

# Tekes technology programme evaluation practices; Case NETS – Network of the Future 2001 - 2005

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## Tekes' mission statement

**Tekes' primary objective is to promote the competitiveness of Finnish industry and the service sector by technological means.**

**Activities aim to diversify production structures, increase production and exports, and create a foundation for employment and societal well-being.**

## Impact of Tekes activities

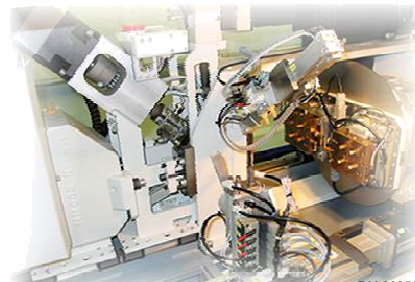


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## What are Technology Programmes?

- Multiproject programmes initiated, steered and part-financed by Tekes
- Focused on a key technology sector
- Implemented in cooperation by companies and research units
- Companies can participate with their own projects or by joining common research projects
- Projects and results are partially public

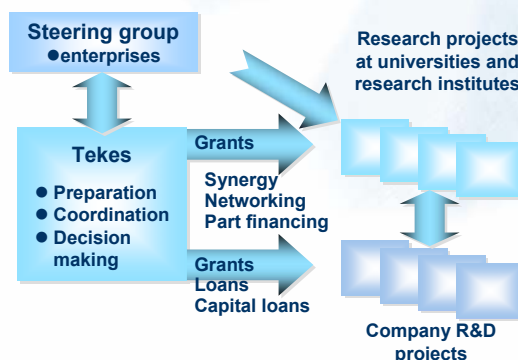


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## Technology programmes in brief



- 22 ongoing programmes in the spring of 2005 with a total cost of 1.3 billion euros
- Each programme typically lasts 5 years
- 1,800 company participations annually
- 500 research unit participations annually
- Tekes usually finances
  - 60-80% of university and research institute projects
  - 25-50% of company R&D projects

Effective utilisation of research results is ensured by scheduling the projects of research institutes and universities concurrently with company R&D projects, and by networking with them.



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## Information and Communications Technology

### Technology programmes in 2005

		Total volume mill. euros	Participating compa- nies	research units
NETS - Networks of the Future	2001-2005	261	130	21
ELMO - Miniaturisation of Electronics	2002-2005	106	75	9
AVALI - Business Opportunities from Space Technology	2002-2005	20	20	10
FENIX - Interactive Computing	2003-2007	84	57	19
FinnWell - Future Healthcare	2004-2009	150	35	40
MA SI - Modelling and Simulation	2005-2009	92	-	-

#### Drafted

CONE - Converging Networks  
Innovative Sector Software  
VAMOS - Value Added Mobile Solutions  
NORDITE - Scandinavian ICT



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## **The NETS technology programme strengthens Finnish telecommunications industry in research and development of wireless systems and broadband networks**

**Programme closed January 2005**

- 450 applications received
- 130 financed industrial R&D projects, total volume million euro 230 million euro
- 48 financed research projects, total volume 31
- Programme volume total 261 million euro



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## **Focus areas**

- The architectures and implementation technologies for wireless systems
- The technologies of broadband packet switched networks
- Service and application concepts utilizing the new networks



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## Thematic groups

**NETS has initiated 9 thematic groups among the programme participants and other players in the industry**

### Purpose of Thematic Groups

- Serve as an interactive management tool for guiding the programme during execution
- Facilitate networking and clustering among the programme participants and other active players in the telecommunications industry and research



## Current NETS thematic groups

- **Wireless systems and networks**
  - 1a. Interoperability between networks
  - 1b. Evaluation of service technologies
  - 1c. Hybrid ad-hoc networks (infra)
  - 1d. Radio channel and air interface technologies
- **Broadband Packet Switched Networks**
- **Services and Applications**
  - 3a. New applications and concepts
  - 3b. Regulation and information Society
  - 3c. Agent technologies
- **Internationalisation**

## Programme evaluation at Tekes

- Technology programmes usually apply an internal mid-term evaluation
- External evaluators evaluate all programmes at the end of the programme
- During the past 3 years, a shift towards evaluating the effectiveness of the under-laying programme concepts instead of operational performance (Conceptual horizontal evaluations of groups of programmes having similar goals for impacts)
- Future orientation of programmes is one key question



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## Evaluation of TLX-programme

- **Title of the evaluated initiative:**  
Evaluation of Finnish R&D Programmes in the Field of Electronics and Telecommunications (ETX, TLX and Teletronics I), in the period of 1997-2001
- **Nature of the initiative:** programme evaluation
- **Description of the initiative:** The goal of the evaluation was to give the overall picture of the strategy and portfolio of the three programmes (ETX, TLX and Teletronics), their effect in the Finnish ICT cluster, their management structures and their interaction with each other.
- **Type of evaluation:** ex post evaluation in 2002 (+ mid term evaluation in 1999)
- **Rationale for the evaluation:** Program evaluations are one part of the Evaluation Strategy of the effectiveness of Tekes activities.
- **Performance objective:** The programmes funded by Tekes (TLX and ETX) had broad aims to support and develop the capabilities of the information and telecommunication s (ICT) cluster in Finland. The evaluation focused on four questions:



## Evaluation of TLX-programme

- 1) Strategy and portfolio
  - 2) Effects of the programmes and projects on the Finnish IT cluster
  - 3) Added value of the theme groups to the programmes
  - 4) The interplay between industrially oriented programmes with more research-oriented Teletronics programme
- **Trans-national dimension of the evaluation:** foreign experts were used in the evaluation (Technopolis Ltd) and also foreign programmes were reviewed
  - **Design of methodology:** multiple methods: 1) network analysis of participation, 2) interviews with theme leaders, 3) programme level structured peer review, 4) strategic firm interviews, 5) project performer interviews, 6) analysis of self-assessment questionnaires, 7) analysis of foreign programmes
  - **Dissemination of results:** evaluation report, seminar
  - **Implementing the recommendations:** recommendations were taken into account at Tekes in planning the new technology programme for ICT cluster (NETS –programme 2001-2005)



## NETS Midterm Review

- In order to ensure the right directions of and good results for the NETS Programme the Management Board initiated a Programme Midterm Review
- The review was conducted in the spring 2003 by the experts from Finland, USA and Japan.
- Several actions were initiated as a result of the review, including:
  - A Horizontal Theme Seminars in collaboration with other programs (like electronics, process automation)
  - Common workshops for the NETS research projects
  - A review of the NETS research projects by the TULI Programme (from research to business) in order to discover opportunities for spin-off business from the research
  - The NETS Business Programme





## NETS - NETWORKS OF THE FUTURE 2001-2005 –TECHNOLOGY PROGRAMMES AS A BLUEPRINT FOR THE FUTURE OF THE TELECOMMUNICATIONS INDUSTRY

- evaluation of the programme was carried out by LTT Research Ltd of the Helsinki School of Economics between 1 December 2004 and 31 August 2005
- This final evaluation of the NETS - Networks of the Future 2001–2005 technology programme assessed the results and impacts of the programme:
  - the appropriateness of the programme structure and methodology,
  - the significance of the technology programme activities of the to the Finnish telecommunications sector and what added value such activities can generate for the industry.
  - the effectiveness of the various programme services and actions piloted within the framework of the NETS programme, what value the programme could add to the activities of the parties involved,
  - what more wide-ranging implications they had in terms of developing Tekes' programme activities.
- 13 recommendations



## NETS - NETWORKS OF THE FUTURE 2001-2005 –TECHNOLOGY PROGRAMMES AS A BLUEPRINT FOR THE FUTURE OF THE TELECOMMUNICATIONS INDUSTRY

Examples of recommendations:

- **Recommendation 5.** Visioning and road-mapping, gathering and analysis of market information as well as the systematic monitoring of market developments and competitiveness should be included as an integral part of all development activities undertaken by Tekes.
- **Recommendation 9.** More attention should be paid to the commercialisation and modularization of value-added services. Additionally, the interfaces between value-added services and programmes should be clarified so as to ensure that they would be accessible to the participants of all programmes.
- **Recommendation 13.** In the context of the on-going efforts to renew and revise Tekes' programme activities, steps should be taken to consider if and how the thematic group activities could be utilised as a more permanent horizontal form of activity that transcends the technology programme activities.





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