The ENGINES project (Enabling Next Generation Networks for broadcast Services) aims at constituting a Task Force to support development of the Digital Video Broadcasting-Next Generation Handheld (DVB-NGH) standard. In addition, ENGINES shall provide means for the verification and validation of advanced features of Digital Video Broadcasting – Second Generation Terrestrial (DVB-T2) standard and verification and validation for the coming DVB-T2Lite and DVB-NGH standard.

Main focus

There will be two main focus areas within ENGINES. The first focus area will be on the development, verification and validation of technical concepts and elements on the coming DVB-NGH and DVB-T2Lite standards. Another focus area is the verification and validation of full DVB-T2 system and DVB-NGH system. The aim is to work as parallel activity with the DVB Project on all focus areas. The DVB Project is an organization which has separate technical and commercial modules for the different DVB standard areas. The technical work is done within the technical modules and the commercial work is done within the commercial modules. The scope of the DVB related work within the ENGINES relates to the technical work. The DVB module related to the DVB-NGH and T2Lite is called TM-H and the DVB module related to the DVB-T2 is called TM-T2.

Approach

The ENGINES project will form a task force to develop the Next Generation Broadcasting standards (i.e. DVB-T2, DVB-T2Lite, and DVB-NGH) and their implementation for Fixed Portable, Mobile and Handheld reception. The project will work both on technical proposals for Digital Video Broadcasting project as well as on efficient usage of the latest version of the standards. The project will also generate a test framework for a common lab and field infrastructure mainly for DVB but also for other standards. The project continues the work in line with previous successful Celtic projects WingTV (validation of DVB-H) and B21C (major contributions to DVB-T2 and DVB-SH).

The second generation standard for terrestrial broadcasting DVB-T2 was submitted to ETSI in 2008, and will be taken into operative use during 2010. This second generation system provides about 50% increase of physical layer capacity compared to the previous standards. DVB-T2 is in its first stage targeting for fixed reception. DVB-T2Lite based on DVB-T2 modulation techniques provides more flexibility for mobile application based on DVB-T2 signals. Providing the same or better capacity increase for portable, mobile and handheld broadcasts (DVB-NGH), require new technical concepts, where Multiple Input and Multiple Output (MIMO) is the most promising approach. However, the utilization of MIMO techniques in broadcast scenarios for fixed, mobile and handheld use cases is still not well known, and clearly requires both research and system design work. This work is including channel modelling, system architecture, receiver algorithms, simulations as well as lab and field trials. The project will support the DVB-T2Lite and DVB-NGH work.
About Celtic

Celtic is a European research and development programme, designed to strengthen Europe’s competitiveness in telecommunications through short and medium term collaborative R&D projects. Celtic is currently the only European R&D programme fully dedicated to end-to-end telecommunication solutions.

Timeframe: 8 years, from 2004 to 2011
Clusterbudget: in the range of 1 billion euro, shared between governments and private participants

Participants: small, medium and large companies from telecommunications industry, universities, research institutes, and local authorities from all 35 Eureka countries.

Celtic Office
C/o Eurescom, Wieblinger Weg 19/4, 69123 Heidelberg, Germany
Phone: +49 6221 989 405, e-mail: office@celtic-initiative.org
www.celtic-initiative.org

Impact

The expected innovative impacts of the project are:

1) Implementation, modification of existing technological solutions for use in a broadcast environment, such as MIMO and Scalable Video Coding (SVC).

2) Developed technical elements will be incorporated, in collaboration with the DVB project, in DVB-NGH standard specification and implementation guidelines.

Testing activities will bring strategic advantage to partners and European industries for implementing the new standards in products.

The main technical innovation will be the definition of complete end-to-end system containing the technical elements from the previous sections.

The technical work and innovations in this project will give the partners strategic advantage and knowledge to rapidly launch commercial products which are mature and based on state-of-art technological solutions.