DIGITAL TV:
THE NEXT 40 YEARS?

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ANALOGUE TV

- Although there were three basic standards for analogue colour TV (NTSC, SECAM and PAL), many countries adopted subtly different versions of the basic standards
- In the 1960s, manufacturers (and national governments) believed that it was a good idea to have national standards for TV
  - thus protecting indigenous industry against "foreign" imports
- By the 1980s, manufacturers realised that national standards made it difficult to export to other markets (now called "barriers to trade")

THE BEGINNINGS OF DIGITAL TV

- Digital composite TV or digital component TV?
  - digital composite TV would have perpetuated the analogue TV standards in the digital world
- In 1980, the EBU-SMPTE Task Force opted for digital component TV as the way forward:
  - future-proof
  - globally applicable (despite 50/59.94 Hz issues)
  - subsequently adopted by the ITU as Rec. 601
- This “early win” of a global standard offered the hope that digital TV might avoid the fragmented standards of analogue TV

DIGITAL TERRESTRIAL TV

- It was not possible to get agreement on a true global standard for digital terrestrial TV
- Independent developments in North America, Europe and Japan resulted in three different systems (ATSC, DVB-T and ISDB-T)
- The multiplicity of standards was justified by:
  - different requirements;
  - different timetables for implementation;
  - each region being large enough to sustain its own standard
- The "not invented here" syndrome won . . .

COST and COMPLEXITY

- Why do DVD players cost more than set-top boxes for digital TV?
- Similar complexity in terms of electronics, but DVD players are electro-mechanical devices with
  - a turntable mechanism running at 1500 r.p.m.
  - a laser
  - laser tracking servos
  - a detector to read data from the disc
  - error-correction systems

COST PENALTY

- DVD players are much cheaper because DVD is a worldwide standard – unlike digital TV
- Regional fragmentation of digital TV standards is a significant barrier to low-cost devices
- Consumer electronics manufacturers must produce many different versions of TVs to satisfy the requirements of national markets
- This problem has cost many billions of dollars
  - this cost penalty has been paid by consumers

BROADCASTING HAS ADVANTAGES

- Traditional broadcasting (i.e. “one-way” “one-to-many” transmission) is the best possible way of delivering live TV to massive audiences
- We need to enhance digital terrestrial transmission systems to meet the needs of mobile and portable devices
- Consumers would welcome the ability to watch free-to-air TV services on such devices (without incurring heavy charges for downloading of data)
- It is unreasonable to expect manufacturers to incorporate all of the various standards for digital TV (e.g. ATSC, DVB, ISDB-T, DTMB, etc.)

REGIONAL STANDARDS

- **Different regional standards for digital TV might have been excusable when TV sets were rarely moved between countries**
- **High-quality portable displays (e.g. smart-phones and tablets) dramatically change the environment**
- **Achieving a single global standard is undoubtedly *"easier said than done"*, BUT it would be sad if the next-generation of digital terrestrial TV perpetuated the existing fragmentation of standards**
- **A unified standard would offer huge benefits for broadcasters, manufacturers and, above all, consumers**

- **The FOBTV (Future of Broadcast TV) initiative was established by a declaration agreed in Shanghai on 11 November 2011**

  at precisely 11.11.11 on 11/11/11

FOBTV

FUTURE OF BROADCAST TELEVISION

FOBTV
FUTURE OF BROADCAST TELEVISION

FOUNDING MEMBERS

ATSC

ETRI

NERC DTV

CBC

TV GLOBO INTERNACIONAL

NHK

CRC

Be more. PBS

DVB

IEEE

EBU·UER

NAB

A NEW BEGINNING?

- **FOBTV is hopefully the start of a new era in which "global collaboration" will be the key principle**
- **Such enhanced collaboration is emphasized by the appointment of Mark Richer (ATSC's President) as FOBTV Chairman and Phil Laven (DVB's Chairman) as FOBTV Vice-Chairman**

What will FOBTV do?

GOALS OF FOBTV

- Develop future ecosystem models for terrestrial broadcasting taking into account business, regulatory and technical environments
- Develop requirements for next generation terrestrial broadcast systems
- Foster collaboration of DTV development laboratories
- Recommend major technologies to be used as the basis for new standards
- Request standardization of selected technologies (layers) by appropriate standards development organizations (ATSC, DVB, ARIB, TTA, etc.)

FOBTV

- There is no shortage of ideas in FOBTV
  - which ones are the most important?
- FOBTV must overcome other challenges:
  - The “not invented here” syndrome in which protagonists prefer their own technology over technologies suggested by others
  - “IPR stuffing” where participants suggest that a particular technology be included in the specification because their employer has a relevant patent

LOOKING FORWARD

- Continuing pressure on the spectrum means that broadcasters must adopt the most efficient technologies
  - modulation and coding systems
  - video compression systems
- Although many countries have still to make the transition to HDTV, some countries are considering the introduction of UHDTV
- We must not miss these opportunities for global standardisation . . .

CONCLUSION

- **A single global standard for digital TV has long been attractive – but it is almost too late!**
- **The failure to achieve global standard is not the fault of the ITU: the delegations were responsible!**
- **New spectrum-efficient delivery systems must meet the demands of SDTV, HDTV and UHDTV**
- **We need to develop a delivery system providing TV services to mobile and portable devices, such as smart-phones and tablets**

These markets will NOT develop without a global standard