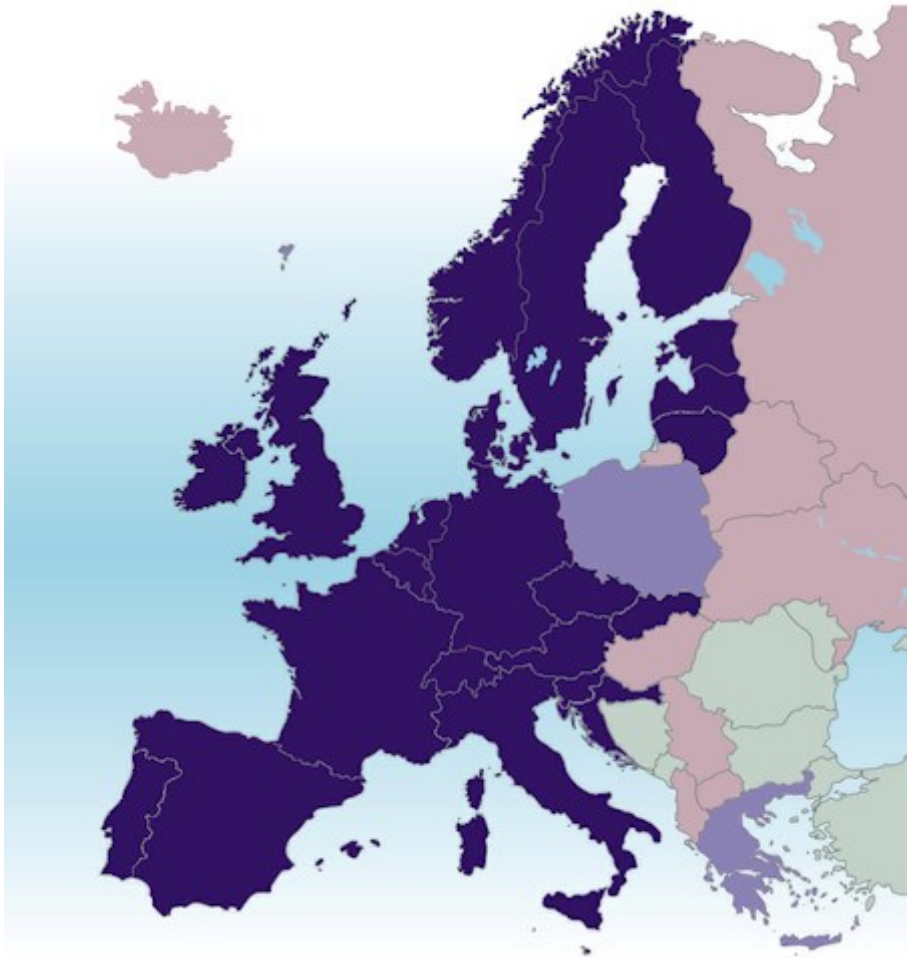
Asia Pacific ASO Timetable...

ECONOMIES	Year	System	Mobile
MARSHALL ISLANDS	ND		
MICRONESIA	ND		
MONGOLIA	2014	DVB-T2 (-T)	CMMB/DMB-T (DVB-H)
MYANMAR	2020	DVB-T2	
NAURU	ND		
NEPAL	2017	DVB-T2	
NEW ZEALAND	2013	DVB-T	
PAKISTAN	ND		
PAPUA NEW GUINEA	ND		

Asia Pacific ASO Timetable

PHILIPPINES	2018		
SAMOA	ND		
SINGAPORE, REPUBLIC OF	2015	DVB-T/T2	
SOLOMON ISLANDS	ND		
SRI LANKA	2017	DVB-T2	
THAILAND	2015		
TIMOR LESTE	ND		
TONGA	2014	DVB-T2	
TUVALU	ND		
VANUATU	ND		
VIETNAM, SOCIALIST REPUBLIC OF	2020	DVB-T	

Europe 2013



Countries which have not yet formally launched

Countries with some DTT services launched

Countries with analogue switch off (ASO) process underway

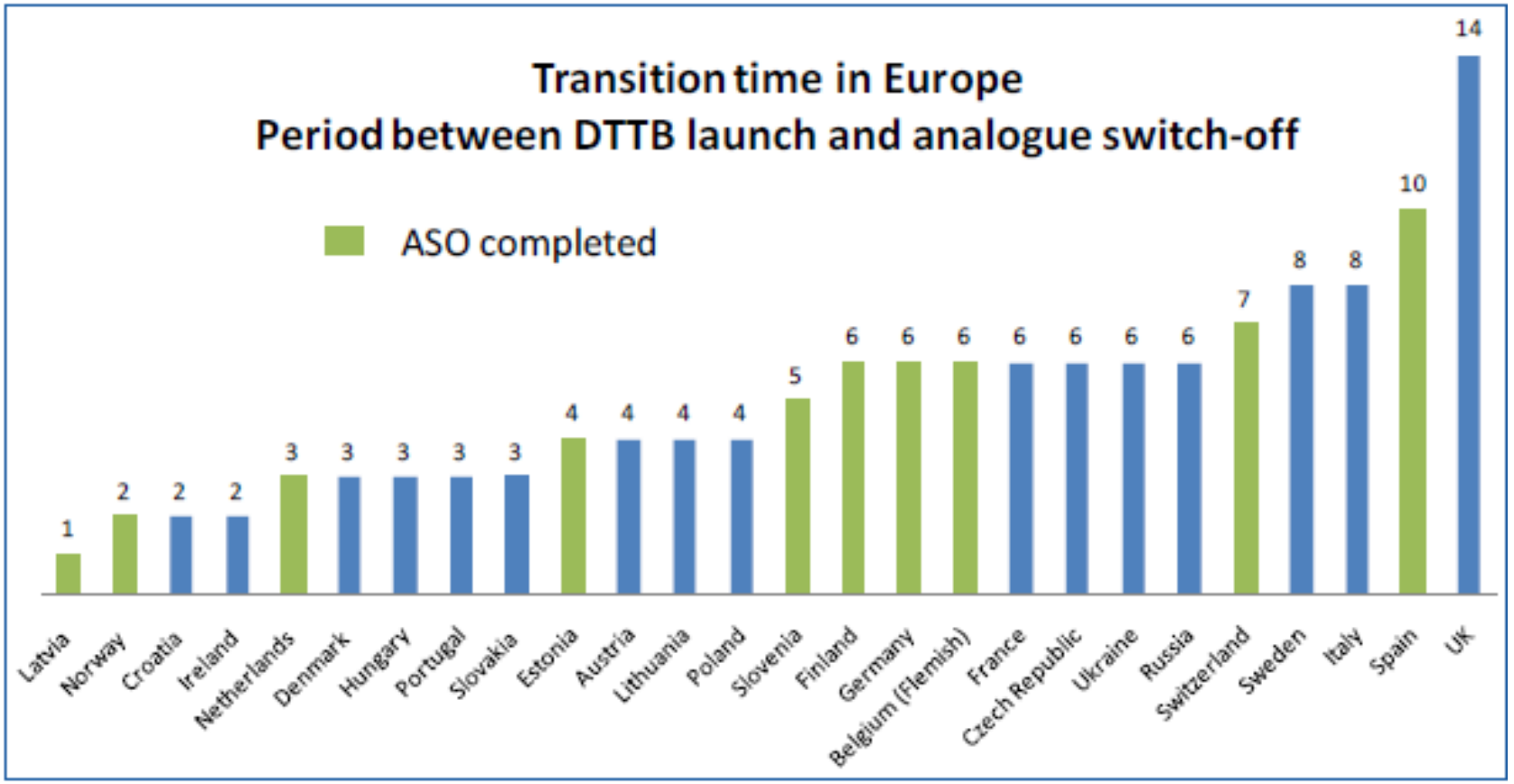
Countries which have completed ASO

DigiTAG

International Telecommunication Union

Committed to connecting the w

Transition Periods



- Preparation and planning time: 2 to 8 years
- Implementation and ASO time: 1 to 14 years
- Countries starting later need in general less time

CONCLUSIONS

Digital television migration is NOT just about Television!

Don’t have to invent your own wheel.

2015 – IT'S TOMORROW!

Double the EFFORT! Work together!

Thank you for your attention!

Pham.hai@itu.int