



## Techno-economics of integrated communication systems and services

**The overall objective of ECOSYS is to develop a strategic techno-economic analysis framework, apply it on case studies and draw conclusions and recommendations on the economic feasibility of new communication systems and services.**

### Main focus

The main focus of ECOSYS is to develop a strategic techno-economic analysis framework, apply it on case studies and draw conclusions and recommendations from that.

ECOSYS will focus on further developing the methodology that is used in the telecoms industry for business feasibility evaluation and investment decision making. General economic theories on investment analysis provide solid ground for this work, but they are not always adapted to the needs of modern communications business. ECOSYS will adapt and further enhance these economic theories in order to match them with current and future telecom needs.

With the tailored techno-economic methodology ECOSYS will carry out representative case studies both on the economics of beyond 3G mobile networks and services as well as on provisioning of fixed broadband services in urban and rural areas. Finally ECOSYS will assess the feasibility of convergence business case where services become available to people regardless of the time,

place and medium they are using for the access.

### Approach

ECOSYS will use a quantitative case-study approach to assess new broadband and mobile service scenarios. The project team builds upon previous experience in developing and exploiting techno-economic models. ECOSYS will identify new business models and develop a consistent and harmonised framework to assess them. New methodologies and tools will be developed in order to analyse new business models covering the entire value chain.

ECOSYS will classify new services and applications for the residential and business markets including the description of interrelations and substitution effects. Careful analysis of the underlying technology platforms both for mobile services, fixed broadband and convergent services will be performed. ECOSYS will develop models for forecasting broadband traffic and access demand for the described services. ECOSYS will analyse, model and evaluate the traffic pricing models for new services.

The business cases will analyse different leading-edge technologies either copper or fibre based or wireless technologies for different market scenarios. The strength and weaknesses of the various technologies in the different areas and market conditions will be identified. The ECOSYS project will model



## ECOSYS

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### Partners

Deutsche Telekom, Germany

France Télécom R&D, France

JVH International, Belgium

Helsinki University of Technology, Finland

Nokia, Finland

Norwegian Ministry of Gov,Adm,Ref

National and Kapodistrian University of Athens, Greece

Telenor, Norway

Telefónica I+D, Spain

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### Project web site

[www.celtic-initiative.org/projects/ecosys](http://www.celtic-initiative.org/projects/ecosys)

business scenarios of 3G and WLAN networks alongside with the emerging alternative access technologies, for evaluation of their feasible utilisation, deployment and potential impact. ECOSYS will analyse the technology and the possible business models to derive the migration paths towards convergent networks and services. The business case models describe representative investment projects of different players, where the services offered, demand, tariffs, and network, service provisioning and operational costs are taken into account. The project's research business case approach is illustrated in figure 1.



Figure 1. Research business case approach

## Main results

ECOSYS will present its core results in the form of reports, which describe the work and present core achievements. The main results of the project will focus on:

- Developing a techno-economic, user-friendly tool that will provide powerful guidance for business-oriented decision making in telecommunications. A major part of the analysis of ECOSYS is planned to be conducted using this tool. The tool would also maintain an up-to-date cost database, supporting the analysis and modelling work.

- Preparing an evolutionary path for the fixed broadband access networks in rural and urban areas across Europe. This includes the analysis of the deployment scenarios and their potential impact on the rural and urban areas.

- Developing new business models which adapt to anticipated changes in the mobile value chain by proposing new tariff and revenue sharing models and evaluate existing and new economic theories in the telecommunications sector.

- Developing demand models based on concepts such as network externalities.

- The description of possible migration paths towards fixed and mobile convergent networks, quantitative analysis of the benefits in OPEX and CAPEX due to such transport convergence, the list of new services created over these networks, new revenue sharing as well as tariff and business models.

The results will be disseminated via publications in journals and conferences as well as in dedicated conferences.

## Impact

The methodologies and tool developed by ECOSYS will provide greater understanding and guidelines for all the decision makers in the European telecommunications industry. The application of the tool on the planned business cases will provide an insight to European operators on how copper/fibre/wireless network technologies can be combined to achieve economically viable mobile and fixed broadband access solutions, using the service forecast models that will be developed. Likewise, it will provide manufacturers of telecommunication systems an indication of where opportunities for new products may reside, thus providing them a competitive edge in the global telecommunications market.

The methodologies and tool developed by ECOSYS will thus provide a unified approach to techno-economic studies for operators in Europe. This would help them to provide economical services for the mass market by introducing attractive pricing strategies for telecom services and, as a result, support economic growth across Europe by maintaining its market leadership in telecommunications.

## 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 the only European R&D programme fully dedicated to end-to-end telecommunication solutions.

**Timeframe:** 5 years, from 2004 to 2008

**Cluster budget:** in the range of 1 billion euro, shared between governments and private participants

**Participants:** small, medium and large companies from the telecommunications industry, universities, research institutes, and local authorities from 33 countries

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