

Goals for GIGA

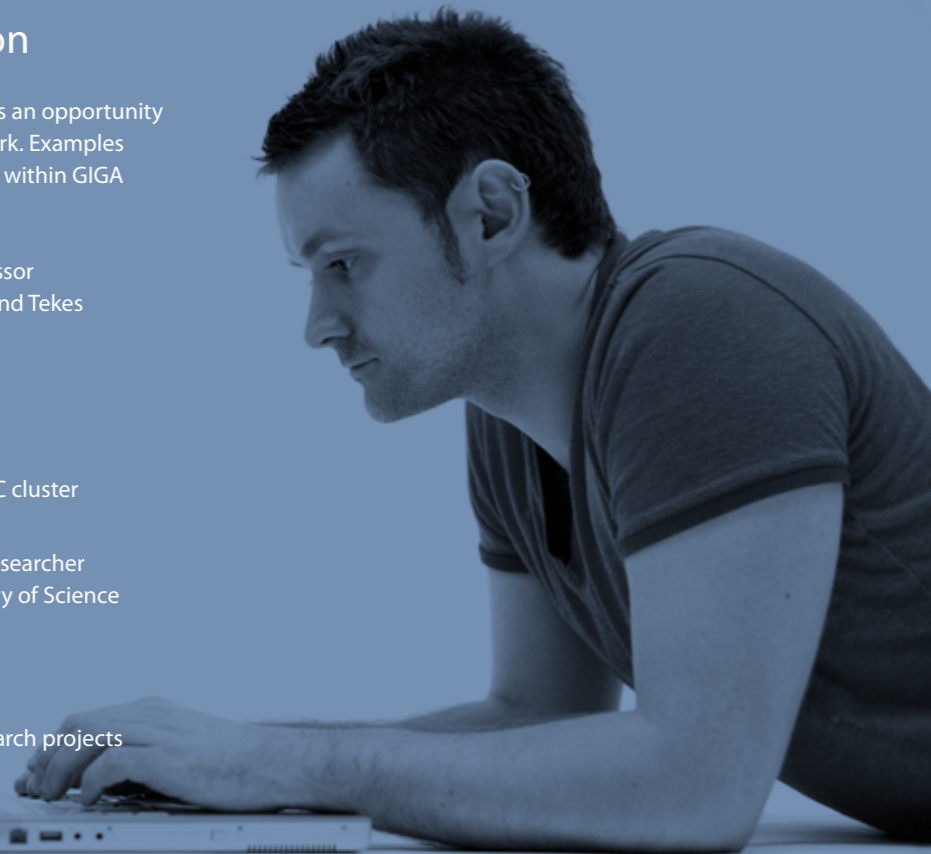
- to promote the leading position of the Finnish telecommunication industry in technologies for wireless broadband communication
- to strengthen strategic basic research and applied research in broadband communication
- to generate new business opportunities in evolving telecommunication markets
- to support the expansion of Finnish SMEs into global markets
- to increase international cooperation and to contribute to international standardization

International cooperation

GIGA programme offers international partners an opportunity to cooperate within the programme framework. Examples of current international cooperation activities within GIGA programme:

- FiDiPro - the Finland Distinguished Professor Programme by the Academy of Finland and Tekes
www.fidipro.fi
- Exchange of researchers co-funded with National Science Foundation in the USA
www.nsf.gov
- Co-funded projects under EUREKA CELTIC cluster
www.celtic-initiative.org
- Framework for co-funded projects and researcher exchange under preparation with Ministry of Science and Technology, China
www.most.gov.cn/eng

Approximately 70 % of the programme's research projects include international collaboration.



Tekes, the Finnish Funding Agency for Technology and Innovation

Tekes is the main public funding organisation for research and development (R&D) in Finland. Tekes funds industrial projects as well as projects in research organisations, and especially promotes innovative, risk-intensive projects.

Tekes offers partners from abroad a gateway to the key technology players in Finland.

Tekes has an annual budget of over €500 million.

Tekes programmes – part of the innovation chain

Tekes programmes are an essential part of the Finnish innovation system. These programmes have proved to be an effective form of cooperation and networking for companies, universities and research institutes for developing innovative products, processes and services. Tekes programmes boost development in specific sectors of technology or industry, and the results of the research work are passed on to business systematically.

The programmes also serve as excellent frameworks for international R&D cooperation.

For more information

www.tekes.fi/giga

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GIGAbit services anytime anywhere in 2010s

GIGA – Converging Networks

2005–2010



GIGA Converging Networks 2005-2010

Telecommunications is one of the fastest growing industries worldwide. The growth is mainly based on mobile terminals and related services as well as future evolution of the Internet. Finland is a pioneer in certain areas and now one of the leading players in wireless communication.

GIGA in brief

The development of broadband technologies – especially wireless broadband – converges network technologies, services and content in a newly profound way driving different players into ever closer collaboration. In order to boost this collaboration Tekes, the Finnish Funding Agency for Technology and Innovation, launched GIGA – Converging Networks programme in 2005. The programme is a combination of research and industrial projects working together for a common goal. In addition to project funding, GIGA offers networking, seminars and market and technology surveys to its participants.

Focus areas of GIGA

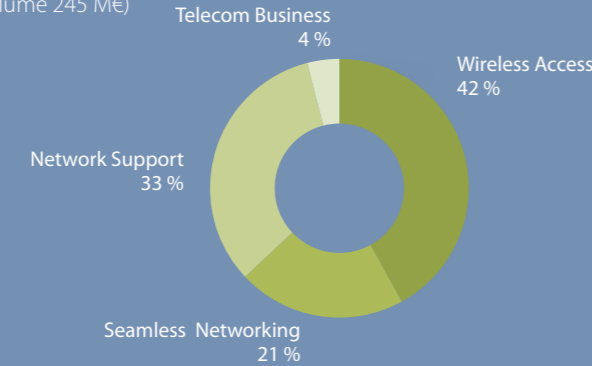
- Wireless access, e.g. radio interfaces, radio channels, terminals
- Seamless networking, e.g. handover, QoS, security
- Network support, e.g. management, monitoring, testing
- Telecommunication business, e.g. new business models, value chain evolution

Programme project portfolio

The five-year GIGA programme, with a budget totalling EUR 280 million and ending in 2010, is funded by Tekes with EUR 110 million.

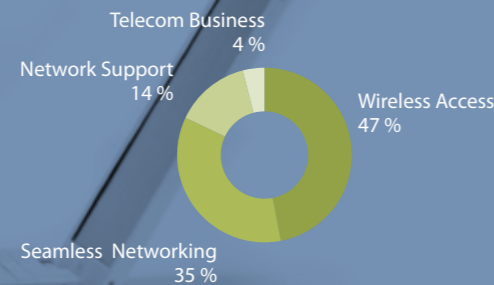
Industry projects

(total volume 245 M€)



Research projects

(total volume 37 M€)



Case Cognac-project

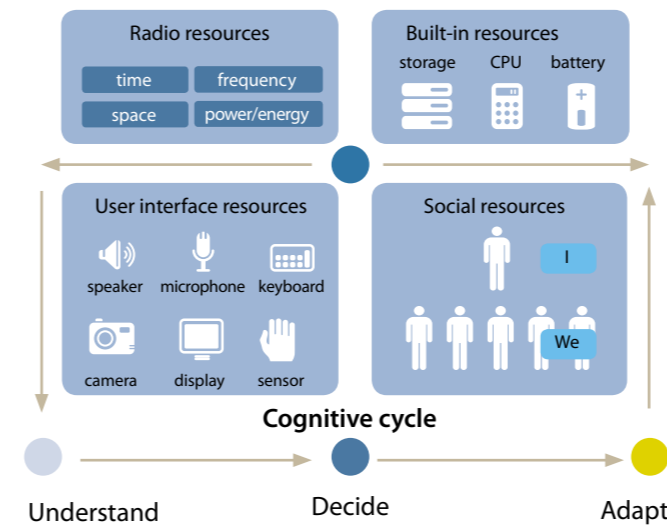
Objectives

The cognitive radio concept is extended in VTT 's and University of Oulu 's Cognac project to cognitive networks where the efficient use of all available resources in addition to the spectrum is important. Knowledge of current resource use in terms of radio resources (e.g. spectrum, energy and time), network resources (e.g. display, microphone and camera), social resources (e.g. networks of users) and the possibilities to exploit the resources efficiently become interesting topics.

Research cooperation

Project is a joint effort between VTT and Centre for Wireless Communications (CWC from University of Oulu). Project is carried out in close cooperation with Finnish Industry (Elektrobit, NetHawk, Nokia, Nokia Siemens Networks and Tieto) and authorities (Finnish Communications Regulatory Authority and Finnish Defence Forces). Key partners in international cooperation include University of California at Berkeley, Rice University and Virginia Tech from U.S., Aalborg University from Denmark, National Institute of Information and Communication Technology (NICT) from Japan and Supelec from France.

Key resources to be exploited by future cognitive and opportunistic wireless networks



Case Pulse Finland

Objectives

The main focus areas of this three year project are in new innovative antenna architectures and material development for mobile phones and other portable wireless terminals. The developed structures are based on existing antenna technology and new outstanding technologies, e.g. ceramic technology or different hybrid structures.

Research cooperation

In order to achieve a maximum benefit from this project a skilful and multi-faceted subcontractor network is needed in addition to Pulse's own resources. Close cooperation is carried out with both domestic and foreign universities and research institutes, especially VTT, in many project tasks.

Results

Project results include multi antenna demonstrator, which consists of up to 11 antennas, each with multiple bands. Few alternative demonstrators have been made and they include very different antenna structures and technologies as traditional air-filled PIFA or IFA antennas, miniature ceramic chip antennas, ferrite based type of non-cellular antennas, advanced switchable/tunable antenna types etc. The new surface mounted ceramic GPS antenna represents the latest design. It is the world's smallest GPS antenna and has the highest performance in its category.



Case 7Signal

Objectives

Project objectives include the development of versatile technology for wireless broadband quality monitoring and a commercial WLAN product based on the platform. To study markets, pilot and launch the solution and prepare for international market access are other objectives.

Project cooperation

7Signal and key partners: VTT, Convergens, Desigence, PT-Controlnet, Constant, Jopaco Electronics, Papula Nevinpat and S1 Design Sami Kuusisto. Piloting and first customers: Porvoon Energia, Setera and Fujitsu Services.

Results

- A flexible platform consisting of custom hardware and client-server software
- A globally unique product for business critical WLAN service quality assurance
- Piloted the solution, made first customer deliveries
- Manufacturing capability was developed
- International market data, partner candidates and service providers identified
- Three patent applications made, first patent granted during the project
- Red Herring Europe Top100 finalist 2008 award granted.



Professori & Finavia

Case FiDiPro

FiDiPro - the Finland Distinguished Professor Programme is a funding programme by the Academy of Finland and Tekes.

Professor Behnaam Aazhang from Rice University (USA) leads a team at the Centre for Wireless Communications (CWC) in Oulu to develop a technology in self-organizing network topologies and operatorless radio access networks. The research tackles cognitive radio technologies using frequency spectrum efficiently and reconfigurable software defined radio (SDR) platforms.

