# Digital TV and mobile broadcast

## The EU funded R&D perspective

**EU-Brazil Information Society Dialogue**
**Brussels, 15-16/09/2005**

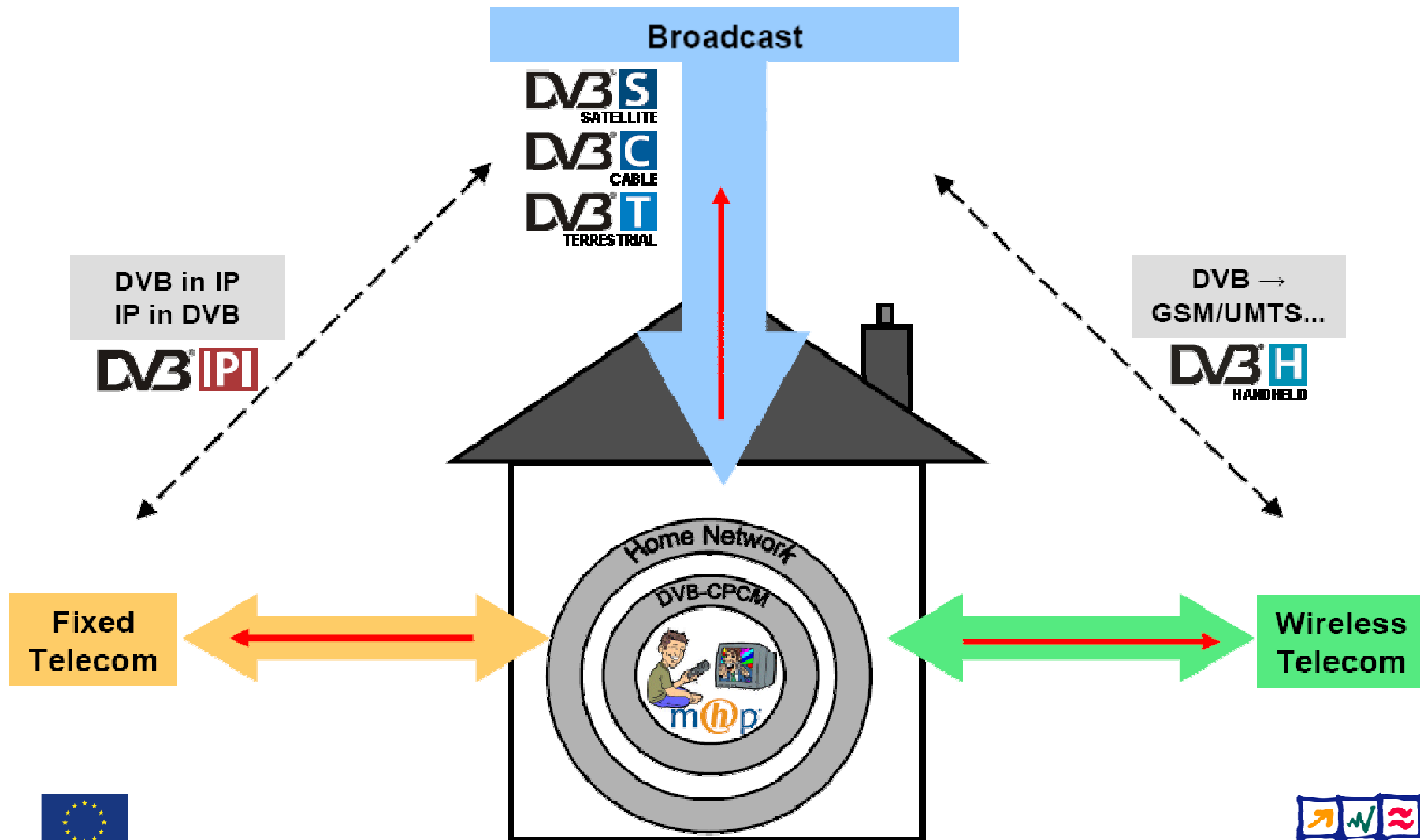Demosthenes.Ikonomou@cec.eu.int
DG Information Society and Media (INFSO)
http://www.cordis.lu/ist/audiovisual/index.html
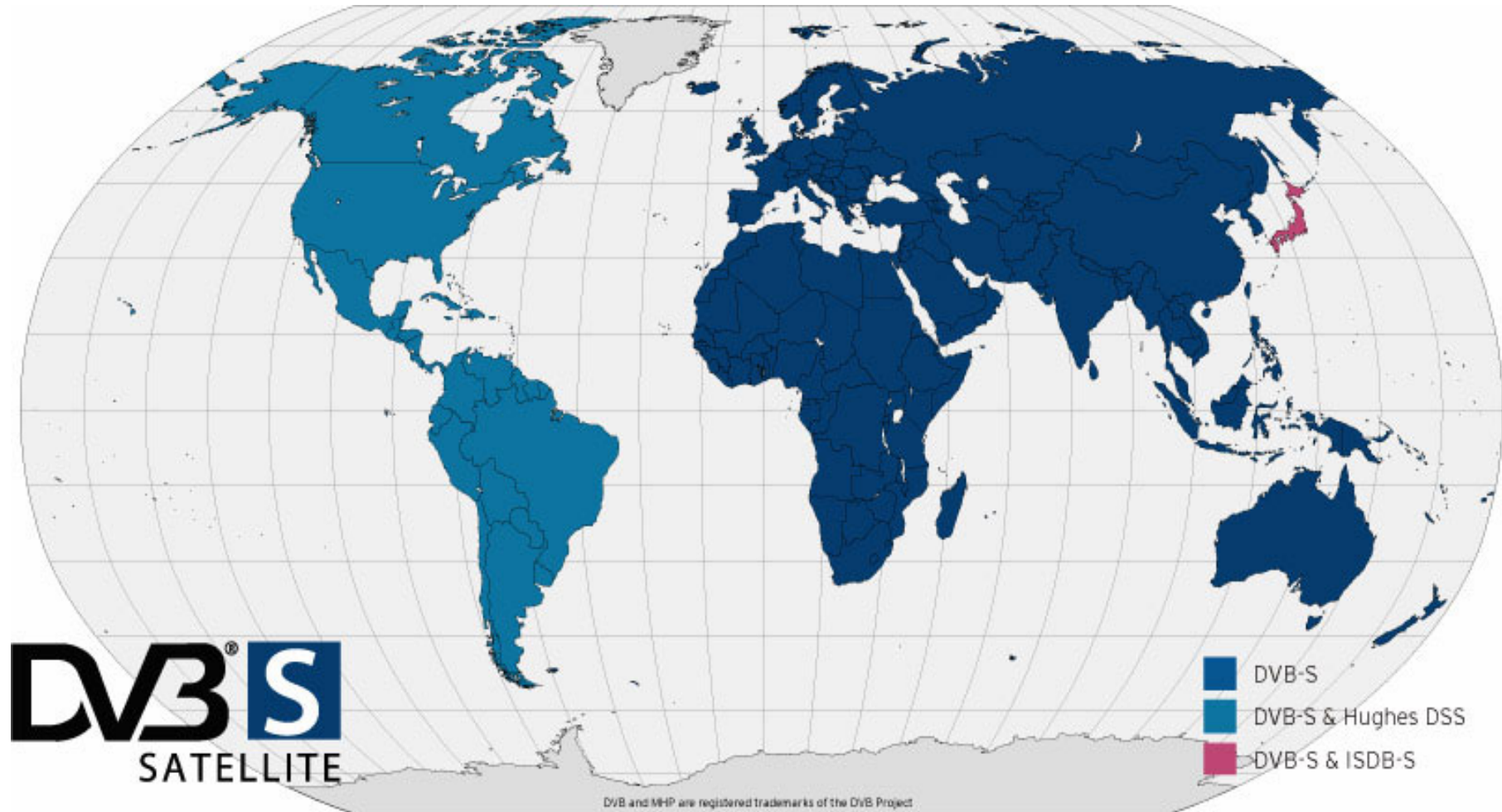
# Digital Television –DVB Standards

DVB :  An **open**, **unified** solution for all interactive digital networks



*The views expressed in this presentation are of the author, and do not necessarily reflect the views of the European Commission*

# DVB Standards: a worldwide success



DVB-S
DVB-S & Hughes DSS
DVB-S & ISDB-S

DVB and MHP are registered trademarks of the DVB Project

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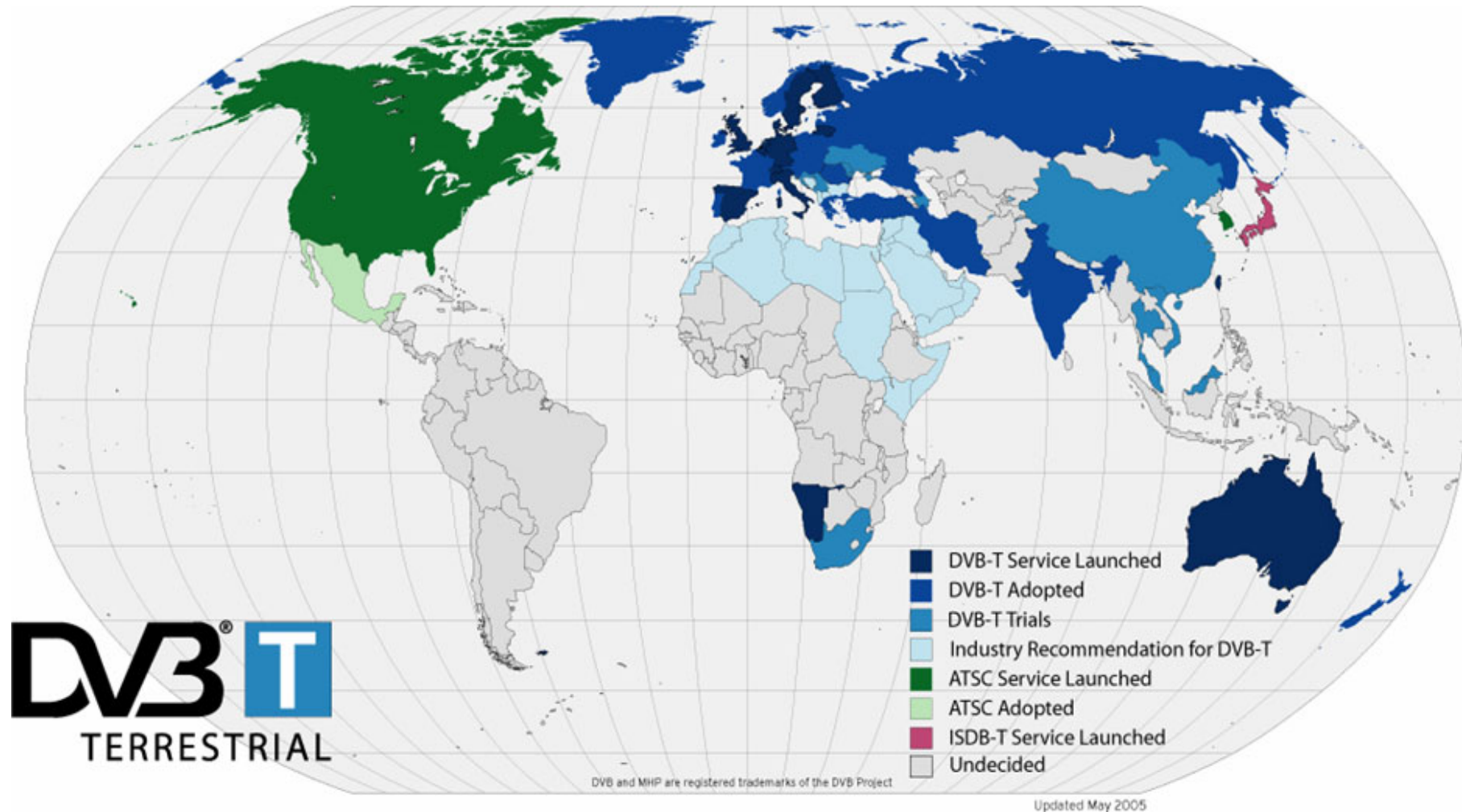# DVB Standards: a worldwide success



**Legend:**
- DVB-T Service Launched
- DVB-T Adopted
- DVB-T Trials
- Industry Recommendation for DVB-T
- ATSC Service Launched
- ATSC Adopted
- ISDB-T Service Launched
- Undecided

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Updated May 2005

**DVB T**
TERRESTRIAL

# DVB-Handheld

- DVB-H is based on DVB-T (terrestrial) specificaly adressing the concerns for mobile devices:
  - Low power consumption;
  - High quality reception at high speed;
- Several EU funded projects work on DVB-H;
- At the same time, the co-operation/co-existence of broadcasting and cellular networks has been the focus of research since FP4;
- Pre-commercial DVB-H pilots currently conducted in many countries: *Spain, Germany, the UK, the Netherlands, France, Switzerland, Malaysia, Singapore, Australia, South Africa and the US*;

# Terrestrial-DMB

- T-DMB is based on DAB (Digital Audio Broadcasting) developped in the context of the Eureka 147 project;
- T-DMB was endorsed by ETSI in 21st July 2005 (TS 102 427 and TS 102 428);
- T-DMB uses broadly available DAB networks;
- Currently being deployed in Korea while a few trials are
- are planned/announced in Europe:
  - Germany: Trial in Bavaria during Footbal cup 2006;
  - UK: Virgin Mobile (4 months, 10000 users, London);
- Other MM variants of DAB currently investigated by WorldDAB:
  - H.264 and VC-1 encoding
  - IP layer providing interoperability with DVB-H and 3GPP-MBMS

**Australia** — Pop: 15% PRM: 1.3bn

**Austria** — Pop: 19% PRM: 300mn

**Belgium** — Pop: 98% PRM: 1.3bn

**Canada** — Pop: 35% PRM: 1.6bn

**China** — Pop: 2% PRM: 20.9bn

**Croatia** — Pop: 30% PRM: 75mn

**Czech Republic** — Pop: 12% PRM: 160mn

**Denmark** — Pop: 99% PRM: 300mn

**Estonia** — Pop: 28% PRM: 50mn

**Finland** — Pop: 40% PRM: 305mn

**France** — Pop: 25% PRM: 6.5bn

**Germany** — Pop: 78% PRM: 7.5bn

**Hungary** — Pop: 30% PRM: 350mn

**India** — Pop: 1% PRM: 5.8bn

**Israel** — Pop: 0.5% PRM: 155mn

**Italy** — Pop: 65% PRM: 2.6bn
- Coverage
- 65% expected coverage by 2006

**Lithuania** — Pop: 20% PRM: 95mn

**Netherlands** — Pop: 40% PRM: 765mn
- Coverage
- 72% expected coverage by end 2004

**Norway** — Pop: 50% PRM: 210mn

**Portugal** — Pop: 75% PRM: 150mn
- Coverage
- Expected coverage by 2004

**Singapore** — Pop: 100% PRM: 130mn

**S. Africa** — Pop: 16% PRM: 690mn

**Spain** — Pop: 50% PRM: 655mn
- Coverage
- Expected coverage by 2006

**Sweden** — Pop: 35% PRM: 415mn

**Switzerland** — Pop: 58% PRM: 355mn
- Coverage
- Expected coverage by end 2005

**Taiwan** — Pop: 90% PRM: 800mn

**Turkey** — Pop: 12% PRM: 565mn

**U.K.** — Pop: 85% PRM: 5.3bn

# DAB COVERAGE BY END 2004

Key: PRM = Potential Replacement Market
(sets per household x average price point of 50usd)

World DAB FORUM

# Research activities and the European Commission

- Supported through successive four year periods called Framework Programmes (FP);
- Major strategic reorientations and financial scope decided at the beginning of each FP;
- 6th Framework Programme (FP6) covers period 2002-2006
  - IST: Information Society and Technology Programme 3.825B€ budget
- 4th Call for proposals closed in March 2005.
  - Budget : 1.12B€
  - Project negotiation phase started
- 5th Call for proposals currently open (FP6-2005-IST-5)
  - Budget : 638M€
  - Closing on 21 September 2005 (17:00 CET)
- There might be other calls later in 2005
- 7th Framework Programme, covering 2006-2010 under preparation

# EU funded R&D on DTV
## International Co-operation

- R&D on DTV has been a focus of EU funded R&D programs at least since FP3;

- Research is conducted through multi-annual, projects carried out by International consortia with participation by all sector actors;

- Projects are contracted as a result of calls for proposals and peer review by independent experts;

- Participation of organisations outside EU is welcome as it contributes to the main objectives of the programs:
  - **Creating a co-operation culture;**
  - **Building early consensus;**

- *Example: development of 3G technology and standards in close co-operation with Japan (FP4, FP5);*

- Non-EU organisations participate in projects sharing equal rights and obligations with their EU partners;

# EU funded R&D on DTV
## Co-operation with Brazil
### The INSTINCT Integrated Project

- IP-based Networks, Services and TermINals for Converging sysTems

- Builds on a number of FP5 projects

  **CISMUNDUS, CONFLUENT, SAMBITS and SAVANT**

- Aims at specifying a platform for the commercial provision of convergent services in mobility with a special focus on the DVB-T, -H and -MHP standards and in conjunction with GPRS and UMTS;

- Consortium of 24 partners → **5 Brazilian partners**

  - 14 industrial partners

  - 6 universities

  - 4 research institutions

  Universidade Do Estado Do Amazonas
  Fundacao De Apoio A Universidade De Sao Paulo
  Centro De Estudios E Sistemas Avancados Do Recife
  Genius - Instituto De Tecnologia
  Fundacao Centros De Referencia Em Tecnologias Inovadoras - Certi

- Started on 1st January 2004 for a period of 24 months

- 9,6M€ EC funding, ~50M€ total investment

- More info: http://www.ist-INSTINCT.org/

# Market expectations for mobile TV

- Digita, Elisa, MTV, Channel Four Finland, Nokia, TeliaSonera and national broadcaster YLE jointly conducted a DVB-H pilot in Finland between March-June 2005 with 500 users;

- Users spent approximately 20min/day watching mobile TV (more active users watched 30-40 min/session);

- 41% were willing to purchase mobile TV services while half considered a fixed monthly fee of 10 Euro as reasonable;

- 58% believed mobile TV services would be popular;

- Participants watched mobile TV at different times than traditional TV peak hours (while commuting);

- Key requirements of pilot users:
  - Easy and intuitive service usability;
  - Content suitable for short period viewing;
  - Mobile phone functions not compromised by the TV application;

# Market expectations for mobile TV vary from country to country

- Research in Germany shows 78% of consumers already think mobile TV is a good or excellent idea and 82% are willing to pay 12.50 Euro per month;

- In the US, two separate reports by In-Stat US and Parks Associates concluded that only 1 in 8 consumers was interested in paying for live TV or video content on mobile platforms;

- Other analysts expect mass-market introduction of mobile broadcasting by the end of the decade (~2012);

# Still many challenges in the short term

- Most countries lack a clear allocation of capacity (and licensing) for mobile broadcast services in VHF/ UHF;

- Stationary TV services still consume almost 100% of the spectrum;

- Hence the "digital dividend" resulting from digital switch-off is not yet visible;

- Will mobile operators, broadcasters and regulators accept the joint business opportunity;

- Will some level of harmonisation among countries and regions be realised (roaming?);

- National regulators not yet ready (e.g. question on TV licensing);

# Future Research Challenges

- Current "1st Generation in mobile broadcast" (targeting 2007) focuses on TV- centric services and "singular" technology implementation (e. g. DVB- H);
- How could a "2nd Generation" look like?
  - Cross media consumption via composite networks;
  - Improved Service discovery;
  - Intelligent assistants/ agents, mass customized content, pre- selection basing on preferences;
- Will new generations evolve (4G) or will there be "multiple interworking" including multicast and broadcast capabilities?
- Regulatory patterns of harmonised spectrum usage;

# Relevant information

- In our home page:
  http://www.cordis.lu/ist/audiovisual/index.html

- Also through our bi-monthly newsletter;

- Distributed via email (by subscription - free of charge);

- Also available on-line including archive of previous issues;

- Contains info on all activities in the field (including calls for proposals, conferences, publications, etc.);

**Audio Visual News**

**Information Society**

http://www.cordis.lu/ist/audiovisual/pub/newsletter.htm