

Project Information



Optimising Power Efficiency in mobile Radio Networks

The OPERA-Net project (Optimising Power Efficiency in mobile Radio Networks) aims to constitute a task force through a holistic approach considering a complete end-to-end system, identifying all relevant network elements and their interdependencies.

Main focus

The most important facts and elements of the project and the expected impact of the outcome will be as follows:

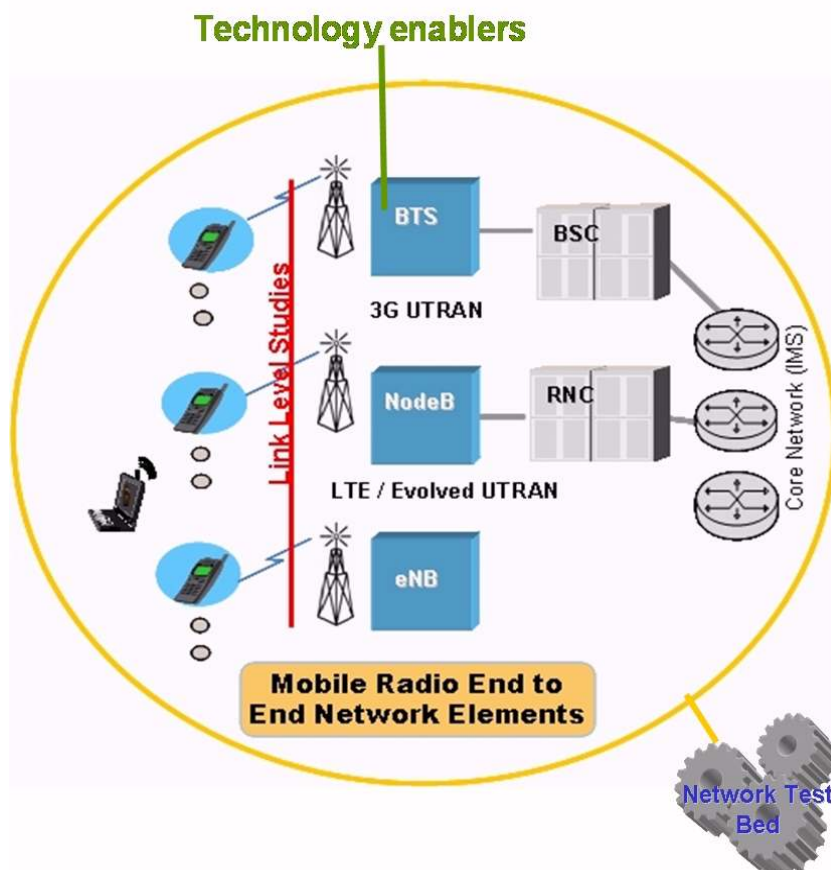
- ◆ The fundamental premise is that the efficiency of these individual system elements is highly inter-related, and in order to achieve the radical efficiency improvements envisaged, these must be considered in unison.

- ◆ The project will address the following criteria and objectives:

- ◆ Radical improvement in energy efficiency at system, infrastructure, and terminal levels
- ◆ Develop metrics and key performance indicators (KPI) for mobile network efficiency to direct the development and stimulate competition for efficiency through easy system comparability
- ◆ Enable EU industry to take leadership in environmentally sustainable mobile networks

Approach

OPERA-Net is organised as a set of task forces, each of them dealing with the fol-



OPERA-Net

Project ID: CP5-019

Start Date: 1 October 2008

Closure date: 1 October 2010

Partners:

- Alcatel-Lucent, Ireland
- Cardiff University, UK
- France Telecom, France
- Freescale, France
- Imec, Belgium
- Mobistar, Belgium
- Nokia Siemens Networks, Finland
- Thomson Grass Valley, France
- VTI, Finland

Co-ordinator:

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Project Website

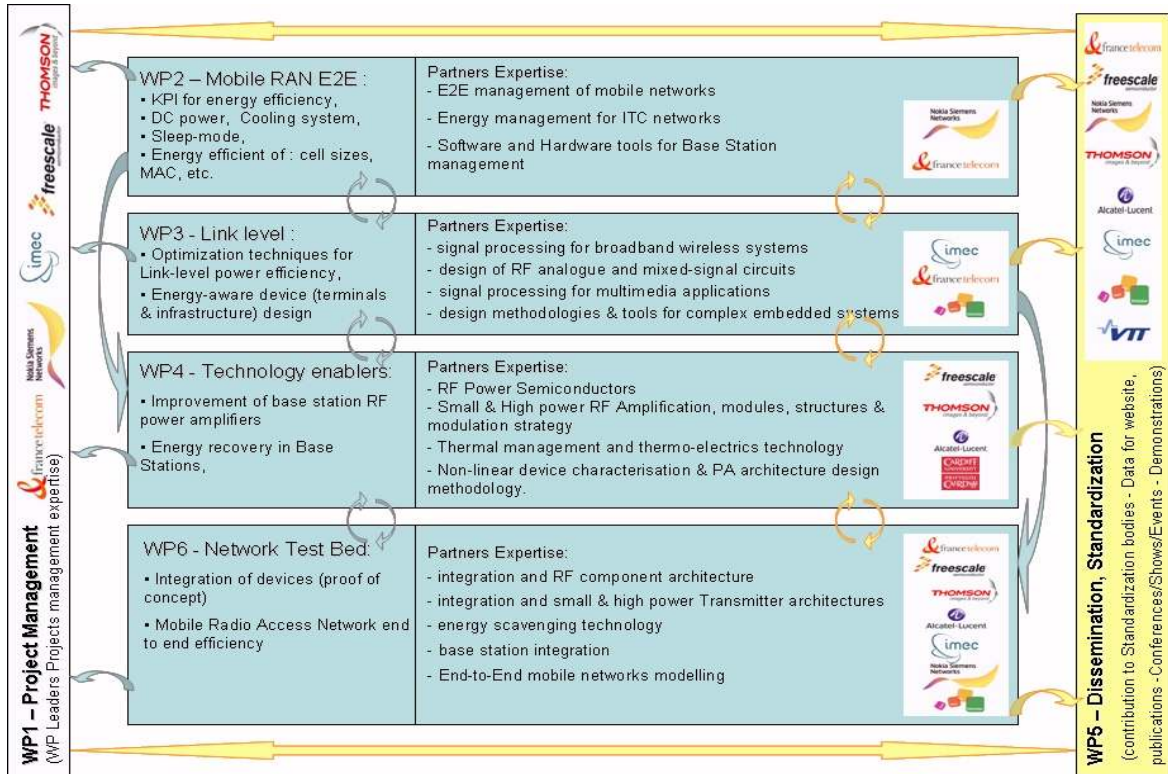
www.celtic-initiative.org/projects/opera-net

lowing main technical level ideas:

- ◆ Mobile Radio Access Network E2E: define KPI for energy efficiency; improve power efficiency from the management of: cell sizes, sleep-mode, MAC, DC power, cooling system, etc.
- ◆ Link level: optimization techniques for Link-level power efficiency, energy-aware device (terminals & infrastructure) de-

- ◆ Technology enablers: develop new high-efficiency power amplifier architectures for base stations and prototype novel energy recovery systems
- ◆ Network test-bed system model and demonstrator validated in a real environment with true cross level approach from terminal to system to end-to-end network.

- ◆ Radical reduction of power envelope to enable viable implementation of new technologies.
- ◆ Increased power efficiency ratio of output utilized power to input supply power.
- ◆ Reduction of operational and capital expenditure (OPEX & CAPEX)
- ◆ Reduction of consumed Power



sign. Find innovative technological interface configuration solutions to achieve ecologic and economic gains

Main results

Major outcome results expected from Opera-Net are:

to address environmental requirements

- ◆ All results are disseminated through standardisation bodies, white papers, articles in relevant press, conferences, seminars, shows, exhibitions, demonstrations, and wherever necessary and feasible.

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.

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Impacts

The expected impacts of the project are:

- 1) Power efficiency improvements for future air interfaces. Bring innovation gain by solving the power technology barrier.
- 2) Adjacent industries and segments within Europe leveraging wireless broadband to enable accelerated social and economic growth; examples: media, health, security, Internet, etc.
- 3) Environmental-friendly ICT solutions, enabling Europe to drive global standardisation in this area.