

# Mobile Multi Media Opportunities and Challengers

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Received: 05 April 2018 ▪ Revised: 25 April 2018 ▪ Accepted: 07 June 2018

**Abstract:** Today, we observe the creation of an increasing number of multimedia consumer devices for mobile and home use. This includes set-top boxes, game consoles, personal Digital Assistants (PDA), e-books, but also mobile phones. Although these devices have many things in common with desktop PCs – above all Internet access – it is widely accepted that they will serve a different purpose. Many committees and companies are currently trying to define the open application platform for tomorrow's consumer terminals for home use, among others the so-called Multimedia Home Platform (MHP) of the European Digital Video Broadcasting (DVB) project. Meanwhile, on the cellular end of the multimedia business, portable appliances like cellular phones, e-books and PDAs are evolving to multimedia terminals, starting from narrow band internet services like the Wireless Application Protocol (WAP) and slowly adopting video technologies. One of the main obstacles to overcome is bandwidth limitation – even for 3G mobile systems – and broadcast technology is considered to be a serious candidate to fill this gap, both for TV and data services.

**Keywords:** Personal Digital Assistants (PDA), Wireless Application Protocol (WAP), Broadcast Technology.

## CONVERGENCE VERSUS DIVERSIFICATION

Digital convergence is a key term, when talking about information technology and multimedia. Convergence mainly results from digital transmission and internet technology; Digital transmission provides an abstraction between service and service delivery, i.e. the same network can deliver different service types and different networks may compete while carrying the same services. Internet technology, especially the World Wide Web finally constitutes a common platform for content addressing and interpretation (rendering). As consumers, we observe convergence through service integration and increasing independence of services and terminals. Today, we may surf the web using our TV set, while we may watch TV services in the Internet browser of our PC.

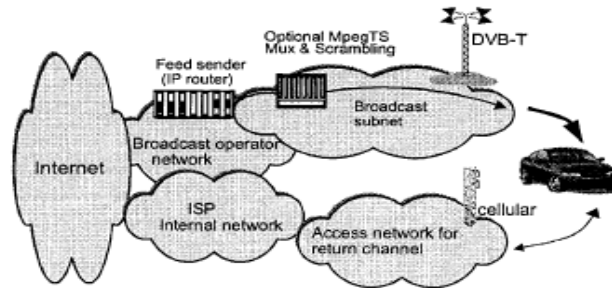


Beside TV and audio broadcast, digital TV standards offer high data rates for data broadcasting. The following standards are or will be in use in several parts of the world:

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Hybrid Network Access

- DVB-T mainly in Europe but also in Australia and several Asian countries.
- ISDB-T (Terrestrial Integrated Services Digital Broadcasting) mainly in Japan
- ATSC (Advanced Television systems Committee mainly in the USA)

An in-car DVB-T receiver solution (see figure 3) and a handheld DVB-T demonstrator (see figure 7 [4]) have been presented on international Funkusstellung 1999 in Berlin. TV, radio and data broadcast services were successfully demonstrated. ISDB-T [12] is the Japanese digital TV standard and is based on OFDM as well. Compared to DVB-T slightly different modulation schemes are used (DQPSK – Differential Quadrature Phase Shift Keying) instead of QPSK (Quadrature Phase Shift Keying), which results in a better bandwidth efficiency and slightly better mobile performance for low data rates, but worse performance for mobile reception of high data rates.

## CONCLUSIONS

Next generation mobile phones will be the ubiquitous companion of the mobile information society. However, there will be the need for specialized terminals, like multimedia terminals for the car and portable entertainment devices. This diversification in terminals and the increasing number of terminals competing for bandwidth impose some key challenges:

- Compatibility of application platforms,
- Creation of services that render well on these different platforms,
- Efficient usage of bandwidth.

The first two points are a matter of careful standardization of scalable content and application environments. As regard the third point, it is felt that data broadcast and digital TV are important factors to efficiently deliver broadband services and rich and emotional content.

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