

CSTB 2009

Broadcasting challenges in the Internet age

Presented by

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Broadcasting challenges in the Internet age

Main issues

From Editorial of EBU Technical Review, Edition 2008-Q4;

considering successful broadcast developments:

“Objectively, it doesn’t take long to see that the highest prospect of success probably comes with Internet applications such as catch-up TV.

It has a lot on its side. Users and broadcasters need no investment in equipment or infrastructure – the users already have PCs.”

- **Developments in broadcasting**
 - Digital Switch-Over
 - HDTV
 - Internet TV
- **Developments in Internet**
 - Globalisation
 - Social networking
 - Delivery
 - Mobile access
- **Conclusions**

Developments in broadcasting

Next five years
↓

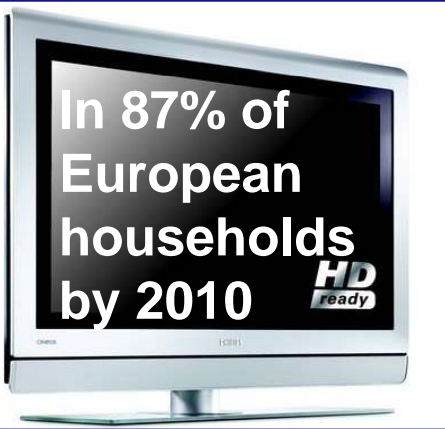
Digital Switch-Over



Driven by free-to-air broadcasting

Transition to digital terrestrial broadcasting almost completed

HDTV



Holiday videos will be of better technical quality than standard TV

TV production equipment will be only HD
All receivers sold will be HD ready

Internet TV



Consumers clearly prefer professional content, but do not want to pay

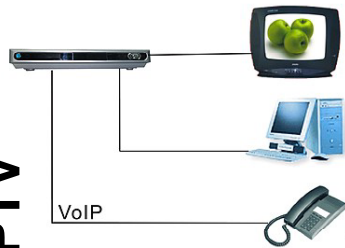
Internet TV will have as many users as traditional broadcasting

Developments in broadcasting

Success to be proven



IPTV



**“Closed garden”
IP delivery of
television**

- **Business models are based on pay services and subscription**

Mobile TV



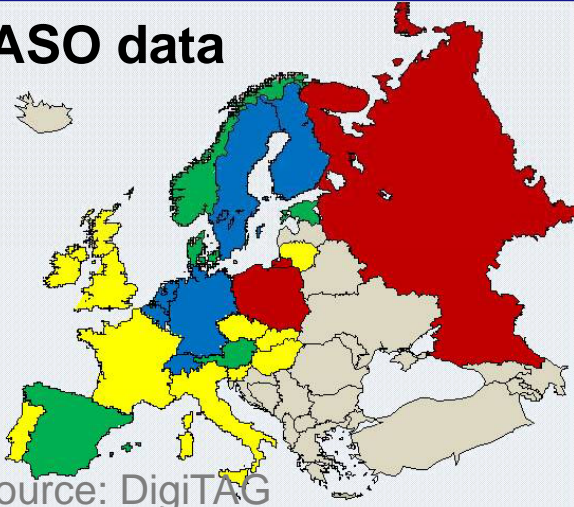
- **TV reception on mobile phones and PDAs**
- **Using broadcasting systems: DVB-H, DMB, MediaFlo**
- **Using 3G and 4G mobile telecom systems**

- **All need programmes and content that people are willing to pay for**
- **Broadcasters will contribute, but likely not start these services or take financials risks**

Developments in broadcasting Digital Switch-Over

In 5 years almost
completed

ASO data



Source: DigiTAG

Completed

2009 - 2010

2011 - 2012

2013 - 2015

No data

● Analogue Switch Off (ASO)

- Before 2012, recommended by European Union
- After 2015, no protection of analogue television according to GE06 Agreement

● DTT introduction

- GE06 Agreement provides for at least 6 multiplexes
- Depending on national decisions regarding “digital dividend”
- Each multiplex with 4 to 8 SDTV, or 2 to 3 HDTV services

Developments in broadcasting

Digital Switch-Over

Digital
dividend

Analogue TV
transferred to
digital



VHF & UHF
TV spectrum

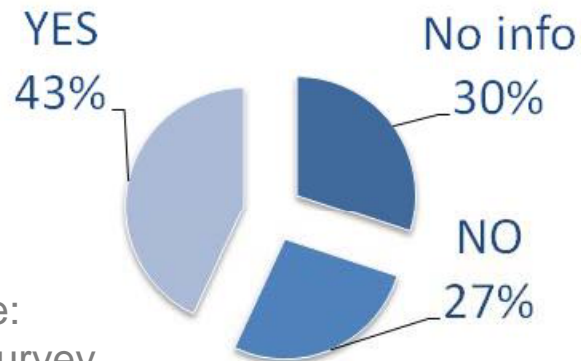
● Three ways of using the digital dividend

- Improvement of terrestrial broadcasting services
- Converged broadcasting services
(“hybrids” of traditional broadcast and mobile communication)
- New use
(not yet marketed or e.g. extensions of 3G services)

Developments in broadcasting HDTV

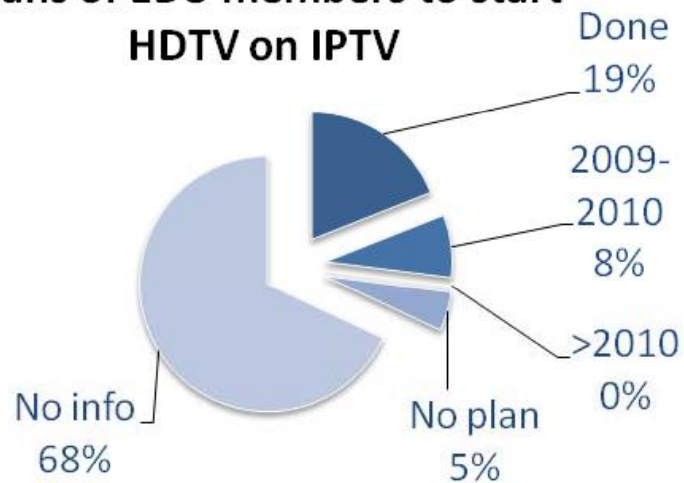
In 5 years also
HD transmissions

Plans of EBU members for simulcasting HDTV with SDTV in short term



Source:
EBU survey

Plans of EBU members to start HDTV on IPTV



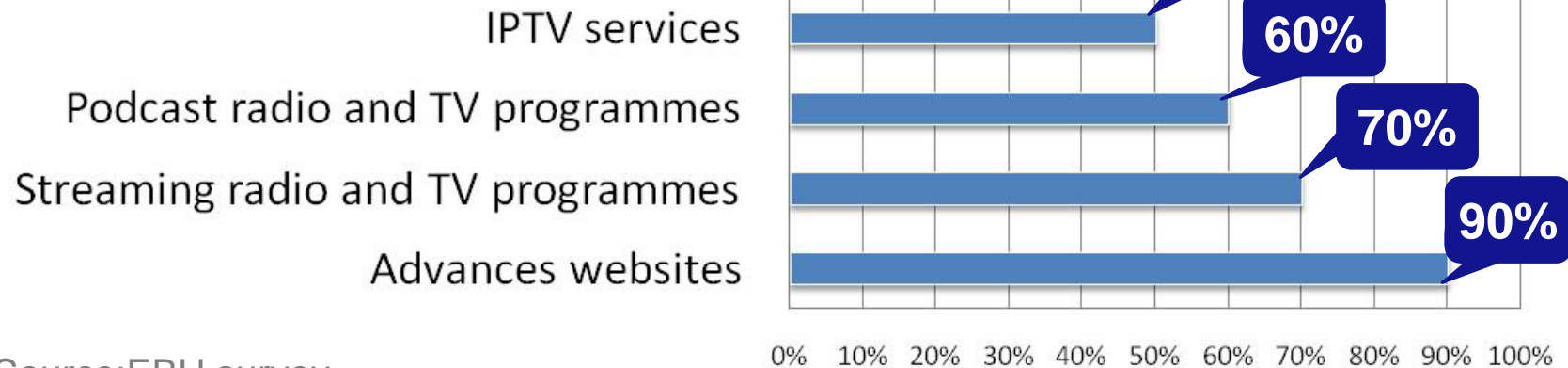
Source: EBU survey

- **HDTV delivery via cable, satellite, terrestrial networks and IPTV**
- **Major sport events trigger HDTV implementation**
 - Soccer/Vancouver 2010
 - Olympics 2012
- **Supporting conditions for HD with DTT**
 - Analogue switch off
 - Improved standard (DVB-T2)
 - Use of Digital dividend

Developments in broadcasting Internet TV

In 5 years of
equal importance

EBU members on Internet today



Source: EBU survey

- **Addition of broadband as means of delivery**
 - 70% of EBU members believe Open Internet and IPTV services will be at least as important as traditional broadcasting in future
 - Most common projected timescale for this is 2012 - 2015

Developments in broadcasting Internet TV

Hybrid consumer
equipment



Netgear Internet TV
set top box



Pure Internet radio,
DAB, FM receiver



Philips
Internet TV

Sony Bravia Internet
video link module

Nokia N96



- Not only reception by using a pc
- Also via radio and TV sets

Developments in Internet

Reaching the limits?
↓

Globalisation



Large media groups are extending influence online

Top-100 properties reach almost 100% of on-line population

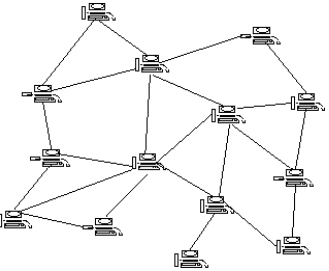
Social networking



Consumption of video online had double digit growth in 2008

Driven by social networking and user-generated content sites


Delivery



Doubts if current Internet infrastructure can support mass video content delivery

Emerging P2P networks will increase video consumption

Mobile access



Mobile video via broadcast networks or telecom networks?

Competing for the same scarce spectrum

Developments in Internet Globalisation

Large media groups extend influence



Long tail curve

Top-100 web properties reach of online population

2007: 96.5 %

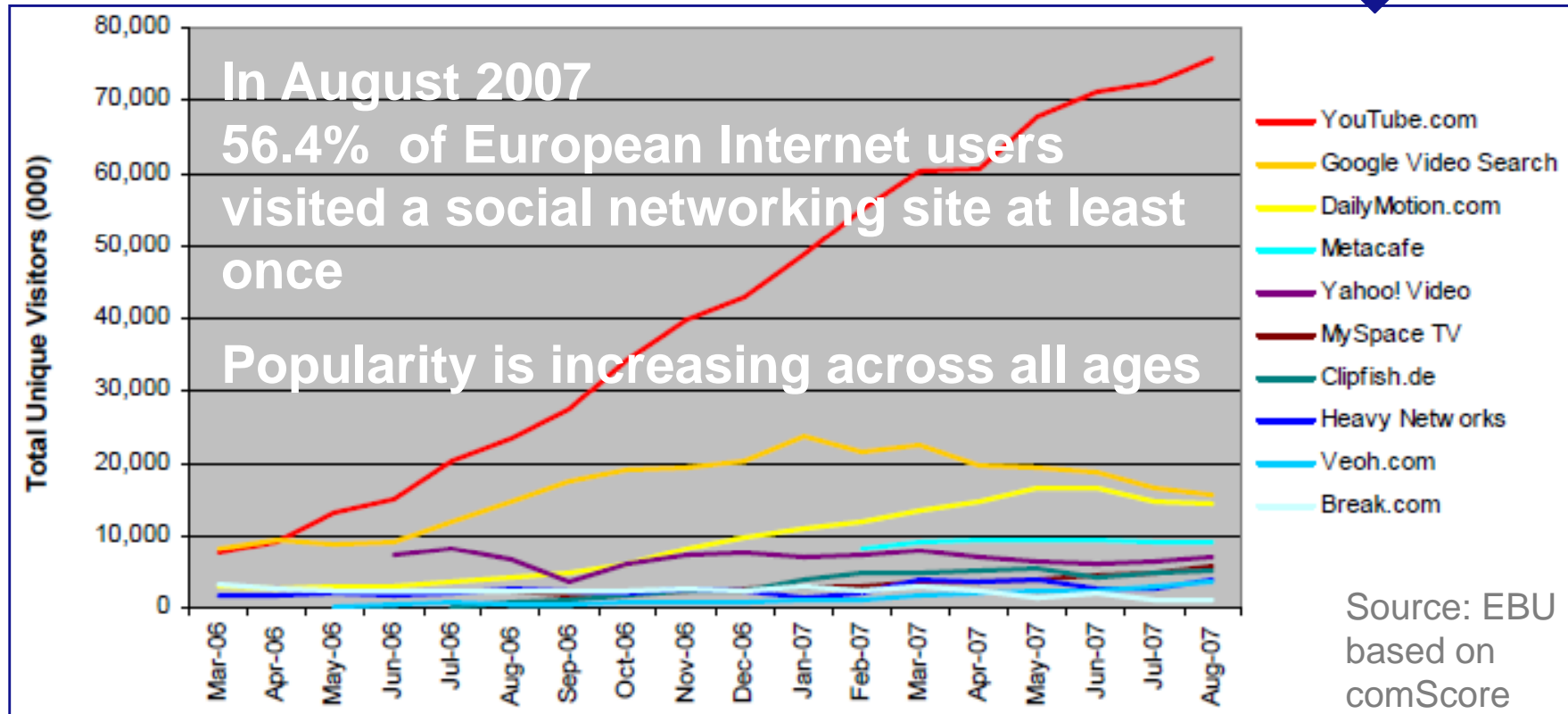
2008: 97.3 %

The so called “long tail” has a very thin tail

- **0.8 - 1 billion people use the web**
 - > 4.5 billion radio and TV users
- **Top-10 web companies are large US companies**
 - Launching European versions of their websites
 - > 50% of traffic to the top-25 US web properties comes from Europe and other regions
- **Many broadcasters make use of YouTube to reach new audiences**

Developments in Internet Social networking

Great success for video sharing



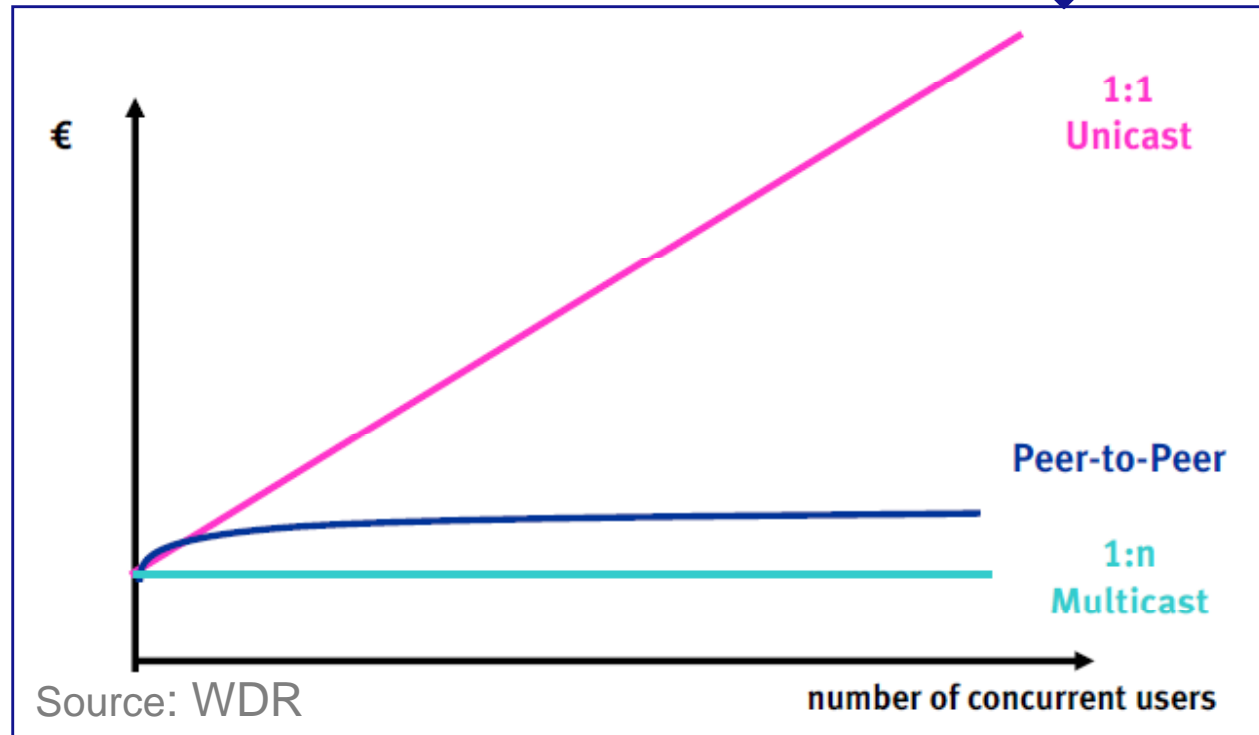
- **The tide is moving to “social objectives”**
 - Greater contribution by the user
 - Greater communities by users
 - These are social, not business, objectives

**Public
broadcasters
are well
placed for
this**

Developments in Internet Delivery

Internet video delivery

- Content Delivery Networks (CDN) using unicast
- Peer to Peer (P2P)
- IP Multicast



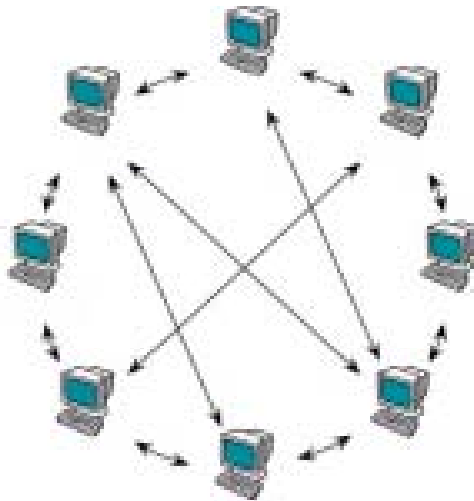
- Video consumes an inordinate amount of bandwidth compared to other Internet applications
- Regulators and ISPs are expressing concern that more video usage online will raise costs for broadband companies and disrupt overall service

Developments in Internet P2P Networks

P2P will increase
video consumption



Peer to Peer (P2P)



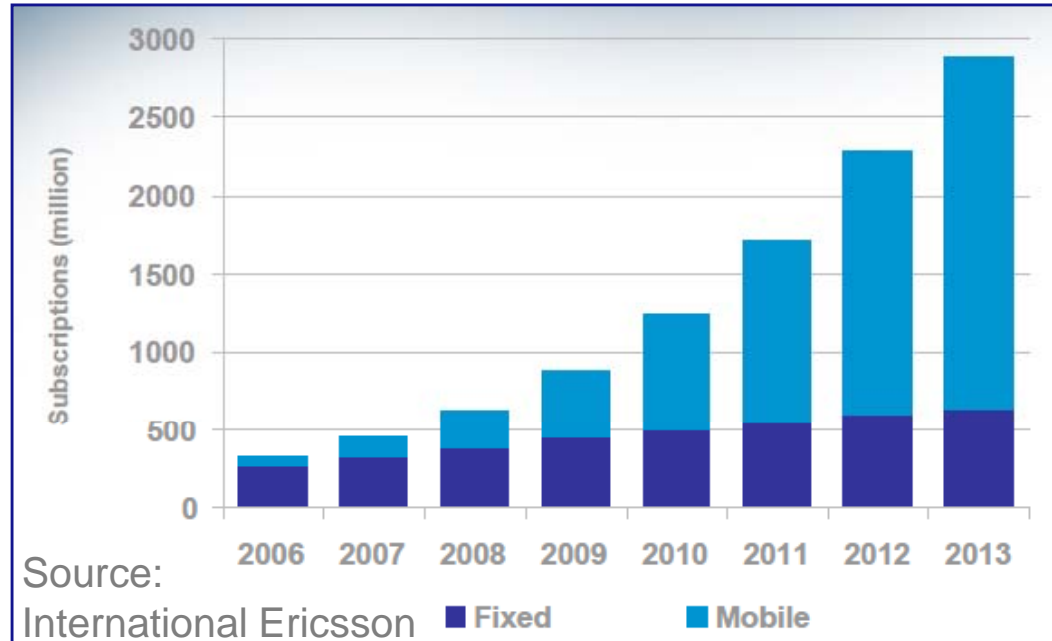
P2P traffic
consumes up to
75 % of all
bandwidth.

- **6-month EBU trial - powered by Octoshape- was successful:**
 - All the tested technical and operational requirements where fulfilled
- **Asymmetrical links have an adverse effect on P2P performance**
- **Pure P2P performance if:**
 - Upload bitrate > streamrate and sufficient users
- **P2P provider needs to contribute just as much bandwidth resource as peers are not able, willing or allowed to provide**

Developments in Internet Mobile Access

Competing for the same spectrum

75% of Internet subscribers are mobile in 2013



- **Internet TV by fixed or mobile by telecom networks**
 - Fixed networks using i.a. DSL, cable modems, wireless broadband
 - Mobile networks using i.a. CDMA, HSPA, LTE, Wimax
- **Some mobile operators claim 160 MHz in the UHF TV band (20 of the 49 channels) as “digital dividend”**

Conclusions

- **Broadband will add to range of delivery options, but never replace traditional broadcasting**
- **The greatest force for change is Internet**
 - The infrastructure exists
 - Picture quality is becoming “watchable” with broadband connections and P2P technologies
- **Rise in technical quality is inevitable**
 - HD will be the norm
- **Network capacity will need to increase, mobile Internet access below 1GHz will not provide future proof service**
- **Free to air broadcasters are well placed to meet the Internet TV challenges**
 - Their mission is to reach viewers and listeners, not to make a large profit

Thank you for your attention

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