

EBU **TECHNICAL**



The digital Switchover – challenges and lessons learned

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Digital Switchover, why are we doing this?

- **Digital television offers new possibilities for the viewers:**

- Additional number of programmes
- Additional reception modes: portable and mobile reception
- Improve quality of image and sound including HDTV
- Additional type of services: interactivity, Electronic Programme Guides, etc.

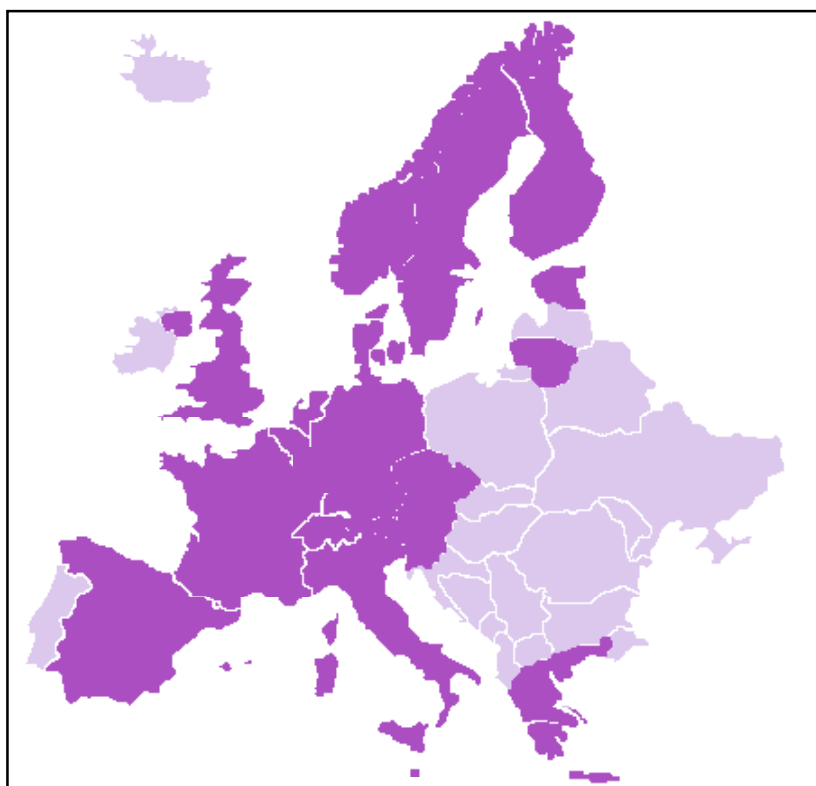



- **For regulators:**

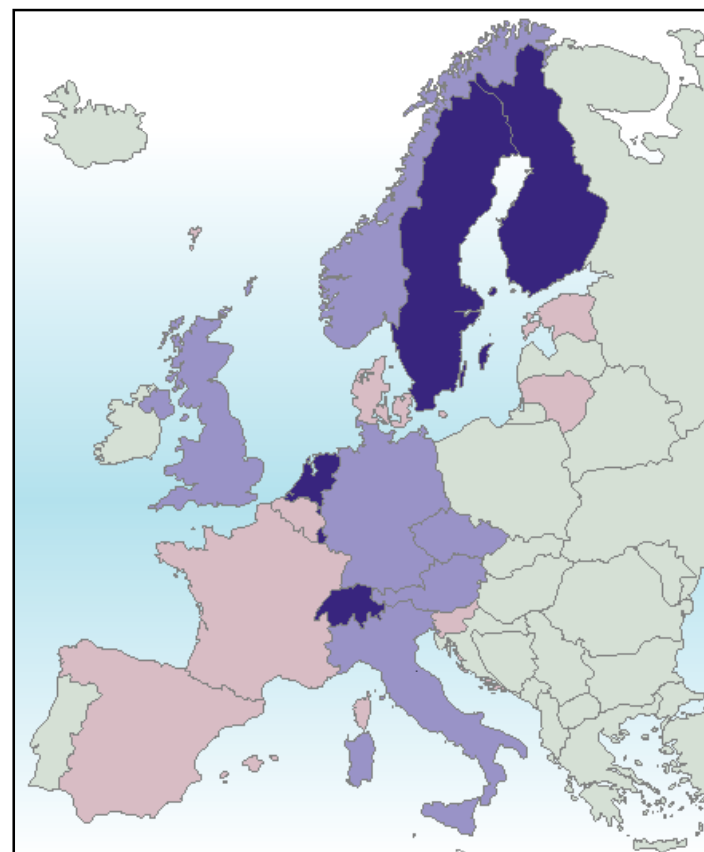
- Fair competition: To develop a terrestrial platform competitive with cable and satellite platforms
- To be in line with GE06 Plan (as from 2015 no protection of analogue TV)
- **Efficient use of spectrum**





Status in European countries (source: DigiTAG)



 Countries having launched DVB-T



 Countries having switched off analogue (ASO) (Germany to be added to the list)

 ASO process underway



National DTT offer

	Country	Free-to-air	Pay	Analogue
A Terrestrial	France	18 (+3 HD)	14	3 (+3)
	Italy	31	PPV	10
	Spain	20	0	5 (+1)
	UK	40	PushPVR	4 (+1)
B Cable	Belgium	2/3	TBC	2
	NL	3	21	3
	CH	4	0	4
	Germany	~24	0	3-12
	Austria	6	0	3
C Nordic	Denmark	4	TBC	2
	Finland	15	19	4
	Norway	5	20	2
	Sweden	10	27	3



Different strategies of DTT launch

UK	<ul style="list-style-type: none"> • Launch in 1998 of ITV pay-TV services • Re-launch in 2002 of Free-view free-to-air services • 2004: creation of SwitchCo (now Digital UK) to lead switchover process • 2008: 6 muxes: - 30 to 40 free-to-air DTT services - one pay DTT bouquet (on-demand TV) 	Free-to-air offer with appealing content
Sweden	<ul style="list-style-type: none"> • Early launch in 1999, 3 DVB-T Muxes 50% coverage – slow start • 2004: Government puts in place legislative framework • 2008: - 5 muxes, one in MPEG4 AVC format (may be HDTV in 2009) - 10 free-to-air and 27 pay DTT services 	Successful Pay-TV offer
Germany	<ul style="list-style-type: none"> • Launch in 2002 in Berlin region only; • Very short simulcast period (between 9 to 3 months) • 2008: 6 muxes, ~ 24 free-to-air DTT services 	Launch region-by-region
France	<ul style="list-style-type: none"> • Launch in 2005 with 35% coverage increased progressively; 5 Muxes + 1 mux HDTV • France Télé numérique created to guide switchover • 2008: Government decision for 11 DTT muxes 95% coverage + 2 DVB-H after ASO 	MPEG4 for pay DTT services

Strategy



Announced ASO dates

	Country	DTT Launch	ASO Date
Nordic / Cable	Netherlands	2003	Completed
	Finland	2001	Completed
	Sweden	1999	Completed
	Switzerland	2001	Completed
	Germany	2002	Completed
	Belgium, Flemish	2002	Completed
	Denmark	2006	2009
	Norway	2007	2009
	Austria	2006	2010
Terrestrial	Spain	2000/2005	2010
	France	2005	2011
	Czech Republic	2005	2011
	UK	1998	2012
	Italy	2003	2012



Approaches to ASO

- **National shut-off of analogue services**

Approach used in the Netherlands, Finland, Andorra, Luxembourg, United States

- **Phased shut-off of analogue services**

Approach used in Germany, Italy, Sweden, Switzerland, Czech Republic, Austria, France, Spain and the United Kingdom



DTT penetration vs coverage

Country	DTT Coverage	DTT Penetration	Yrs launched
UK	80%	39%	10
Spain	89%	37%	8
Italy	85%	27%	4
Germany	90%	~10%	4
France	87%	30%	3

- In Europe, lack of frequencies

↳ Difficult to improve coverage before ASO

↳ Difficult to increase DTT penetration

↳ Difficult to switch off analogue!

- Experience has showed that DTT penetration increases very rapidly the last months before ASO

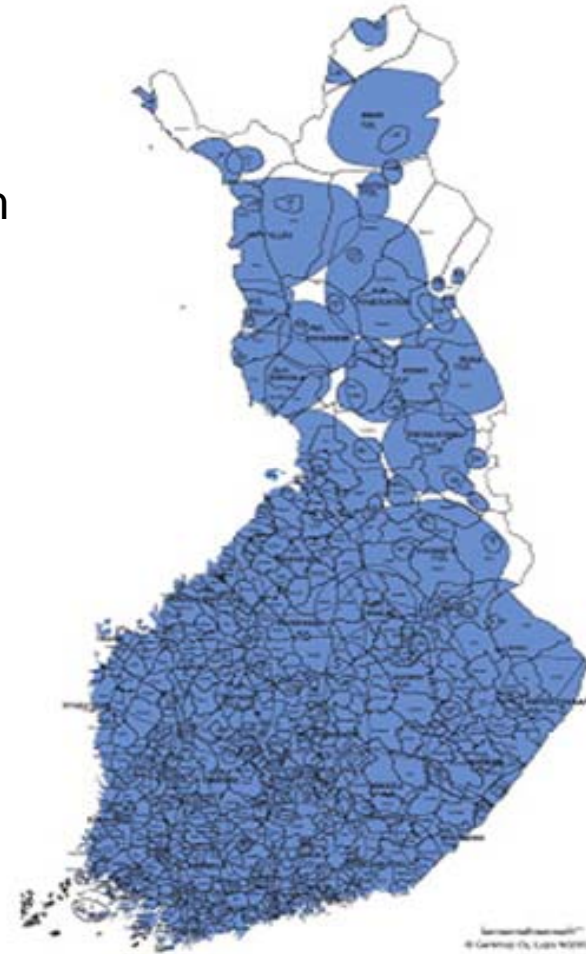


ASO completed overnight: Finland

- National ASO on 31 Aug 2007 for all platforms (finally cable was postponed to Feb 2008)
- Leading role taken by Ministry of Transport & Comm

Problems that arose:

- Viewers unprepared
- Receivers did not work as expected (subtitles)
- Reception coverage was not as good as analogue
- The day of ASO was during Weekend
- PSB were on frontline of critics



Preparations for ASO in USA

- National ASO on 17 February 2009 to be done overnight
- 15% terrestrial penetration: 17 million viewers!
- Today: at least 9.6 million viewers unprepared! Mainly low-income and ethnic minorities
- Coupon programme: Government funding to help ease the transition:
 - 2 x 40\$ on a first-come first-served basis
 - Not enough funding for last minute demand
 - Not the most needed people had coupons
- ASO trial in Wilmington:
 - Receive coverage problems: not as good as analogue
 - Viewers lacked technical information
 - How to install digital receivers and how to scan new digital services
 - Fixed roof-top antennas needed to be re-pointed or modified
- No single entity responsible for planning switchover and putting together all efforts.



Key challenges of the Digital Switchover

- **Technical challenges – size of the conversion task**
 - Analogue transmitters to be replaced with digital equipment
 - New frequency planning, new frequencies for many transmitters, coverage issues
 - Different time schedules in different countries: not all countries are going digital at the same time
 - Share spectrum with analogue television, protect analogue services during transition
- **Consumer related challenges – Digital refuseniks**
 - Viewers have to buy new receivers, to adapt receive antennas
 - Difficulties for elder and less wealthy population to accept new technology



Big Investment !



Key factors for success: viewers must be prepared

- **Communication is key:** viewers must understand what will happen, when and how to prepare

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

- **Financial support may be necessary:** subsidizing digital receivers/antennae modifications
- **Mandating digital tuners:** policy tool used in France and USA. Planned in Italy.



Key factors for success: quality of the digital offer

- **The service offer should be attractive:**
 - At least 20-25 programmes including simulcast of analogue (continuity of services is essential) plus new digital services
 - Free-to-air services be the core of the offer but pay-tv services to be included also: they create new business in the terrestrial distribution platform
- **The service offer should be technically of high quality**
 - The DTT parameters (modulation scheme, FEC rate, guard interval, etc.) should be adapted to the reception conditions
 - The data capacity per programme in the mux should be large enough to ensure better image quality than analogue
 - The coverage should at least match the analogue one – gap fillers if needed
 - Good digital receivers that fulfill reception specifications
 - Avoid many changes (in frequencies, in parameters, etc.)
 - Minimise simulcast (expensive and frequency demanding)

Viewers should not be disappointed



Key factors for success: cooperation of all actors

- **It is essential that all actors of the broadcasting chain COOPERATE and work together:**
 - Public Service Broadcasters
 - Private and commercial broadcasters
 - Cable and satellite platforms
 - Manufacturers of professional and consumer equipment
 - Installers
 - Governments and regulators
- **Create a FORUM in charge of the switchover process**



www.impulsatdt.es



www.francetelenumerique.fr

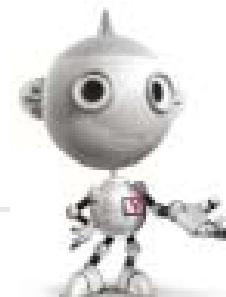


www.digitaluk.co.uk



Key factors for success: information campaign

- **Who?** - VIEWERS: it should support viewers during the whole process
 - Professionals (manufactures, installers): equipment should be available on time and at right cost
 - press/media: to avoid bad press
- **How?** - Simple to address different type of population
 - Short if not people lose interest
 - Good indication of time schedule
 - Create attractive logos and slogans
- **Where?** - Everywhere: Web, TV, newspapers, shops, street, brochures/letters, transport
- Create **call centers** to answer consumers questions and to guide them.



Key factors for success: well planned ASO

- **Strategy:** overnight or by area; short process or long process
- **Good timing:** avoid summer (holiday periods) and winter (more difficult to upgrade external equipment), weekends and coincidence with major events (political, sports or others)
- **Identify the best area where the process should begin:** areas where the park of digital receivers at home is high and where any community antenna changes have been done
(in France, Spain, UK an observatory has created to quantify digital equipment at homes)
- **Identify the best channels where the process should begin:** areas where the DTT coverage is as good as analogue
- **Do pilot experiments by zone to learn lessons:** reaction of viewers and technical difficulties to be improved (e.g. in Spain, UK, USA, Italy etc.)



Key factors for success: legislative framework in place

Early involvement of Government and regulators is essential to put in place the necessary legislative framework

- To define switchover strategy including ASO time schedule and strategy in function of the conversion task
- To define requirements for DTT reception conditions and for coverage
- To give DTT licenses for free-to-air and pay-tv services
- To create a funding, if needed, to ensure sufficient financial structure
- To ensure adequate digital receivers are in market at a reasonable price
- To mandate digital tuners to manufacturers as from a certain date
- To speed up spectrum coordination with neighbouring countries
- To create a Forum in charge of the switchover process, if it does not happen naturally

Because... COOPERATION is essential as well



The switchover process is complex but ...

- Effective communication campaign
- Cooperation and coordinated efforts of the whole broadcast industry
- Government and regulators support and involvement
- Strong leadership
- DTT receivers available in the market on time at a reasonable price
- Adequate financial resources available

... contribute to a successful Analogue Switch off



Thank you for your attention !

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