

# **Research and development: Strategy, program 2002, results 2001**

## FOREWORD

This research and development report produced by the Ministry of Transport and Communications provides a comprehensive picture of all the transport and communications R&D work being undertaken within the purview of the ministry. The report sets out the R&D strategies for transport and communications in Finland and the background to the strategies. It also describes the methods and good practice being followed and provides information on the programmes and projects currently in progress and the results achieved in 2001. Further information is available from the websites and contact persons given at the relevant points in the text.

Knowledge is constantly increasing and new developments are continually emerging. While the information presented in this report will no doubt be valid in six months' time, many aspects may no longer apply twelve months from now. The strategies, however, naturally focus on a long time frame, and operating methods and procedures also take time to develop. Projects and programmes, on the other hand, advance and produce results on virtually a daily basis. The material presented in this report will later be available in updated form on the ministry's website and on the home pages for the specific programmes.

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## Contents:

1	Strategies	5
1.1	An Intelligent and Sustainable Transport System	5
1.2	Strategies for Communications Policy	9
1.3	European Transport Policy for 2010	11
1.4	Funding for R&D Activities	12
2	Working Procedures and Principles	13
2.1	Role of the Public Sector	13
2.2	R&D is a Support Function	14
2.3	R&D and Cooperation within the Ministry's Administrative Sector	14
2.3.1	Finnish Vehicle Administration	15
2.3.2	Finnish Meteorological Institute	16
2.3.3	Finnish Maritime Administration	16
2.3.4	Finnish Institute of Marine Research	17
2.3.5	Finnish Rail Administration	17
2.3.6	Finnish Road Administration	18
2.3.7	Finnish Communications Regulatory Authority	18
2.4	Cooperation at National Level	19
2.5	Cooperation at International Level	19
2.6	How R&D is organized	21
2.7	Good Practice in Project Work	22
2.8	Evaluation	22
2.9	Utilization of Results	24
3	R&D Programmes and Projects Supporting Transport Policy	27
3.1	JALOIN Programme for cycling promoting 2002-2004	27
3.2	NAVI Programme for Developing Personal Navigation 2000-2002	27
3.3	FITS R & D Programme on ITS Infrastructure and Services 2001-2004	28
3.4	TEDIM Telematics in Foreign Trade Logistics 1995-2005	28
3.5	VALO Real-Time Logistics in Networks 2001-2004	29
3.6	Goods Transport and Logistics	29
3.7	Transport of Dangerous Goods	29
3.8	Shipping	30
3.9	Development Programmes for Public Transport	30
3.10	Traffic Safety	32
3.11	Environment and Vehicle Technology	32
3.12	Transport Infrastructure	33
3.13	Transport Forecasts and Transport Economics	33
3.14	Research in Neighbouring Areas	34
4	R&D Programmes and Projects Relating to the Communications Market	35
4.1	Strategic Planning of Information Society Policy	35
4.2	Equality and Democracy in the Information Society	35
4.3	Promotion of New Technologies	37
4.4	Effects of Digitalization	37
4.5	Data protection	38
4.6	Development of Communications Administration	38
4.7	Network Business	38
4.8	Communications Networks	40
4.9	Media	42

5	Results 2001	44
5.1	JALOIN — Cycling promoting 2001-2004	44
5.2	Public Transport	44
5.3	Traffic Safety	46
5.4	Vehicle Technology and the Environment	48
5.5	LYYLI — an Environmental Friendly Community Structure and Transport System	50
5.6	VÄYLÄT 2030 – Infrastructure Research Programme 1999-2001	53
5.7	Transport Infrastructure	53
5.8	Goods Transport and Logistics	54
5.9	Transporting Dangerous Goods	55
5.10	Shipping	56
5.11	TETRA Research and Development Programme on Transport Telematics Infrastructure 1998-2001	57
5.12	FITS Research and Development Programme on Transport Telematics Infrastructure and Services 2001-2004	58
5.13	TEDIM Telematics in Foreign Trade Logistics 1995-2005	59
5.14	VALO: Real-Time Logistics in Networks 2001-2004	60
5.15	NAVI Personal Navigation 2000-2002	61
5.16	LIIKE Transport Forecasting R&D Programme 1997-2001	61
5.17	Transport Economics	62
5.18	Research on Neighbouring Areas	63
5.19	The Media	65
5.20	Communication Networks	66
5.21	Network Business	68
	Literature	71

# 1 Strategies

## 1.1 An Intelligent and Sustainable Transport System

The goal of Finnish transport policy is a transport system in which personal mobility and transport services are intelligent and sustainable and have due regard for economic, environmental, social and cultural considerations. This will require that

- the opportunities offered by intelligent technologies are effectively utilized by transport users, customer service systems, vehicles and infrastructure.
- the benefits of the transport system to society are maximized and the damage and costs are correspondingly minimized.
- the transport sector has regard in its operations to the need to maintain a high-quality natural and built environment. Such considerations should take account of climatic and environmental changes and endeavour to minimize their impact.
- the transport system can facilitate an improvement in people's health, standard of living and general quality of life in a fair and just manner in regard to different geographical locations and different sections of the population.

### **An intelligent transport system**

An intelligent transport system is one in which information technology is widely used in different transport functions, in personal mobility solutions and transport services, administration systems and individual activities. These technologies are increasingly using real-time data.

Transport telematics is the use of both information technology and communications technology in the transport system and in developing that system. Intelligent transport systems will increasingly be based on wireless data transfer applications and the opportunities offered by positioning and location systems. Development of telematics systems and services is based on existing and projected user needs. The basic components of the systems are the technologies themselves, their applications, information structures, services and terminals.

Development of transport telematics also involves the creation of common frameworks, such as legislative provisions, business models and cooperative arrangements. The areas of development are:

- investigation of user needs
- impact and feasibility of measures
- telematics in process control and services
- traffic control, information provision and other services
- traffic monitoring and forecasting
- driver support and surveillance systems
- information and communication structures

- telematics architecture and standardization, organizational issues and legislation.

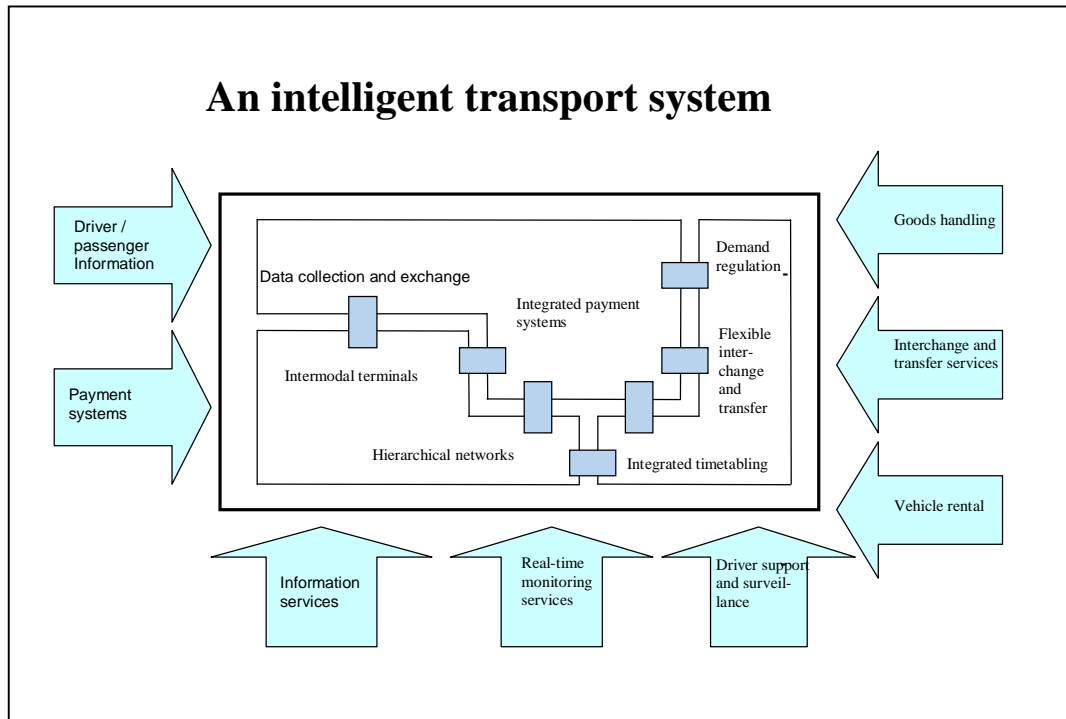


Figure 1. The aim of an intelligent transport system is to integrate different transport modes into a single, seamlessly functioning entity.

The research and development strategy for an intelligent transport system focuses on all areas of telematics (the FITS programme), in particular on developing new services. Passenger information services and provision of information on disruptions in public transport services play a key role (the HEILI programme). The competitiveness of goods transport logistics will be enhanced using advanced information technology models (the VALO programme). Practical IT applications are also being developed, especially for improving the competitiveness of logistics in the Baltic region (the TEDIM programme).

Alongside these programmes, positioning and location services are also being developed and tested for route and mode choice and route guidance, making use not only of transport system data but also information on locations, services and other factors (the NAVI programme). Before long, transport-related services will also be available via mobile phone networks and wireless local area networks (the MONA programme).

This is an evolving and flexible strategy. During the lifetime of these programmes the results will be evaluated, strategic goals reviewed, new emphases given and, where necessary, new or parallel programmes launched.

## **A sustainable transport system**

Developing a transport system that is economically, environmentally and socially sustainable will require a more effective range of measures, full awareness of the impact of different measures, and careful targeting of the impacts for the equal benefit of different transport system users, the public at large and the business community.

A long-term approach to development and cooperation is necessary. It is also essential that rapidly developing technologies can be utilized effectively and without delay.

Development of a sustainable transport system means improving the efficiency of the system, integrating land-use and transport planning, using environmentally friendly forms of transport, improving traffic safety and reducing energy consumption.

The Ministry of Transport and Communications' partners in developing the transport system include all Government departments and agencies within the ministry's purview and countless parties in the other ministries, municipalities, Provincial State Offices, regional administrations, organizations of different kinds, educational and research institutions and private companies.

The research and development strategy for a sustainable transport system focuses on the long-term development of such a system using wide-ranging programmes and individual projects covering the following areas:

- public transport and non-vehicular transport
- logistics efficiency and competitiveness
- transport infrastructure
- traffic safety
- environment
- social sustainability
- vehicle technology

The aim is to produce new knowledge and expertise and new products and services in these areas, and to increase the effectiveness of the ministry's strategies and guidance processes.

This is an evolving and flexible strategy. With changes occurring in the operating environment and periodic reviews as part of the evaluation process, the content of these themes and programmes may need to be modified and fine-tuned and priorities reconsidered.

## **General goals of the transport system**

The research and development programmes are designed to achieve the long-term goals of an intelligent and sustainable transport system. The impact of the programmes and the effects of each area of development are illustrated in the accompanying table. The information is based on assessments by qualified experts. The impacts of the programmes are likely to continue to be felt for some time after the programmes are concluded. The success of programmes can also be measured against their goals once agreement is reached at the start of a programme or item, on the particular indicators to be used.





## 1.2 Strategies for Communications Policy

The research and development programmes of the ministry's Communications Department have been designed to support the ministry's general goals as closely as possible. The R&D activities not only accord with the ministry's policy guidelines but also with the decision to emphasize its role as the principal ministry responsible for development of the information society.

The ministry's operational and financial plan for 2003-2006 states that communications policy should promote prosperity by developing an information society characterized by openness and equality while preventing the creation of inequalities between different sections of the population and different parts of the country. It also states that an increase in skills and new business will be supported and access to affordable and high-quality communications services and other information society services will be secured for all citizens and businesses.

The R&D work of the Communications Department is designed to support the information society goals outlined in the ministry's operational and financial plan. It is also a tool for monitoring market developments, identifying areas of change and the need for legislative changes, evaluating the measures taken and producing background data for legislative work. The ministry's R&D concerning the information society has generally consisted of reports on practical problems and investigation of topical issues. The aim in 2002 and 2003 is to focus on the needs of long-term strategic planning.

### **Department's joint projects support the needs of long-term strategic planning**

In 2002, the Department's R&D focuses on five priority areas in addition to normal research in support of the law-drafting process. The priority areas, based on the information society and communications policy goals, are as follows:

1. Strategic planning concerning information society policies, for which purpose a communications policy strategy is to be drafted;
2. Equality and democracy in the information society, including broadband policy, a review of the public television service and assessment of the public postal service;
3. Promotion of new technologies, focusing on developing the framework for successful mobile Internet business and improving the business environment for new digital media;
4. Data security, supported by development of the national data security strategy and establishment of a data security cluster programme;
5. The administration of communications at national level is also being developed, starting with implementation of the evaluation and guidance issued by the Finnish Communications Regulatory Authority.

The above projects in support of the Department's general communications policy are 'horizontal' in nature, i.e. they cross the boundaries between different units in the Department. The units participate in the projects as dictated by their own special fields. The projects are therefore being carried out jointly. Each has a steering group, which includes representatives from the relevant social actors. The main unit responsible in each case coordinates the research for the individual project and reports on it to the relevant steering group for the priority area.

The aim of the above procedure is to rationalize the R&D work undertaken, making sure it more clearly supports the rest of the Department's work. It also coordinates projects by priority area, ensuring that all relevant information is disseminated to the different units. The creation of broad-based working groups by priority area is also useful, creating the opportunity for different social actors to participate in the debate on specific communications policy issues.

### **Unit R&D projects primarily support the Department's basic operations**

The aim of R&D projects carried out within single units is to support daily operations. Background information is also gathered through research and investigation for the purposes of drafting legislation and other regulations. In addition, each unit develops its own contingency planning to ensure that clear procedures are in place for action to be taken in times of exceptional circumstances.

The Unit for e-Commerce and Data Security is responsible for promoting development of e-commerce, data security and other user-driven services for open communications networks. Network users must have equal rights and obligations regardless of the technology on which the network is based. The ministry is committed to developing an information society that is regionally and socially balanced. Raising user confidence in the convenience and security of these services will be essential. The aim is an operating environment that is regulated as little but as effectively as necessary.

The Unit for Networks and Competition is responsible for promoting development of communication networks that are diverse, secure and of a high standard. The ministry uses legislative means to promote a smooth-functioning, deregulated communications market and ensure that the same rules apply to all electronic communications networks. The ministry also supports the efficient use of communications networks, development of new innovations and introduction of new technologies, and is promoting the provision of broadband network connections.

The Media Policy Unit is responsible for safeguarding freedom of expression and promoting multivalue information exchange. The aim is to ensure a diversity of content in communications networks and versatile use of networks for producing information society services. The general operating requirements for television and radio are safeguarded and sufficient resources secured for operating a public service. The convergence seen in communications networks and technologies is also taken into account in the regulatory framework concerning content production. Self-regulation of communications facilities is also supported in a communications sector that is rapidly changing due to new technologies and international integration.

Through legislative means, the Media Policy Unit will secure high standard and affordable postal services for all users throughout the country. Postal services will be

developed with regard to the changing needs of customers, technological developments and increasing competition.

### 1.3 European Transport Policy for 2010

The European Commission published its White Paper on Transport Policy in September 2001. The main theme of the White Paper is traffic growth in Europe, the associated problems and how to deal with them. The Commission proposes a wide range of measures to ensure balanced development of different forms of transport, to eliminate bottlenecks, meet people's needs and expectations, and manage the globalization of transport.

The Council of the European Union is set to discuss the projects listed below before 2005, and preparations are already under way in Finland for participation in these discussions. The list shows the R&D reports that are required for this purpose in addition to reports already produced.

<i>Measures proposed by the Commission (estimate for 2002-2005)</i>	<i>Estimate of ministry's R&amp;D needs beginning in 2002</i>
Galileo satellite navigation project	Need considered as project progresses
Road transport social conditions package	Driving and rest time study in progress
Standardization of road transport surveillance and penalties	No need in advance – possible when proposal received
Railway package II	Impact report on competitive tendering, for ministry and Parliament use (incl. safety, shared use, deregulation)
Single European sky	Impact report
Revision of Eurovignette directive	Report on haulage cost implications and effect on e.g. production structure
Creation of transport pricing framework	Report on road traffic costs + other studies
Improving the Community's road traffic safety work	No need at general level – individual proposals will be studied
Full review of inland waterway regulations	No need
Review of TEN transport guidelines	If there is a need to influence the TEN principles, any investigation must tie in with this
Taxation and payment issues for air traffic	Investigation of environmental charge for air traffic in progress
Future of airports, incl. airport charges	Report on implications for the extent and profitability of Finnish domestic airport network
Promoting intermodal transport (incl. harmonization of loading spaces)	No need (if specifically on approval of different dimensions)
Passengers' rights and obligations (all forms of transport)	No need
Review of guidelines on State support for shipping, and the proposed legislation on	Requires investigation – a lot already done; more as necessary when proposals

tonnage-based taxation	received
Promoting combined loads (incl. short sea shipping), the 'Marco Polo programme'	Resources must be earmarked to ensure properly considered Finnish proposals in 2002, especially for short sea shipping
Community membership in international organizations	Requires analysis of pros and cons and formulation of a position
Environmental charges for shipping	No need at general level – individual proposals will be studied

## 1.4 Funding for R&D Activities

The Ministry of Transport and Communications provides an average of EUR 8-8.5 million annually in funding for research and development activities. In addition, about EUR 0.6 million of the annual allocation for public transport development has been used for R&D projects. On top of this, the Government departments and agencies within the ministry's purview spend around EUR 23 million on research each year. This does not include research by State-owned enterprises and companies within the ministry's purview.

The total funding required for projects in the ministry's R&D programmes is considerably greater, and typically many times greater, than the funding provided by the ministry. The gap is bridged by funding provided by the project partners. The R&D projects can involve quite a number of partners and thus impinge on society in a variety of ways. Indeed the intention of the ministry is to actively promote and stimulate cooperation and networking, and at the same time make effective use of its own and its partners' resources to achieve like-minded goals.

The proportion of funding derived from other project partners is greatest in programmes that seek to utilize information technology. In the programmes within the intelligent transport system strategy (the NAVI, FITS, MONA, HEILI and VALO programmes) the ministry's total funding during the lifetime of the programmes (3-4 yrs) is about EUR 10 million, whereas the funding by other partners will amount to about EUR 52 million. The ministry was responsible for setting up these programmes and is funding the coordination of the programmes.

With the ministry's funding for all projects amounting to EUR 8-8.5 million per year, it can be roughly estimated that the annual funding by other partners is EUR 20 million. This does not include the Academy of Finland programmes, in which the ministry's role is only minor.

## 2 Working Procedures and Principles

### 2.1 Role of the Public Sector

The future of the Finnish economy is heavily dependent on skills and the ability to profit from those skills and create new innovations. Sustainable economic, social and cultural development demand the support of an effective innovation system.

Development will be centred on knowledge and expertise in their different forms and their efficient generation, dissemination and utilization. Research and development will create a foundation for knowledge-intensive growth – without constant input in this area, the growth potential of the economy will gradually diminish.

An effective innovation system can be seen as an arena created in cooperation between all producers and users of new knowledge, in which knowledge and expertise can interact. The public sector has an important role to play in such an interactive arena; its function is now broader and more demanding than before, and its actions will be of key importance alongside the private sector in meeting future needs.

The role of the public sector is important, for example, in ensuring that a well-educated supply of labour is available for companies, thus allowing intellectual capital to be accumulated, and in establishing standards and international regulations and securing the conditions for healthy competition and an atmosphere conducive to business.

The means by which the public sector can boost knowledge and expertise are education and training, basic research, transport and communications research, utilization of technology, and development of intellectual resources.

In transport and communications research, the ministries and other public administration bodies are in a key position. They fund and commission research and engage experts for other assignments important to their own policy sector. They are also responsible for the effective and expert use of the knowledge acquired. The transfer of knowledge for use in social and economic development, and the speed of this transfer, depend to a large extent on the ministries' ability to make effective use of transport and communications research. For this reason the commitment of the ministries' senior management to creating a knowledge-intensive administrative culture throughout the organization is especially important. This will also improve results management of the institutions within each ministry's administrative sector, and where necessary the ministries' ability to function as a well-informed and demanding customer in the development of the sector's administration and public service systems. The ministries also have the job of creating cooperation networks in line with the general transport and communications research model and developing 'horizontal' cooperation across administrative boundaries.

## **2.2 R&D is a Support Function**

Research and development activities support the core processes of an organization. In the Ministry of Transport and Communications, this means strategies, guidelines, legislation, guidance and management of Government departments and agencies, and budget drafting. The R&D priorities are determined on the basis of the needs and goals of these processes.

Research is thus on the one hand a tool to aid strategic planning, used to find a socio-economic optimum for the transport and communications system, and on the other hand an investment whose return is in the form of a more efficiently functioning system, with lower transportation costs, improved traffic safety and reduced environmental problems.

For this support function to work efficiently for the benefit of the organization, the following must apply:

- The ministry and each organization within its purview will have an R&D strategy and plan, to which the management are committed, and a management-appointed R&D director, coordinator and contact person.
- Coordinators will assist management in taking care of the operational planning of the research activities and will support the key units by providing consultation, developing tools, arranging cooperation and providing information.
- Research planning will be closely linked with other operational planning. This concerns the drafting of long-term operating guidelines, operational and financial plans, and annual plans. The priorities of the R&D activities and their effectiveness are also part of the result management negotiations of the ministry and the organizations within its purview.

## **2.3 R&D and Cooperation within the Ministry's Administrative Sector**

Within the ministry's administrative sector, the transport and communications development work is generally shared. Each organization has its own differentiated and specialized roles, and there is often a detailed division of responsibilities, which is frequently reflected in the R&D work. For the most part, the strategic goals are shared, as are the biggest and most resource-intensive development projects. Intellectual capital and the responsibility for accumulating it are also shared within the administrative sector as a whole.

A good example in recent years has been the development work in the telematics field, where about 20 different organizations have been involved for some considerable time, including almost all the Government departments and agencies within the ministry's purview. The goals, organization, work input, management group activity, funding and utilization of results are all shared.

The role of the ministry is to initiate cooperation and to actively ensure the right conditions are in place to nurture successful cooperation. In practice, this is achieved at the programme and project set-up stage and later on as further progress is made. This is one of the roles of the Research Unit, which is also responsible for further developing the research function itself in cooperation with others, improving the efficiency with which research resources are used, and promoting the utilization of results and transfer of successful working models to a wider audience.

The ministry's R&D programmes and projects are presented in sections 3 and 4.

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### 2.3.1 Finnish Vehicle Administration

The priority areas in the research services of the Finnish Vehicle Administration are reduction of environmental damage and projects concerning vehicle technology and driver behaviour.

The themes concerning environmental damage are:

- detrimental effects of traffic on the natural and built environment,
- evaluation of the impact of emissions reduction systems and the development of emissions calculation systems,
- production of information to help people choose between different modes of transport and mobility options and
- development of emissions measurement methods in vehicle inspection and in road traffic.

The themes concerning vehicle technology are:

- vehicle safety and economy, especially safety equipment, heavy-vehicle braking systems and tyres, and
- use of advanced vehicle technology in vehicle inspection and maintenance supervision.

The themes concerning driver behaviour are:

- maintenance and development of the traffic safety index,
- method of obtaining the right to drive a vehicle, and personal risk of accidents, and
- the driving test (road and theory tests).

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### 2.3.2 Finnish Meteorological Institute

The Finnish Meteorological Institute aims to be an international front-runner in the integration of expertise and services on matters concerning the atmosphere, for the benefit of people and the environment. The Institute produces high-quality observational and research data on the atmosphere and provides a range of services based on its core expertise. These are produced efficiently and with the aim of promoting public safety and assisting ordinary citizens and the economic life of the country. Demand is growing for high-quality atmospheric and space research, both at the national and international level. As a consequence, research accounts for an increasing proportion of the Institute's activities.

The principal areas of research at the Finnish Meteorological Institute are:

- research and development of atmospheric simulation models,
- global change research, especially climatic change,
- space research, and
- development of remote sensing methods.

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### 2.3.3 Finnish Maritime Administration

The Finnish Maritime Administration spends about EUR 1.8 million annually on research and development. The Administration's R&D focuses on work needed for administrative decisions on shipping and port operations, technical product development, and development of the Administration's own activities.

The priority areas of the Finnish Maritime Administration's R&D have been:

- development of shipping logistics
- development of safety equipment and navigation systems
- development of hydrographic surveying
- improvement of vessel safety and protection of the marine environment
- development of in-house activities.

Technology development in the IT sector in particular in recent years has brought new opportunities for developing the shipping and ports sector through applied research. Changes in navigation technology also create a need for further technological development. The most significant projects of recent years have included a chart production system, production of electronic chart data, the VTMS system for the Gulf of Finland, and winter shipping research.

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### **2.3.4 Finnish Institute of Marine Research**

The Finnish Institute of Marine Research aims to be one of the top national marine research centres in Europe for the study of the scientific properties of the seas. Its function is to conduct basic and applied research and to provide ice, wave and sea level information services. The Institute applies its expertise to the needs of society, especially in support of transportation and other economic activity and as a basis for measures to manage and protect the marine environment. The research primarily concerns the properties of the Baltic Sea, but also the polar seas. The general goal is to establish a foundation for understanding the scientific properties of the sea, with particular reference to the needs of society. The main areas of research are marine dynamics and interaction with the atmosphere, internal marine processes, long-term changes in the marine environment and studies of global change.

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### **2.3.5 Finnish Rail Administration**

The function of the Finnish Rail Administration is to promote an operating environment that facilitates rail traffic as an efficient, safe and environmentally friendly form of transport in Finland and as part of the wider international transport system. The Administration is responsible for maintenance and development of the rail network and for the safety of rail traffic. Research and development play a key role in the Administration's activities. The Administration is responsible for maintaining and developing the country's expertise in track maintenance. The main research themes are concerned with rail technology, railway safety, socio-economic effects of infrastructure maintenance and improvement, and customer requirements in regard to rail traffic.

Most of the Finnish Rail Administration's R&D work consists of joint projects with other partners. These partners include the Ministry of Transport and Communications, the Finnish Road Administration, the Helsinki Metropolitan Area Council (YTV), VR-Track, VR Ltd and the International Union of Railways (UIC). Technical development work - aimed at reducing unit costs, increasing rail transport capacity and improving safety - is, for example, largely conducted through international cooperation.

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### 2.3.6 Finnish Road Administration

The R&D strategy of the Finnish Road Administration is based on the Administration's mission and its newly adopted vision. The aim of the Administration's R&D is to create new knowledge and expertise to improve the road transport system, and to make it safer and more competitive with due regard to sustainability.

The Administration's R&D activities consist of applied research on the road transport system and road maintenance and improvement work, and the development and introduction of guidance for road maintenance and improvement, operating quality requirements and methods and procedures needed by the Administration. The work is divided into strategic projects, development projects serving core processes, and activities supporting the Administration's role within the sector.

The priority areas of the Finnish Road Administration's R&D are:

- the needs of different customer groups in a changing society,
- detailed investigation of the effects of traffic and of road maintenance and improvement work,
- infrastructural assets,
- healthy and well-functioning markets for road maintenance and improvement work,
- improving traffic safety and reducing congestion using traffic management methods,
- the right information in the right place for the right purpose.

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### 2.3.7 Finnish Communications Regulatory Authority

The development work of the Finnish Communications Regulatory Authority supports its visions and strategies for the following key areas:

- convergence
- new legislation
- management of "bottleneck" resources
- data security
- demand growth for radio frequencies
- self-regulation in supervision of communications content
- Internet data transfer technologies
- postal services
- TV fees
- exceptional circumstances.

For further information, please contact:

## 2.4 Cooperation at National Level

National and international networking and research cooperation is being supported and expanded through joint R&D programmes, cooperation at the planning stage and regular information exchange. More extensive R&D cooperation at the national level will bring synergy benefits in the form of:

- accurate targeting of the work
- ensuring that all necessary areas of research are covered
- combining resources for projects with the same goals
- improved communication and utilization of the results.

The Ministry of Transport and Communications' cooperation with other ministries is pursued through joint programmes, projects and working groups. The ministries also meet regularly via the network established by the Science and Technology Policy Council of Finland.

Cooperation with the National Technology Agency and the Academy of Finland is aimed at increasing basic research and expertise in research/consultancy in the sector over the long term.

The ministry also supports undergraduate and postgraduate studies in the transport and communications field in Finland. Knowledge of theories and methods is needed in managing practical tasks. High-quality applied research and analysis is only possible if the basic grounding in the field is sufficient. Limited expertise and its fragmented nature are something of a problem in Finland. The ministry is seeking to correct this in the longer term. Assisting in this are the Ministry of Education, the Academy of Finland, the National Technology Agency, research institutions, and universities and other higher education establishments.

## 2.5 Cooperation at International Level

The ministry participates in international research when:

- this supports national research and information needs
- there is good reason to influence the formulation of international standards and operating principles
- there is a need to develop Finnish expertise or international networks of expertise
- cooperation would bring additional value in terms of finance or quality compared with exclusively national research, and the cost-benefit ratio is sufficient.

Obtaining adequate information on international research projects and their results is of particular importance. This will avoid duplicated or overlapping research and will

ensure that Finland can benefit from the results of major international research projects. Information on research results must be regularly collected and arranged by subject, including the research conclusions. Responsibility for this monitoring and for the onward dissemination of this information rests with the units and organizations responsible for the particular subject area within the administrative sector.

#### The European Union

- Most of the results of the EU's Fourth Framework Programme are already available.
- The last invitations to tender for the EU's Fifth Framework Programme have been received. The programme results will be seen over a period of several years. The Fifth Framework Programme features dozens of transport projects that include Finnish participation.
- The EU's Sixth Framework Programme (2002-2006) is now under way. In practice, the first invitations to tender may not be issued until 2003. Besides the framework programme's themes, the need for strengthened networking of the national R&D programme presents a particular challenge. The framework programme will include instruments for promoting networking. Expansion of regional cooperation (Northern Dimension) will also be continued.
- The preparation and implementation of the framework programmes will be managed by programme committees and ad hoc groups, in which Finland's transport representative will be Martti Mäkelä and its communications and information technology representatives Matti Roine and Tatu Tuominen.

For further information:  
<http://europa.eu.int/comm/transport/extra/index.html>  
[www.tekes.fi/eu/index.html](http://www.tekes.fi/eu/index.html)

#### European Cooperation in the field of Scientific and Technical Research (COST)

- COST is an EU-supported organization that funds additional networking costs (e.g. travel costs, secretariat, publications). The transport research programme currently has about 15 projects in progress.
- Martti Mäkelä, Director of Research Unit at the Ministry of Transport and Communications, is a member of the Transport Technical Committee  
 For further information: [www.cordis.lu/cost-transport/home.html](http://www.cordis.lu/cost-transport/home.html)

#### The Organization for Economic Cooperation and Development (OECD)

- The OECD has a three-year research programme entitled Research on Road Transport and Intermodal Linkages 2001-2003. The programme has 5-6 working groups, a research database and a statistical collection.
- The programme's priorities and progress are directed by a Steering Committee. Finnish members on the committee are Jukka Isotalo, Research Director at the Finnish Road Administration, and Juha Parantainen, Senior Engineer at the Ministry of Transport and Communications.

For further information:  
[www.oecd.org/dsti/sti/transport/road/index.htm](http://www.oecd.org/dsti/sti/transport/road/index.htm)

### The European Conference of Ministers of Transport (ECMT)

- The ECMT arranges regular meetings of transport ministers and is a forum for expert cooperation. Experts meet in round table subject-based seminars, and once every three years in broader based symposiums, the results of which are reported.
- The Economic Research Committee guides the choice of round table subjects and the preparation of the seminars. Tiina Korte, Senior Engineer at the Ministry of Transport and Communications, is a member of the committee.

For further information:  
[www.oecd.org/cem](http://www.oecd.org/cem)

### Nordisk Transport Forskning (NTF)

- The NTF organizes annual joint Nordic seminars.
- Members of the management group include Martti Mäkelä, Director of Research Unit at the Ministry of Transport and Communications, and Heikki Kanner, Research Manager at the Technical Research Centre of Finland.

In addition, there are countless other organizations promoting cooperation in different fields, and participation in these occurs as necessary.

## 2.6 How R&D is organized

A significant proportion (about half) of the Ministry of Transport and Communications' funding for R&D is for long-term programmes. This ensures the quality of the results, imposes requirements for efficient project management and supports the development of expertise in the sector and the opportunity for internationally competitive centres of excellence to develop. For most of the research programmes, the public funding is seen as catalyst funding, with the intention that a considerable proportion of the remaining programme funding will come from partners and other beneficiaries of the results. The basic model is that the organizations within the administrative sector supervise the R&D programmes through e.g. management groups, while the practical project management is taken care of by full and part-time project leaders. This releases the organizations' own staff for other basic duties.

In addition, a great many development projects and other investigations are commissioned separately or as part of various wider themes. Different operating models may be used, featuring joint funding, management groups, steering groups, coordinators or project secretaries as applicable.

## 2.7 Good Practice in Project Work

Tried and tested project work models are used in research and follow-up activities, results utilization and evaluations. Key activities in any programme or project are phasing, verification and documentation.

- Phasing: Dividing the programme or project work into manageable parts and arranging who is responsible for each part. The phases may include project preparation, tendering, contract drafting, start-up, main timetable (in phases), communications, utilizing results, evaluating results and project conclusion.
- Documentation: The results of any phase exist only when they are documented. Many project phases have ready-made documentation models, such as a research contract or a communications plan. Most project results are published in report form.
- Verification: Checking the results of each phase. Project management and decision-making at defined intervals as agreed.

## 2.8 Evaluation

All research and development undertaken within the purview of the Ministry of Transport and Communications as a whole and separately within each organization is evaluated at least once every five years. Each R&D programme is evaluated (6-12 months) before its conclusion, to ensure that the evaluation results can still be taken into account. Less rigorous evaluation, or rather reporting, of the work is undertaken in conjunction with the normal reporting of results, and for each project at pre-determined intervals.

### **Evaluation of all R&D activities within the purview of the Ministry of Transport and Communications**

An independent evaluation of the R&D activities within the purview of the Ministry of Transport and Communications was commissioned at the end of 2000. The evaluation investigated the nature and purpose of the work and the factors influencing its progress, as well as management and cooperation procedures, goal setting and implementation, and the use and impact of the results. The evaluation methods consisted of interviews with the ministry's R&D experts and two working seminars. The principal results were as follows:

#### Nature and purpose of research

The research and development undertaken has significantly enhanced national and international confidence in the ministry's expertise and strategic planning capability. The increase in R&D in the late 1990s has proved to be the right decision. The activities have established a platform for national expertise and knowledge in transport policy and transport research. The ministry has a responsibility to maintain and develop national knowledge and expertise, particularly in transport issues, logistics and telematics.

Suggested areas of further development:

*Communications policy and communications administration* do not receive sufficient R&D support for strategy formulation and developing expertise. The ministry could define its own role more specifically in regard to national expertise in communications and telecommunications, and on this basis draw up a strategic plan for its communications R&D.

*Need for critical research:* The ministry's R&D work is based on transport and communications policy viewpoints and on the ministry's strategic goals. If policies and strategies are to be adequately reviewed, critical research will also be needed to question the present strategies.

#### Management and cooperation

In the preparation of its R&D strategies and programmes the ministry has successfully combined commissioned assignments with those based on proposals by research personnel. The views of interested parties are widely sought in the preparation of programmes. Programme and project practices retain the necessary flexibility despite the increase in instructions and guidance. Experience with the cluster programmes has mostly been positive.

Suggested areas of further development:

*Long-term development:* More attention given to long-term development in transport research and related national expertise. Research personnel should be able to plan their future over a longer period than at present.

*Preparation of research programmes:* Forms of cooperation that involve a greater level of discussion must be developed. The nature and importance of 'horizontal' cooperation in internal and external R&D cooperation must be emphasized.

*Inviting tenders for projects:* Current practices lead to R&D activities which are too fragmented.

*R&D management:* Training for the ministry's R&D personnel on programme management, project management and research policy issues.

*Interministerial cooperation:* Interministerial cooperation specifically in research and development is necessary and advantageous. The present administrative division between ministries means that dealing with problems and processes in society is not as effectively organized as before. Joint research can create the knowledge base and skills which these matters demand. At the same time a practical foundation will also be created.

*Increasing cooperative skills:* There is insufficient expertise in guidance and management of 'horizontal' cooperation projects.

#### Goal setting and implementation

The programmes have considerably improved the organization of the ministry's R&D activities overall and its goal setting. The method of planning programmes and consulting interested parties is highly valued. R&D goal setting is today more broadly based, more challenging and more thoroughly considered than before. Programme planning and goals are based on operating strategy, and their results influence the content of the strategy.

Suggested areas of further development:

*Programme start-up:* The ministry could develop working methods for the start-up of programmes and projects that promote innovation and identify the significance of the shared views of the parties involved and other considerations.

*Ministry-centric goal setting:* Greater scope for the other partners to influence strategy definition and goal setting.

*Principles of programme formulation:* A clearer picture of the process that led to the programmes, so that each partner can contribute more effectively. In programme preparation, more attention must be given to the expectations of different business sectors and to the needs of different sections of the population.

*Researcher initiative:* A growing proportion of transport and logistics research resources should be channelled into research that is based on the wishes of research personnel.

*Evaluation:* The ministry could draft principles for programme and project evaluation and create a procedure for ensuring the evaluation results are utilized.

### Use and impact of results

The results of the ministry's transport R&D projects are used effectively in the preparation of transport policy and in transport system planning.

Suggested areas of further development:

*Greater attention to boosting skills:* More attention in R&D to indirect effects on the functioning and development of the innovation system, especially the effect on skill levels.

*National knowledge:* The ministry must assume a broad responsibility for national knowledge and expertise on transport and communications. This will create a firm basis for implementing its strategic goals. Such responsibility should also be mirrored in research and development goals.

*International contacts:* Use of R&D results produced elsewhere than under the ministry's own direction is currently insufficient.

*Utilizing results:* The ministry could draft principles for ensuring the use of programme and project results and for utilizing the information and expertise accumulated. Each programme and project should be required to produce a plan for realizing these principles. Both the ministry and various interested parties consider awareness, application and effectiveness of the ministry's research results inadequate in relation to the quality of the research.

*Promoting the use of results:* Realizing the goals of R&D activities is critically dependent on effective communication and the actions of the information service; investment in these areas must be increased.

## **2.9 Utilization of Results**

Utilization of research results is emphasized throughout the entire life cycle of a research programme or project. The results are communicated to different customer groups in tailored reports in order to encourage their utilization.

Research results are translated through variegated, complex processes into new information, skills, competence, more efficient processes, and new products and services. It is almost impossible to represent the extent of benefit gained from the results by any numerical indicators, i.e. in terms of money, percentages or production volumes.



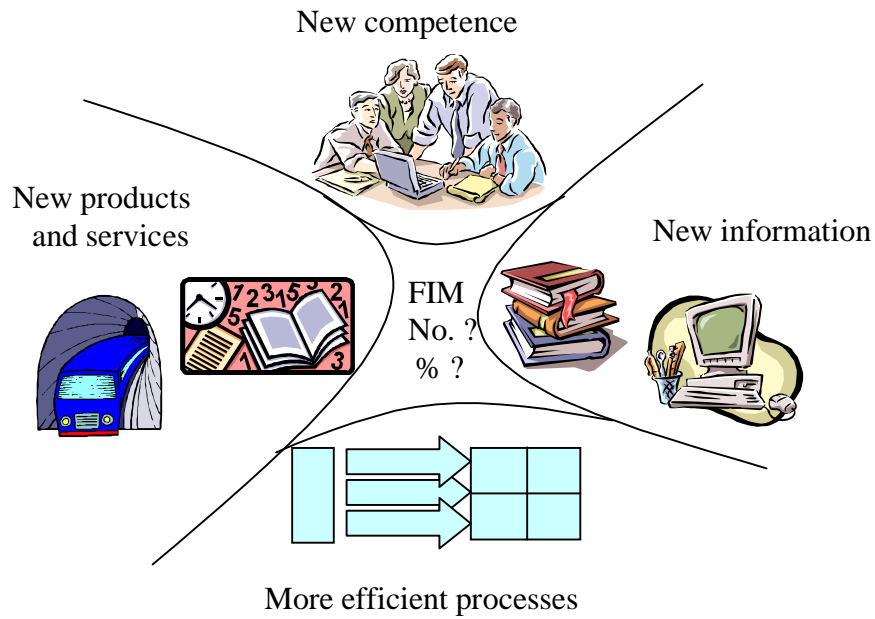


Figure. Impact of results

Utilization of results can be approached from the angle of communications, the learning process, or implementation of results. Inputs in R&D will often translate into benefits only slowly or over the long term, especially if the aim is to reform legislation, for example.

Utilization of results calls for efficient communications and explicit, close cooperation between a number of actors. It also means that it should be possible to smoothly reconcile the targets and actions of the different parties involved.

There is still a learning process between communicating the results and implementing them. A customer involved in a research programme must have a definite need for the new information and a desire for development. The learning process can be accelerated, for example by engaging the customers/stakeholders involved in the research programme in producing the results from the outset until the final stages. Hence, the completed results already constitute learning.

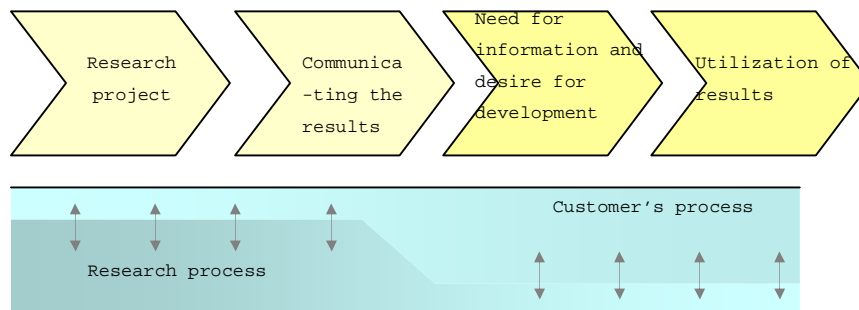


Figure. Participation in all stages of the project will encourage utilization of results.

Measures aimed at supporting utilization of information produced in Finland and abroad are needed in order for the positive effects of increased research to be disseminated throughout society and to individuals as extensively as possible. The

results of research projects conducted by the Ministry of Transport and Communications are always reported, and information bulletins, training programmes, seminar series and articles are produced from them. Almost all research results in this disciplinary area are entered in the OECD's International Transport Research Database.

### **Communication plan**

A communication plan is drawn up in all the Ministry of Transport and Communications' major research programmes, because this will permit broad utilization of the results of the programmes. The communication plan aims at ensuring that the different phases and results of a research project are reported as effectively as possible to the parties involved, to the intended users of the results, and to all target groups that are of significance in realizing the aims of the research project. The communication plan also aims at ensuring sufficient interaction and exchange of information between the different parties partaking in the research project. The separate projects and smaller R&D projects included in the research programme can apply the principles of the communication plan at programme level in their communications.

Communications is a resource that can be used to achieve the targets of the research programme. It is a strategic means for concretizing and structuring the targets of the research programme. It is an administrative tool for the project, allowing materialization of the targets of communications to be monitored and steered.

The communication plan itemizes the communicative principles and actions that are implemented in internal and external communications relating to the project on a national and an international scale. The communication plan sets forth the:

- Basis for communications
- Target profile and basic message for communications
- Possible hazards and hedging against them
- Target groups, means and channels for communications
- Practical implementation of communications
- Follow-up of implementation.

The principle on which the different parties involved in the research programme independently communicate about the research results produced in the programme (and on their own products and services) should also preferably be laid down in the communication plan.

### 3 R&D PROGRAMMES AND PROJECTS SUPPORTING TRANSPORT POLICY

#### 3.1 JALOIN Programme for cycling promoting 2002-2004

The JALOIN programme encourages walking and cycling by means of research projects and practical participation, lobbying, and communications. Projects for 2002 include:

- Development of pedestrian and cycle ways in the Itäväylä area of Helsinki – pilot project for studying the implementation and effects of small low-cost measures
- Compiling cycling route leaflets and route descriptions for the use of active cycling tourists and excursionists
- Effects of the availability of cycle parking facilities on cycling
- Improvement of cycle parking in the Helsinki metropolitan area
- Winter cycling; volumes, motives and effects on health
- Development of a method for calculating non-vehicular traffic, based on aerial photography and automatic shape recognition, phase 1
- Development of procedures for granting permits for and monitoring street construction work, with the aim of diminishing inconvenience caused to non-vehicular traffic by construction sites
- Cycling safety study in Pori
- Increasing the amount of short-distance walking

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#### 3.2 NAVI Programme for Developing Personal Navigation 2000-2002

The Navi programme is a programme intended for developing information services relating to personal navigation. The programme involves horizontal support projects, such as the regulatory framework, standardization and architecture, charting of needs and availability, and actual pilot projects utilizing the services of the horizontal support projects.

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### **3.3 FITS R & D Programme on ITS Infrastructure and Services 2001-2004**

The objective of the FITS programme (Finnish R&D Programme on ITS Infrastructure and Services) is to improve public and commercial services relating to transport, and structures needed to implement them. The FITS programme is developing the information society concept and implementing the transport policy targets related to it. This requires close-knit cooperation between the various forms of transport needed by users. The emphasis of the programme is on R&D producing user-oriented services and on increasing competence in the field.

The programme comprises eight project areas:

Prerequisites for services

- 1 Prerequisites for services
- 2 Impact and user needs
- 3 Monitoring of transport and logistics
- 4 Incident management
- 5 Passenger information
- 6 Intelligent traffic management
- 7 Speed control and automatic control
- 8 Telematics of terminals

Separate service experiments are being conducted to test the output of new services and the feasibility of service concepts and basic solutions in practice.

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[www.vtt.fi/rte/projects/fits](http://www.vtt.fi/rte/projects/fits)

### **3.4 TEDIM Telematics in Foreign Trade Logistics 1995-2005**

The TEDIM projects are devising smoother solutions for international trade, making use of logistics and telematics. TEDIM is an international forum in which several development projects have been combined to facilitate international trade and logistics in the Baltic region by integrating the information and communications systems as well as the delivery and transport chains of different countries and companies.

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[www.tedim.com](http://www.tedim.com)

### 3.5 VALO Real-Time Logistics in Networks 2001-2004

The objective of the VALO programme is to develop the logistic processes of companies, to improve the operating conditions for Finnish companies, and to create new competitive products for world markets. The programme also aims at upgrading data transfer between companies and institutions of higher education. VALO consists of three project areas:

- Strategic-level operating models and procedures for logistic processes
- operational control systems for logistics
- cargo-handling and transport systems

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### 3.6 Goods Transport and Logistics

Ongoing projects/projects that may be started in 2002:

- Finland's participation in international EDIFACT cooperation
- Telematics system for freight packages
- EU Cityfreight, urban distribution transport
- EU Frisbee Freight Transport Information System
- Allocation of road upkeep costs
- Industrial transport system model

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### 3.7 Transport of Dangerous Goods

Ongoing projects/projects that may be started in 2002:

- Transport of Dangerous Goods safety and environment/
- Safety guide 2001
- Transport of hazardous goods in tunnels
- Facilities for preventing accidents at railway yards
- Transport of Dangerous Goods information system/TDG 2001 statutes programme
- Transport of Dangerous Goods fleet and rolling stock and information system/Impact of the revision of international conventions on transport of hazardous goods by land and rail on national TDG regulations

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### 3.8 Shipping

Ongoing projects/projects that may be started in 2002:

- Maritime strategy
- Handling of ballast waters on board
- Formal Safety Assessment
- Operating model system for oil-spill forecasts
- Short sea shipping promotion centre
- Meriklusteri project

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### 3.9 Development Programmes for Public Transport

#### Development programme for travel centres

A network of 22 public transport interchanges is being set up in Finland. The project is being realized under the auspices of the Ministry of Transport and Communications and also involves VR Ltd. (Finnish Railways), the Finnish Bus and Coach Association and the cities where the public transport interchanges are located. The funding allocated by the Ministry covers coordination and control, and assistance in information solutions for the interchanges and solutions for improving unobstructed access.

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#### ‘Hopper’ services programme

The programme involves development of the journey combination concept, ‘hopper’ service transport and demand-responsive public transport. By journey combination and by working out new ways of managing transport, increasing transport costs to society can be curbed and savings obtained.

The trial projects on journey combination have also involved the Social Insurance Institution (KELA). Trials are being organized in different locations in Finland, and the funding will continue for a further two years.

Developing the ‘hopper’ service concept will promote regional and social equality in terms of accessibility of transport services. The service level of public transport can be maintained and even raised by developing ‘hopper’ service transport and demand-responsive public transport, particularly in rural areas. Municipal passenger transportation systems are being developed through journey combination and municipality logistics. At the same time, cooperation between municipalities and their administrative bodies is being consolidated.

## **HEILI programme 2001-2004**

The passenger traffic information programme (HEILI) will promote cooperation on implementing information services and incident management in public transport. The programme aims at ensuring that all necessary parts of the passenger information service chain are implemented. The HEILI programme is part of the FITS programme. The spearhead project is the electronic door-to-door information service common to the different modes of transport. The programme includes generic projects and individual pilot projects. The Ministry's role is to coordinate the programme and to provide assistance. The programme involves a provision for implementing an electronic information system in accordance with the Government resolution.

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## **Obstacle-free public transport**

The objective is to make the transport system better suited to elderly and disabled persons.

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EU projects:

- AFFORD – Urban transportation pricing
- CAPTURE – Best practices for developing local transportation
- CARDME – Harmonization process for transport fare systems and road tolls in Europe
- COOPERATION in ITS development – Telematics cooperation between Finland and Germany
- HANDIAMI – Improvement of safe evacuation systems and obstacle-free access routes in vessels engaged in passenger traffic
- INFOPOLIS 2 – Improvement of the quality of information for the multimodal traveller
- MARETOP – Changes in the operating environment of public transport and their impact on EU countries
- MIMIC – Development of public transport interchanges
- PROGRESS – Demonstrations of transport pricing options and their acceptability
- PROPOLIS – Long-term sustainable urban mobility strategies
- PROMT – Promotion of pedestrian traffic in cities
- PROSPECTS – Know-how and guidelines for and ways of planning land use and transportation systems in cities
- [WH@M](#) - On-the-move, real-time, location-dependent customized services (case study: tourist information for the Levi area)

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### 3.10 Traffic Safety

A long-term R&D programme for road safety, LINTU, will be started in 2002. The programme will improve the preconditions for traffic safety in the long term, even though the projects will also produce results in the short term.

Ongoing projects/projects that may be started in 2002:

- Municipal incentives; R&D projects for municipal traffic safety
- Promoting traffic safety work in municipalities
- Impact of reforming on-the-spot fine regulations
- System errors in accidents involving heavy goods vehicles
- Telematic speed control systems for cars
- Research on lanes for driver training
- Trial implementation of the Gothenburg model
- Traffic safety as part of the operations of companies and the government
- Development of forecasting models for traffic safety
- Study on persons severely injured on the roads
- Development of KLOTS, Knowledge-based local traffic safety support
- Training aimed at harmonizing traffic safety work
- Development of automatic traffic control (FITS 7 project)
- EU-BASIC – Basic driver training, new models
- EU-SARTRE 3 – Social attitudes to road traffic risks in Europe
- EU-ADVISORS - Advanced driver assistance and vehicle control system: acceptability of driver information systems
- TRAVEL-GUIDE
- EU-HASTE – Cost-effective method for analysing the safety of built-in driver information and human-machine interfaces independent of technology or device
- EU-SARAC – Safety of different vehicle makes and models

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### 3.11 Environment and Vehicle Technology

Ongoing projects/projects that may be started in 2002:

- Environment – international follow-up
- Participation in the Academy of Finland Biodiversity programme (FIBRE)
- Road landscape management
- Follow-up of action programme
- Participation in the Academy of Finland environmental health programme SYTTY
- Coordinated monitoring of the environment



- Participation in the global FIGARE research programme in which the Academy of Finland is involved
- Participation in the Mobile 2 Programme (energy use and environmental impacts of traffic and transport)
- Joint effort for transport and energy saving
- Noise database
- Pricing in air traffic
- Pricing in maritime transport
- Baltic Sea Programme
- Future commitments to implementing climate strategies
- FINE
- Noise (quiet regions)

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### 3.12 Transport Infrastructure

Ongoing projects/projects that may be started in 2002:

- Impact assessment at programme and project level
- Compilation of a guide to project assessment
- Basic service level of the road and rail network
- Development targets for transport systems
- Developing control of the agencies representing different modes of transport
- Developing transport system planning
- Reforming legislation relating to transport infrastructure
- Trans-European highway corridors and traffic areas
- New forms of financing
- Projects relating to applications for EU assistance
- Economic trends in civil engineering
- Analyses relating to the reorganization of the Finnish National Road Administration
- Finalization of the Väylät 2030 programme

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### 3.13 Transport Forecasts and Transport Economics

Ongoing projects/projects that may be started in 2002:

*Community structure and mobility:* Combining the information obtained from the passenger traffic survey conducted during 1998 and 1999 and geographic information would enable land use and actual traffic behaviour to be studied much more accurately than in research based on mean values and classification (use of local

services/commuter traffic/availability of jobs/transport system, etc.). The results could also be utilized in regional traffic forecasts and transport system planning.

*Developing the passenger traffic model:* In long-term transport forecasting, not only surveys of different alternatives but tools - i.e., transport models - are needed, which can be used to evaluate mobility according to family situation, income level, service structure, available transport systems, etc. The present model for passenger traffic is based on material gleaned in 1992, which does not include the mobility of under-18-year-olds at all. The LIIKE programme surveyed different alternatives, for example, to what extent the Swedish SAMPERS model could be transferred to Finland. Practical problems prevent the SAMPERS model from being used in Finland, but the aim is to work in close cooperation with the developers of the model.

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Ongoing projects/projects that may be started in 2002:

- JOTATE – information system for management and experts
- EU-UNITE – this project will lay down pan-European cost-responsibility accounts representing the socio-economic advantages and costs of private and public transport
- Use of the Balanced Score Card in managing this administrative sector
- Cooperation project with the OECD, ECMT and the European Commission on the impact of optimal pricing on transport compared with present taxation

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### **3.14 Research in Neighbouring Areas**

Ongoing projects/projects that may be started in 2002:

- Traffic education project in St. Petersburg
- Goods traffic survey on Corridor 9
- Market research on a Helsinki-St. Petersburg boat service
- Planning seminar for Estonian urban transport

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## 4 R&D Programmes and Projects Relating to the Communications Market

### 4.1 Strategic Planning of Information Society Policy

#### Strategy for communications policy

The object is to detect and survey weak signals and ideas for future development broadly in the field of communications and the information society. The research results are being utilized in mapping out new legislative needs and as background material for the Ministry's long-term communications policy.

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### 4.2 Equality and Democracy in the Information Society

#### Broadband policy

The publicly expressed goal of the Ministry of Transport and Communications is that all households be within reach of a broadband connection by 2005. A broadly based monitoring group, made up of different players in society, has been set up to monitor the extension of broadband connections. The Communications Market Department carries out various studies and surveys on the subject, and these are further processed by the working group. The working group is also looking into the practical situation in different parts of Finland. Comparative international follow-up data is being acquired from the Nordic countries, which have a similar social structure, but if necessary will also be obtained from other countries offering a good reference point. The target is to gain a comprehensive understanding of the state of the information transfer infrastructure in the country, and to suggest communications policy action that may be needed to accelerate development.

Projects in 2002:

Applicability of information society services	Study of the applicability of services using broadband transmission links to end user and service provider
Data security and protection	Analysis of data security and protection problems posed by digital television, 3G, and other new broadband technologies. Analysis of the practical import of the new directive, concurrently addressing issues relating to smart cards.
Accessibility of broadband services to users	Broadband service availability and access in Finland. User problems in service accessibility. The Ministry's future broadband and Internet monitoring group will

	also determine research needs.
Development of broadband technologies	Outlook for development of different technology solutions in offering broadband services. What kind of development can be expected for subscriber lines in fixed networks?
Competitive situation in the communications market. Possible problems and outlook	Survey of functionality of the communications market and possible problems in competition. How should competition be encouraged in future? Survey of the competitive situation in the communications market in the EU area.

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### **Public services in television broadcasting**

The Ministry of Transport and Communications:

- Monitors and assesses the variety of television and radio programme services and their development as well as the development of content provision services in other communications networks.
- Creates the prerequisites for the Finnish Broadcasting Company's public services to operate in new communications networks and is reconsidering the funding of the Finnish Broadcasting Company.

Projects 2002:

Monitoring system for public services	To create an empirical and qualitative method for assessing public services in radio broadcasting and to conduct a pilot study for producing public services in 2001.
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### **Public service in postal operations**

The Ministry of Transport and Communications:

- Assesses the implementation of the targets of the new Act on postal services that entered into force at the beginning of 2002, particularly the implementation of public services
- Monitors and assesses the implementation of postal services from the user's point of view
- Promotes competition in postal services
- Encourages the new electronic communications technology and provision of services that integrate elements of postal services bringing added value for the markets

Projects 2002:

Implementation of public service in postal operations	A public service monitoring system is being created by means of which the effects of the new Act on postal services will be assessed.
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### 4.3 Promotion of New Technologies

#### Mobile Internet

Projects 2002:

Mona	The Mona programme creates the background for the development and competitiveness of mobile services by providing services, working on public opinion and creating the regulatory framework.
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#### Digital media

A broadly based project will be launched to study the preconditions for the expansion of digital television and to take action to promote the development of the markets on the basis of the results obtained. The target of the programme is 1) to make digital television spread in a short time to the entire country; 2) to promote the development of business in digital television networks.

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### 4.4 Effects of Digitalization

Projects 2002:

Trends in digital television and radio operations	The study is considering the effects of digitalization of broadcasting networks on television companies and content providers. The study is a multidisciplinary project involving several actors.
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New Act on communications markets and new digital business, with particular emphasis on television and radio companies	Study of prospects offered by datacasting to conventional television and radio companies for diversifying content provision
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## 4.5 Data protection

Projects 2002:

Data security strategy	A national data security strategy is being prepared in cooperation with the advisory committee on data security
Cluster programme for data security	A broadly based project aiming at developing a cluster programme for data security companies in cooperation with other ministries and Tekes will be carried out in 2003. The preparatory stage will be implemented as part of the Network Business Unit's operations

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## 4.6 Development of Communications Administration

Projects 2002:

Evaluation of the Finnish Communications Regulatory Authority	The project is assessing the operations of the Finnish Communications Regulatory Authority
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## 4.7 Network Business

Action:

- To continue creating a legislative background for the increase of network business and electronic services
- To ensure data protection in electronic communications and confidentiality of personal communications in electronic networks through legislative means

- To bear responsibility for creating a data security policy and a national data security strategy, and to promote cooperation in data security issues
- To create the preconditions for the reliable operation of communications networks in all situations
- To serve as the national coordinating authority in implementing the European Commission's eEurope initiative and to take part in projects promoting the use of information society services that are in progress in other Ministries

### **Information society**

Projects 2002:

eEurope	1. a study of the advantages gained so far from the eEurope initiative, 2. Finland's targets for the next stage of eEurope
NeDAP	Initiative called for to implement the Northern eDimension Action Plan (activation of organizations of citizens, participation in implementation of web services, etc.)

### **Data protection and security**

Projects 2002:

Data security strategy	A national data security strategy will be worked out in cooperation with the Advisory committee on data security
Operation of deprotection systems	The market impact of illegal deprotection systems and the problematic points in implementing the new legislation will be surveyed
Procedures for making allowances for data protection (net privacy)	Participation in the project under the data Privacy Ombudsman will be continued
Data protection and security relating to positioning	1. gaps in sub-areas calling for regulation will be charted, 2. the situation in provision of positioning services will be charted
Information relating to data security	Information relating to CERT operations will be produced in cooperation with the Finnish Communications Regulatory Authority
	Instructions and education relating to data security will be provided in cooperation with other actors (Ministry of Education, Sitra, Tekes, educational establishments, Tiekke etc.)
	Information concerning the Act on electronic signatures will be provided in cooperation with Vivi

## Cooperation projects

Projects 2002:

TEN-Telecom	Prepare for organizing National information days etc.
Information society portal	Cooperation project with the Ministry of Finance, the Ministry of Foreign Affairs, Tiekke, Tekes, and organizations in the field for building a portal in English, representing Finland as an information society
Finns and the future information society	Participate in this project in cooperation with Statistics Finland
Children and the information society	The three-year programme is producing information on children as active players in the information society

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## 4.8 Communications Networks

Action:

- To promote and monitor provision of alternative broadband communication links in all communications networks
- To encourage commissioning of new network technologies and creation of services for them
- To monitor the transition to digital television and radio broadcasting networks and to intervene in problem situations as needed; to prepare the decision for shutting down analogue transmission networks
- To favour standards and other non-legislative means instead of detailed technical specifications and to promote self-regulation of players in this business

### Convergence

Projects 2002:

Impact of convergence on reforming the regulation of communications networks	The regulations on the openness of networks and services in a situation of converging networks and services shall be reconsidered after the Act on communications markets is finalized.
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### Impact of new technologies on the regulations

Projects 2002:



Outlook for new wireless systems and 4G mobile networks	Study of development scenarios for 4G and other wireless systems to follow 3G. When and how should the administration prepare for this technological development?
2G and 3G mobile networks	The study examines the development of GSM and UMTS networks (GPRS, EDGE) particularly from the end user's point of view. What added value do the new services provide for the user and how are networks adapted to the new services provided? What action is required of the regulator? Will speech services be provided in GSM networks only?

### Price, quality and market surveys

Projects 2002:

Price level for teleservices in 2002	Annual survey of the price level for teleservices in Finland. The study charts the price level of teleservices (trunk, local and international calls, mobile communications)
International comparison of mobile charges	The ministry's annual research work will be updated and developments in digital mobile prices charted. The survey studies subscription charges, monthly charges and call charges of the largest teleoperator in each country. Pricing alternatives for 3G mobile subscriber connections will be studied. An English version of the study will also be prepared.
Instant surveys in the communications field	Consultative studies on current issues in the communications field will be commissioned. On the basis of these, the Communications Network Unit is capable of reacting swiftly to claims made and questions from players in the telecommunications field, which for example the Minister of Transport and Communications must comment on swiftly.
Quality of teleservices within the purview of public service obligation in Finland	The study polls consumers and other recipients of service on the quality of services.
Realization of competition in communications networks and services	Compilation and study of background material for poll on implementation and on the ONP Committee

## Monitoring and development of regulatory work

Projects 2002:

Current mobile markets in Finland	Developments in mobile markets and changes in the competitive situation during the past few years are being charted. Future trends. Poll.
Limits of delegation of legislative power in the Constitution and flexible regulation of communications markets	The restrictions imposed by the new Constitution on regulatory work realized by means of ministerial resolutions or regulations by the Finnish Communications Regulatory Authority are being charted. Under what conditions can a regulatory system based on flexible and swift reaction be built up?
Analysis of future markets	Study of the impact of the market analysis referred to in Article 15 of the new framework directive (proposal for EU Council and Parliament directive on a common regulatory system for electronic communications networks and services) on the Finnish communications markets. Future changes will be charted.

## Promotion of competition

Projects 2002:

Situation report on roaming, future outlook	Survey of the situation in national and international roaming, development trends and possible needs for administrative action
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## 4.9 Media

Action:

- To monitor and assess the variety of television and radio programme services and their development, and development of content provision services in other communications networks.
- To create the prerequisites for the Finnish Broadcasting Company's public services to operate in new communications networks and to reconsider the funding of the Finnish Broadcasting Company

- To encourage self-regulation of the content provided by the media, with particular emphasis on warding off any illegal and harmful content on the Internet
- To participate in cooperation relating to the use of freedom of speech in electronic mass media, copyright, and promotion of content provision
- To promote the preconditions for the operation of the press by means of press subsidies

Projects 2002:

Finnish television programmes 2001	The study on television programmes conducted in 1997-2001 will be repeated. A more extensive comparison with Sweden will be included.
Finnish radio programmes 2001	An empirical study on the programme services provided by public and commercial radio broadcasters will be conducted.
Developing a self-regulatory system	Further measures to be taken in consequence of the study conducted in 2000 with the aim of developing a self-regulatory system (mainly Internet)
Future trends in mass media 2002	An overall investigation will be conducted of the Finnish mass media market and its development. The structure and economy of the mass media in particular will be studied. The project also includes separate reports to be drawn up for the various Ministry needs. The project further includes participation in developing statistical methods for mass media in cooperation with Finnish and foreign information providers (particularly Eurostat)
Communications policy	Surveys relating to assessment of communications policy actions, long-term planning and general legislative reform
Various studies in the field of mass media	Consultative studies will be commissioned on topical questions in the field of mass media. On the basis of the surveys and studies, the Media Unit is capable of reacting swiftly to topical questions from players in the communications field. The relevant appropriation will also be used to conduct surveys to assist in preparing licence grant decisions.

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## 5 Results 2001

### 5.1 JALOIN — Cycling promoting 2001-2004

The Jaloin (On foot) project is intended to promote implementation of the Ministry of Transport and Communications pedestrian and cycling policy programmes and its research programme, and to monitor these programmes during the period 2001-2004. Action is divided into three complementary areas:

- 1) promoting and monitoring the research programme
- 2) promoting primary procedures
- 3) supporting and monitoring typical schemes

A total of 10 projects have been chosen for the research programme that was launched in autumn 2001. Under the auspices of the research programme, the Jaloin project has helped cycling promoting in a number of municipalities, and it shows. In the Jaloin project, a number of typical schemes were started in practice: the design of a housing area favouring non-vehicular traffic at Vuoksenniska, a transport system for the Salo area, action to support environmentally friendly mobility in line with the Company Mobility Management concept, and action to find a municipal model for sustainable transport. Experience of long-term projects will be put to use initially on a local basis and then more generally in 2002. In addition to these projects, the Ministry began giving expert assistance to municipalities and other organizations in preparatory work on a number of issues.

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### 5.2 Public Transport

#### *The demand-responsive public transport development programme*

In spring 2001, a joint municipal transport services development group was set up at the Ministry of Transport and Communications with a number of tasks including monitoring and coordinating planning and development projects on demand-responsive public transport services. On the basis of a questionnaire sent to municipalities, a study was made of the impact of 'hopper' bus services on the local authority sector. There are 'hopper' bus services in 86 municipalities that are partly subsidized by central government. Public transport services programme's bus services have often made it possible to provide publicly funded transport services in new areas. It has also been possible to improve the standard of public transport services in municipalities.

Travel dispatch centre experiments have continued in collaboration with KELA, the Social Insurance Institution. The experiments have been extended on a regional basis and ways of combining journeys have been developed in transport arranged by

different local authority administrative bodies and in hospital and health-centre transport paid for by local and central government. Through journey combination it has been possible to develop travel chains and feeder transport, improve the background for public transport on a local and regional basis, and to raise the standard of service in public transport. The experiments are also being used to find ways of increasing and improving cooperation between local authorities, KELA and other government bodies to develop journey combination and transport services generally.

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*The passenger transport information programme (HEILI)*

Work started on drawing up the outline of the programme in April 2001. It was completed in October and the information strategy for the programme was ready in November. Following an open application process, 18 projects were approved for the programme early in 2002. The projects will develop and/or implement a number of things such as real-time passenger information systems for small and medium sized towns, dispatch and monitoring systems for rail and taxi transport, transport interchange information systems, and local and national services that combine different modes of transport.

Procurement procedures for implementing a nationwide public transport services Internet portal were instituted in August 2001. The aim of the project is to create a gradually developing service the public can become familiar with when they want information about public transport. In the first phase, existing timetables will be combined into an integrated database. In the second phase, route-planning services will also be provided.

Studies of operating models to be used for public transport incident management and for improving the user friendliness of information services were put out to competitive tender at the end of the year and work started in January 2002.

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*EU projects to develop public transport*

The Ministry of Transport and Communications is contributing to the funding of about 15 public transport development programmes within the EU Fifth Framework Programme.

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*Transport interchange network 2005*

The signing and information systems for the Seinäjoki transport interchange were finally completed in 2001. The transport interchanges at Lappeenranta and Kouvola were nearing completion at the end of the year and the foundation stone was laid for the Jyväskylä transport interchange.

Design of transport interchanges at the outline planning level was initiated and completed at Pieksämäki and Varkaus during the year. Outline planning of the transport interchange in Kuopio was begun and, in Vaasa, the architectural competition for the transport interchange was resolved and work started on the actual design. *Travelpoint*, an application of the transport interchange concept for Helsinki-Vantaa Airport was also completed in 2001. The aim of *Travelpoint* is to develop the transport interchange concept to include airports, while keeping to the overall appearance of the transport interchange in terms of signing, marking, colours and service approach. Preparations were completed for the outline planning of the transport interchanges at Kajaani, Kemi and Vantaa-Tikkurila.

Visual guidelines were drawn up for the use of local authorities constructing transport interchanges. The transport-interchange project steering group developed a framework for transport-interchange impact assessment in order to survey the economic impacts of building transport interchanges and to simplify and harmonize impact assessment.

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*Study on the suitability of public transport for the elderly and those with mobility problems*

'*Forward without obstacles*', the report by the working group set up to study the suitability of public transport for the elderly and those with mobility problems, was completed in June 2001. The report contains a number of proposals for action concerning buses, aeroplanes, ships, taxis and railway rolling stock, terminuses, information and staff training. The aim is, on the one hand, to promote equality and prevent discrimination in accordance with the constitution and overall policy on the elderly and the disabled and, on the other, to increase the attractiveness of public transport as a whole. The proposals pay particular attention to the following: cooperation and shared responsibility, accessibility as a quality component in public transport, the professional expertise of staff, the content of and distribution channels for passenger information, design of long-distance buses, bus stations and bus stops, making transfers to aeroplanes easier, helper services and research. Work has started on drawing up the ministry's accessibility strategy on the basis of this report and the pedestrian policy programme.

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### **5.3 Traffic Safety**

*The long-term research and development programme on traffic safety*

Preparation of the long-term research and development programme on traffic safety was completed on the basis of the proposal drawn up the previous year. The intention is to launch the programme in spring 2002.

*Safety in built-up areas*

In a group of projects providing incentives for local authorities, more than a dozen research and development projects were carried out, most of them consisting of municipal or regional traffic safety plans. Preparation of the KOULULIITU method of assessing the safety of journeys to school was completed and a start was made on distributing it to municipalities. The method is an application built on an Excel and MapInfo platform, which can be used to make objective assessments of the need for individual transport to and from school and of the safety of the traffic on routes to and from school. The KLOTS software, used to aid planning of traffic safety measures in built-up areas, was further developed and updated in 2001.

#### *Improving interaction between road users*

A pilot course in harmonization training for traffic safety work was started in 2001. The application of the constructive learning method to driving instruction was continued according to the results of partial reports completed in driving schools. Research was completed on management systems for traffic behaviour, and the results will be utilized in traffic control, training, information, education and vehicles, and for increasing traffic safety.

#### *Cutting down drunken driving*

A preliminary study was carried out on the use of alco-locks (ignition interlock breath alcohol devices) to prevent drunken driving and of the basic requirements for organizing experiments on using such devices in the field. It has been estimated that by fitting alco-locks to the cars of the roughly 12,000 drink-driving offenders each year who repeat their offence, at least one traffic death and 12 cases of injury could be prevented annually. Organizing experiments in the field will require new legislation. It was estimated that approximately 50 drink-driving repeat offenders would take part in the preliminary experiment, to be carried out on a voluntary basis.

#### *Reducing accidents and alleviating their effects*

There are approximately 70-80 fatal accidents a year resulting from vehicles going off the road, over 90% of them involving cars or vans. The aim of this project was to study defects in roadside crash barriers, the potential for improving them and the way they are located in the environment. Several individual occurrences came to light in built-up areas, where safety could be improved by, for example, extending crash barriers at underpasses and subways, by protecting portals and even trees with barriers. It is important to use 'frangible' lamp posts that give way on impact, at least on major roads. On public roads, most fatal accidents resulting from going off the road occur on local roads and regional connector roads. Collisions occur typically against trees, ditches, junctions with side roads, columns and posts, and rocks. Such collisions make up 80% of fatal accidents resulting from going off the road on local and regional connector roads. Similar impacts represent 30% of all collisions on motorways and 60% on other major roads. On major roads, collisions occur primarily with the crash barriers themselves or their sloping ends, rock cuttings, bridge supports, portals and underpasses or subways. Traffic fatalities resulting from going off the road can be significantly reduced by improving the crash barriers at these points. The results of this research can be used in the design and disposition of improvement measures both in the street network in built-up areas and on public roads.

The effects of the onset of darkness on traffic accidents were studied by examining the change in the numbers of accidents at sunset at different times of the year. On highways, darkness increased overtaking accidents and collisions most. In built-up areas, the onset of darkness affected the number of serious traffic accidents most, but

the number of minor accidents involving coachwork damage also showed a significant increase as the sun went down. In accidents involving pedestrians, it can be seen that both inside and outside built-up areas there is a clear peak lasting about two hours after sunset. Besides educating pedestrians and car drivers, these results can be used for considering lighting-up times, for example, though this would require additional studies.

The FITS 7 programme includes studies of telematic speed regulation systems for vehicles and some experience was gained in 2001 on the use of the 'black-box' in monitoring speeds. The studies will continue in 2002 and 2003 with new experiments in the field and interviews.

#### *Monitoring and assessment*

Development work has continued on a system for monitoring traffic behaviour from the safety angle and fine-tuning prediction models for traffic safety. The results have been used in publicity and in planning traffic safety work. Research was completed on the real economic costs of personal injuries in road traffic accidents and the internal and external costs of accidents. The results can be used to define unit values in traffic accidents and personal injuries.

#### *Other traffic safety projects*

The experiment in joint use of the traffic data registers was completed. The study examined the compatibility of the different registers and the potential for using them in traffic safety work, and proposed improvements for increasing access. In EU projects, Travel-Guide and ADVISORS have studied issues related to taking telematic systems into use.

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## **5.4 Vehicle Technology and the Environment**

The key aim of the *MOBILE 2* research programme is to use research to exert a favourable influence on the comprehensive adaptation of traffic and transport to the framework of sustainable development. The sources of funding for the programme include Tekes (the National Technology Agency of Finland), the Ministry of Transport and Communications, the Ministry of the Environment, the Finnish National Road Administration and the Vehicle Administration Centre. The programme was launched in 1999. During 2001 there were 22 projects running within the programme and the following results were obtained:

- LIPASTO, the system for calculating traffic emissions and energy costs, was updated together with the associated calculation systems for road traffic, rail traffic, shipping and air traffic.
- Emissions have been set for specific ships on the basis of exhaust gas measurements of cargo vessels engaged in shipping. The emissions factors used in emissions inventories for shipping can be amended on the basis of the resulting measurements.
- The amount of dust caused by the sand used for gritting the roads in winter has been established in research on the composition of street dust. The research demonstrated the 'sand-paper' effect, where the sand used for gritting the roads



in winter wears down the asphalt through the interaction of vehicle tyres to produce huge quantities of fine particles. The results of the research can be applied in the selection of gritting sand and in the manufacture of asphalt.

- A development project on ways of assessing traffic noise has produced a method based on the impact pathway method, which can be used to analyse the environmental costs of traffic noise.

### *FIBRE*

(Academy of Finland)

The second 3-year term (1997-2002) of the national biodiversity research programme got under way in 2000, with a total of 45 research projects. The most interesting of these from the Ministry of Transport and Communications viewpoint are connected with urban ecology (the ECOPLAN project) and with assessing the viability of populations, biodiversity and conservation values. Procedures have been developed through both of these projects that can be used to incorporate ecological know-how effectively into the planning process. Final results of the projects are expected to be available for use in 2002.

### *FIGARE*

The Academy of Finland FIGARE programme supports high-quality research in the field of global change through the disciplines of the natural sciences, the social sciences, economics and technology. The aim is to understand and analyse changes in global systems and their causes and effects, and to study ways and means of combating them and adapting to them. The results of the programme will be available in their entirety in 2002.

### *SYTTY*

(Academy of Finland and Tekes)

The Ministry of Transport and Communications took part in the research programme on environmental health in association with the Ministry of the Environment in a project entitled *Melukylä vai mansikkapaikka? Views of residents and experts on the healthiness of housing areas*. The research began a new kind of impact assessment, particularly in traffic noise issues. In addition to land use planning and environmental work, the results will also serve the needs of mobility taking the social angle into account, for example, weighing up the pros and cons.

### *TERVE*

A project was launched in the Academy of Finland Health Promotion Research Programme (2001-2005) to analyse the health risks inherent in urban traffic in the Helsinki Metropolitan Area. The project is assessing traffic flows, emissions from traffic and stationary sources, levels of impurities in outdoor and indoor air, the susceptibility of the population to impurities in the air and their impact on health, especially in the Helsinki Metropolitan Area. The project is also developing a previously drawn up integrated modelling system, which includes sub-models for assessing traffic flows, emissions and the spread of emissions, and evaluating the effects on health. The project will be completed in 2004.

### *Cooperative monitoring of the environment (ICP IM)*

The International Cooperative Programme on Monitoring of Air Pollution Effects on Ecosystems (2000-2004) is being used to implement the UN/ECE Convention on Long-Range Transboundary Air Pollution. The final report will be published by the end of 2004.

*Environmentally based pricing for air traffic*

This project is studying the basis for present methods of setting prices and recovering costs in Finnish air traffic and looking at possible ways of doing this on an environmental basis. It is also assessing the importance to Finland of different allocations for greenhouse gas emissions by air traffic, and carrying out method and data scenarios on how the cost and demand effects of environmentally based pricing can be estimated in the future. The results will make it possible to assess the present and future state of civil aviation in relation to international reduction targets for greenhouse gas emissions (including the Kyoto Protocol) and alternative measures for achieving them.

*Noise database development project*

During 2001, the system was updated with noise data from two regions (southeastern Finland and central Uusimaa). The eventual target is to have a noise database covering the entire administrative area, to which municipal noise data can be added at a later stage.

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## **5.5 LYYLI — an Environmental Friendly Community Structure and Transport System**

The LYYLI research and development programme (1997-2001) comprised about 50 research projects all in all. The projects were mainly focused on urban areas and they studied complete courses of action intended to:

- Harmonize the structure of the community
- Reduce car traffic
- Promote public transport, cycling and walking
- Ensure the vitality of urban centres

At the end of 2001 and the beginning of 2002, the final projects in the LYYLI programme, which summarized the research results, were completed. These were:

- the LYYLI programme at the general level and in nationwide projects’.
- At the regional level, ‘Applying the results of LYYLI projects in drawing up the regional land use plan for Northern Ostrobothnia, the local detailed plan for the Oulu region and in traffic planning for the Oulu region’ and ‘Applying research data on passenger traffic in land use planning in the Turku region’.
- At the metropolitan level, ‘*Where Life Gets a Foothold*’ — A harmonious and environmentally economic urban structure’.

The final seminar in the programme was held in the Finnish Parliament building in November 2001. The principal contribution of the research results was encapsulated in the ten LYYLI theses:

*1 A good community needs joint action and decisiveness*

We can harmonize the structure of the community, build an environment on a human scale and avoid splitting up green areas. We can reduce car traffic, promote public

transport and encourage cycling and walking. Doing this promotes health and safety, increases the vitality of urban centres and housing areas, and encourages energy saving. But in order to do it, we need shared awareness of the problems, reorientation and targeted planning and land use policy.

### *2 Harmonization is vital for communities*

By harmonizing the structure of the community we can ensure services and mobility for all sections of the population. Day-to-day mobility requirements often traverse municipal boundaries, so it is essential to examine the issue on a regional basis. It is often impossible to correct the problems resulting from a poor community structure in arrears by means of traffic planning. It is difficult to slow down migration to major growth centres, but construction could be focused on smaller centres instead of the major growth centres, if they are backed up by efficient public transport.

### *3 Planning is about learning together*

Taking the needs of residents, companies and other users into account results in an agreeable balance. Interactive planning requires widespread participation and respect for difference. For interaction to be a success, it has to be reflected in decision-making. All those taking part have to feel that their input has been worthwhile, and sufficient resources have to be put aside for implementation.

### *4 Choice in mobility is important*

Community structure alone does not resolve the mobility issue. Travelling habits can put a strain on the environment in both densely built-up and spread-out communities. The potential for the individual to move around and the right background for business are supported best by developing the transport system as a whole and by encouraging sustainable alternatives. Reducing traffic and transport needs requires responsible fresh thinking, the use of multiple means and communication. The means have to be focused on those who have genuine choices in modes of transport.

### *5 We must ensure the right background for public transport*

The public transport angle has to be included in the planning process right from the start, as an essential element of the transport system. Areas that depend exclusively on the use of private cars should no longer be built. The fluctuating structure of the community, the ageing of the population, changes in life style and the growth of leisure traffic produce challenges for public transport. More precisely tailored public transport services are needed than before. Positioning and location data systems and information technology can be used in planning, implementing services and marketing them to customers. Transport chains that work well are of great benefit to public transport users.

### *6 Space for walking and cycling*

Walking and cycling are basic forms of mobility. Now is the time to repair and renovate the places where pedestrians and cyclists have to compete for road space, where their routes are cut or where they are dangerous, difficult and unpleasant. People will be ready to walk more and cycle further in a pleasant and safe environment.

### *7 Employers must be made aware of their role*

Employers have a significant influence on the travelling habits of employees and their families. Unfortunately, certain tax policies encourage the use of the car for work and business trips. Instead of the motorcar, workplace transport culture could encourage walking, cycling and using public transport and replacing business trips with telecommuting. This would fit in very well as a part of a company's environmental programme.

### *8 We need local services and centralized services*

In community planning we have to find a balance between the ever changing needs for services. For part of the population, local services are essential for doing business, while others prefer to go to big supermarkets or well-stocked district centres. Large shop units can also be located in district centres to serve the local population. When size and location of the units are in balance, shopping trips can easily be linked in with travelling to and from work. The spread of electronic commerce is bringing new operating models and new conditions to all business activity.

### *9 The shopping centre is the heart of the community*

The local shopping centre is the local community's visiting card and the services it provides form the heart of the community. The centre and its pedestrian walkways is not just a shopping centre, it is also a traditional living environment, a concentration of jobs, a transport node, a cultural cradle, a meeting place for people. Building new housing close to the centre reinforces it as an area of housing and special services. When developing the centre, the aim has to be to improve the pleasantness and safety of the living and shopping environment, to focus on equality of mobility and unobstructed access, and to promote a humane urban culture.

### *10 Making practice match theory*

In Finland, continuous progress is being made in research on community structure and new discussions are constantly being generated among experts from different fields. Most of the methodologies and tools needed for assessing environmental and safety impacts can be constructed from existing procedures. However, the problems of community development have become more and more complex, so new research data and new perspectives are needed to resolve the problems. The quantity of data is not a guarantee of quality, however; stakeholders need practical support in decision-making and the ability to apply information.

Apart for a few exceptions, reports on the LYYLI projects have generally been published in a special LYYLI report series. Five reports were published in 2001. Project bulletins have also been issued on all completed projects.

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## 5.6 VÄYLÄT 2030 – Infrastructure Research Programme 1999-2001

The VÄYLÄT (Corridors) 2030 infrastructure research programme was concluded. The aim of the programme was to survey the key factors for change in the operating environment from the perspective of upkeep of main transport corridors and analyse the effects of these changes on future upkeep requirements. At the start of the programme, a feasibility study was drawn up, on the basis of which the two factors that had most effect on the transport infrastructure were selected as topics for closer examination: population migration, and changes in the structure of production and operating methods of business.

In 2002, the emphasis will be on marketing the research results through presentations at conferences and seminars, and articles in professional journals etc. The final report on the programme, which will be translated into English, was completed in March 2002. A series of projector overheads showing the key results has also been prepared.

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## 5.7 Transport Infrastructure

Impact assessment has been further developed to assist in drawing up strategy on corridor management/maintenance and as an aid to decision-making on individual schemes. A report will be published in spring 2002 on a project to improve the evaluation and monitoring of transport schemes. Development proposals cover issues such as, harmonization and documentation of profitability calculations, impact assessment other than in monetary terms, and arrangements for monitoring projects. Linked with project assessment, a tool for evaluating the impact of the programme and impact assessment methods needed in drawing up investment programmes have also been developed. The ministry has also taken part in impact assessment in connection with the possible extension of the Metro to the west of Helsinki.

Development work on transport system indicators has continued, including the indicators that have been developed for monitoring the implementation of the strategy set out in the Ministry of Transport and Communications publication 'Kohti älykästä ja kestävää liikumista' (Towards intelligent, sustainable travel). Development work has also continued on indicators used in results management by the various transport agencies. The aim is to publish an annual report on the state of the transport infrastructure.

A series of projector overheads illustrating Finland's special characteristics (long distances, sparse population, small amounts of traffic, etc) has been drawn up for the EU to consider Finland's TEN strategy and the work is continuing. Reports have been prepared to support Finland's applications for TEN funding for transport projects and a good deal of thought has gone into maximising support for Finland's TEN funding strategy over the next few years. The adoption of MIP (the Multiannual Indicative Programme) in 2001 amended the application and reporting processes for TEN funding.

The working group on the basic level of services provided by the road and rail network began work at the end of 2001. A review of existing reports linked with the subject matter was drawn up as a basis for the group's work, which will continue during 2002.

A review of practices in other countries was drawn up as background material for overhauling legislation on the upkeep of main transport corridors. Work on developing a publication on economic trends in the civil engineering sector was continued in collaboration with Statistics Finland and the Technical Research Centre of Finland (VTT Building and Transport).

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## 5.8 Goods Transport and Logistics

### *Telematics in goods transport*

The transport sector EDI/OVT group, led by the ministry, has been renamed *the Working group on electronic business in the transport sector*. With the backing of the Ministry, members of the group have taken part in international communications work. In the future, communications at both the national and the international level will be more clearly coordinated by TIEKE.

### *Efficiency of logistics and the transport system*

The most important project was the Logistics report for 2001, which surveyed logistics developments in Finland and their current level, plus general trends and future outlooks. A conference was held in association with the report, at which experts from private companies discussed the prioritization of development topics and fleshed out the action they required. At the end of the report there is a list of recommendations for action and parties who might be responsible for them.

In connection with the port services directive, which is under consideration in the EU, a study was carried out on the issue of opening up the ports to competition. The BALTICOM project developed a process for exports to non-member countries, which will benefit not only transport companies and stevedores handling large export loads, shipping companies and customs, but also Finnish exports as a whole. The Kuopio region's procurement and logistics project produced some experience of regional distribution, etc.

### *Development of logistics and the transport business*

The logistics research register LOTURE was completed. Data on current and completed projects is added to the register. The register, which operates on the Internet, was handed over to the Finnish Association of Logistics ([www.logy.fi](http://www.logy.fi)).

A study was carried out on the effects of proposed amendments to the EU directive on driving and rest times.

### *Goods transport modelling*

Transport pricing is of great importance to road transport. In order to support future decisions, a study was made of apportioning the costs of road upkeep to the road network and road users. This resulted in a proposal to create a graphical tool supported by the Road Administration information system, which with the addition of calculation software will produce simulated cost data.

FRISBEE, the transport database covering the Baltic region, was completed. FRISBEE can be used to analyse transport demand and transport routes in alternative scenarios.

MARTINA, the Navigation Administration's tool for analysing statistics, was completed and can be ordered from the Navigation Administration.

#### *Logistics and the environment*

The project for measuring characteristic exhaust gas emissions by shipping was concluded. It was not possible to implement the aim of specifying general emission factors, because ships and their routes differ from each other considerably. The result is the MOBILE 2 report, which includes 37 characteristic emission values for individual measurement.

A report, funded by the Ministry of the Environment KESTY programme, was published on the environmental impacts of road transport telematics (LVM 43/2001).

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## **5.9 Transporting Dangerous Goods**

#### *Skid prevention when transporting explosives*

According to the regulations on road transport of dangerous goods currently in force in Finland, the tyres of vehicles engaged in the transportation of explosives inside Finland must be fitted with anti-skid devices if the conditions so require. A study has been carried out to examine the necessity for the skid prevention requirements in internal transportation of explosives, which took the form of a survey of the literature on accident research and tests carried out in Finland and abroad. Modern technology, such as ABS anti-lock braking systems, has improved the safety of heavy goods vehicles. The brand of winter tyres has often proved to have a greater impact on safety than whether or not studded tyres are used. Under braking, articulated vehicles benefit from both ABS brakes and tyres with good grip. The importance of good grip is highlighted in avoiding a collision, as the transverse acceleration imparted to the front axle by a steering movement is almost doubled on the rearmost axle. The study concludes that an articulated vehicle with a combination of ABS brakes and non-studded tyres that are in good condition and suitable for the conditions appears to be sufficient. In this case, the ABS brakes must be fitted both to the tractor and the trailer.

#### *Developing electronic data transfer for transporting dangerous goods*

In 2000-2001, the Ministry of Transport and Communications took part in a project in the EU life programme, on the development of a risk management system for dangerous goods, based on a positioning and location system. The project confirmed

that one of the most important issues is to resolve how the information on the goods being transported is entered into the system. In other respects, the properties and costs of the technical systems have reached such a standard that the transport of dangerous goods can be monitored in real time. The project studied the viewpoints of companies sending and companies transporting dangerous goods and the situation relating to electronic data transfer on the goods being transported and possible monitoring systems. All modes of transport were included in the study. The information on the goods being transported that has to be entered in the shipping documents is precisely specified in the legislation. According to the companies interviewed, entering the information in the monitoring system should not incur any extra work or extra costs, which means that data transfer should be automatic. The data systems used by companies differ considerably and the data systems used by transport companies particularly may be somewhat limited. In practice, all companies do not have the potential at present to supply information to the monitoring system in electronic form, because information on transport jobs and goods is not necessarily handled by or stored in computer systems. If the information is stored, transferring data to the monitoring system will require compatible interfaces and data transfer protocols to be specified. In most large companies, EDI and other heavyweight connections are used for data transfer. In the *port@net* system, however, XML files and the Internet are used for data transfer, with a web-browser as the interface. In this case, the user does not have to invest heavily in hardware and software. If it is considered desirable to develop the monitoring system on a voluntary basis, companies could be motivated to join the system by offering them other useful options via the system.

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## 5.10 Shipping

### *Effect of a net wage system on passenger vessels*

An analysis was made on the economic and other effects of a net wage system on passenger vessels in relation to central and local government, the sailors' pension fund, shipping companies and other relevant parties. The alternatives analysed were that 1) Finland would follow the decisions made in Sweden to adopt a net wage system on passenger vessels or a similar arrangement, or that 2) the passenger vessels of Finnish companies would start flying the Swedish flag.

### *Distribution of shipping on the Baltic at present and in the future*

The research project gathered material for a risk analysis of oil transport on the Baltic, particularly the Gulf of Finland. All performance data on shipping on the Baltic was gathered and analysed, and the future trend over the next ten years was outlined. The objective was to acquire information necessary for a risk analysis of oil transport on the Baltic.

### *Short Sea Shipping Promotion – Actions and Networks*

The operations, goals, work methods and cooperation of information or promotion centres established in most EU countries in order to advance shipping were developed. The Commission of the European Communities and the City of Pori participated in the financing. The objective was to improve shipping potential at the European level



by establishing cooperation between various modes of transport, sorting out problem areas and offering solutions for increasing the use of shipping.

*Possibility of moving over from road transport to shipping*

The possibility of increasing the proportion of goods transport taking place by water both in Finland and in transport between Finland and other countries was investigated as part of the “Promotion of Short Sea Shipping” project to be implemented in the Member States with support from the EU Commission. The objective was to identify the kind of road transport that could potentially take place by water.

*Preliminary study on the maritime cluster in Finland*

A preliminary study was ordered together with the Ministry of Trade and Industry on potential implementation of a research project on the Finnish maritime cluster and the objectives to be set for it. No decisions were made on the implementation of the actual study.

*FSA analysis as the basis for the VTMISS project on the Gulf of Finland*

A research project was launched with the objective of carrying out a Formal Safety Assessment (FSA) risk analysis in order to analyse the benefits from it. The project aims at facilitating the adoption of the VTMISS system and a consequent reduction of maritime accidents on the Gulf of Finland. The project will continue in 2002.

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## **5.11 TETRA Research and Development Programme on Transport Telematics Infrastructure 1998-2001**

The primary goal of the TETRA programme was to develop the transport telematics infrastructure in order to provide Finland with transport telematics services and service production. The programme was completed in early 2001, and the focus in 2001 was on the conclusion of the last projects and final reporting.

The overall extent of the programme was FIM 75 million, of which the Ministry of Transport and Communications accounted for some 20%. In 2001, the results of the programme were not so much seen in the form of new telematics services but primarily in various defining documents and better cooperation and understanding between the operators in the sector. We can already be sure that the Road Traffic Information Center and [port@net](mailto:port@net) information systems completed within the programme will be utilized in creating new road and shipping services. We can also be sure that DIGIROAD will be used as a basic component in all telematics services related to road transport in the future. So far we are unable to estimate, however, how many new services utilizing the information infrastructure, architecture and standards developed in the programme will be created. The FITS programme following TETRA will try to promote the creation of transport telematics services systematically.

In 2001, the following significant results were achieved in TETRA:

- The DIGIROAD pilots were completed producing a concept for the implementation of the entire system

- The second phase of the [port@net](#) shipping information system was adopted in all Finnish shipping
- Standard interfaces were defined for mediation of transport data
- The systems architecture for national transport telematics was produced in English

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## 5.12 FITS Research and Development Programme on Transport Telematics Infrastructure and Services 2001-2004

The objective of the FITS programme (Finnish R&D Programme on ITS Infrastructure and Services), started in spring 2001, is to develop public and commercial services related to transport and the infrastructure required to implement them. FITS is a continuation of the Ministry of Transport and Communications TETRA programme in 1998-2001.

FITS is developing the information society and implementing related transport policy objectives. This means seamless cooperation between different transport modes required by users, for instance. The programme underlines R&D that results in services required by users and better expertise in the sector.

The programme is divided into eight parts:

- 1 Basis for services
- 2 Effectiveness and user needs
- 3 Transport monitoring
- 4 Incident management
- 5 Passenger information
- 6 Intelligent traffic control
- 7 Speed regulation and automatic monitoring
- 8 Terminus telematics

FITS also comprises a support sector entitled “Management, quality assurance, utilization” to promote programme management, information flow and utilization of findings. Separate service experiments are testing new service production in practice and the feasibility of service concepts and principles.

Although FITS started in 2001, the following significant results were already achieved in that year:

- Cellular positioning was investigated in estimating transport times, and preparations were made to introduce a pilot
- An international intermodal portal was developed for shipping on the basis of the [port@net](#) system
- The need for regulation of information and communication systems used in vehicles was charted

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### 5.13 TEDIM Telematics in Foreign Trade Logistics 1995-2005

The objective of the TEDIM programme is to enhance international business operations and related logistics in the Baltic Sea region using the latest information technology. Some key areas in 2001 were problems related to crossing borders, management of logistics chains in companies and development of uniform methods and information processing usage required for transport. The following progress was made in the TEDIM projects financed by the research funds of the Ministry of Transport and Communications:

- The NeLoC (Networking Logistic Centres in the Baltic region) project promoted international intermodal transport by developing cooperation between the logistics centres in the Baltic region, their planning methods and communication between them.
- Logistics Information Maritime Network of Excellence within the Baltic Sea Region- project gathered together a network of experts to steer and coordinate projects related to shipping in the Baltic region, combining shipping management and organizations, existing EU and national shipping projects, research institutions and users (ports, transport companies and industry) in different countries.
- The EuroPol (Europolish Logistics Service Providers Network) project networks companies offering logistics services in Poland and the EU in order to reduce the need for infrastructure investments, to support SMEs and to attract foreign investment in Poland. The objective is to form a network of logistics companies (Logistics Service Providers) that can offer efficient, high-quality services in Poland and the EU countries.
- The EuroLoN (European High-Tech Logistics Network) is an international logistics R&D project creating a flexible and transparent new information system for steering logistics – a High-Tech-based networking model in which customers, suppliers and service providers all operate via a single network on a win-win basis.
- The LogCom (Creation of logistics centres in Russia) project identified the key objectives, contents and circumstances from Finland's point of view. On this basis the Finnish National TEDIM Board confirmed Finland's stand in relation to developing the project and Finland's potential participation.
- Distribution of printed matter and the northern operating environment in the graphics industry. A preliminary investigation was carried out to see what kind of common development needs the rapidly advancing graphics industry has in the TEDIM area.

## 5.14 VALO: Real-Time Logistics in Networks 2001-2004

The Valo programme started in 2001. The first round of applications produced a total of 20 project proposals. Approximately one third were approved for funding, one third were proposed for more specific further negotiations and one third were left outside support measures altogether. Of the projects approved, an investigation into the future of air and surface freight in transport between Finland and Central Europe related to transport systems and operating environments has already been published (LVM A 8/2002). Other projects started in 2001 were NETMAN, TRACKING, PALKE and Logistics Pilot. Seminars for logistics teachers and researchers arranged by the University of Oulu were also supported.

### *NETMAN – development of demand and supply network management from the point of view of purchasing and acquisition operations*

Intercompany cooperation is used to improve efficiency, shorten lead times, enhance quality and steerability and reduce inventories, which means better competitiveness for the entire chain. The basis for competitive operations is laid by the right logistics methods in both the company and the demand and supply networks. When operations are developed by intensifying the function of demand and supply networks and order/delivery processes, purchasing and procurement operations play a key role in the cooperation interface between suppliers and customers. The project focuses on new operating models based on the potential offered by IT, on new steering principles required by network operations and efficient organization of operations.

### *TRACKING*

The project will create a monitoring system utilizing RFID identification. The purchasing chains from subcontracting abroad to retailing by the companies participating in the project will be analysed and a system description covering the various phases of data collection compiled on that basis. The project will pilot the function of the system in a selected chain.

### *PALKE – development of services in a logistics service company*

The project aims at systematizing the service development process. How companies position themselves on the market is important to them. Logistics service companies must be able to revise, develop and prune their services flexibly in a constantly changing environment. The companies involved in the project have different types of development projects of their own, and the experience they gain from them is utilized in producing manuals and other teaching material.

### *Logistics Pilot*

The project is funded by the Ministry of Trade and Industry and the Employment and Economic Development Centres. It offers SMEs outsourced logistics consulting services at economic prices. The existing logistics solutions in SMEs may have been made without proper consideration of various alternatives. By developing operations on the basis of expert advice, the profitability and quality of operations are likely to improve, and apart from direct benefits, encouraging experience is gained on the potential of development.

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## 5.15 NAVI Personal Navigation 2000-2002

A start has been made on all support projects specified in the NAVI programme description and related test environments and vocabulary work serving R&D. Apart from this, 21 independently funded pilot and other project applications have been approved for inclusion in the programme. The NAVI network set up for the programme includes 90 organizations: 58 companies and 13 universities, academic institutions and research institutions, sometimes with a number of units participating, as well as other public administration organizations. The network has arranged both closed and open monthly seminars. Work is beginning on the future of the network on the basis of the Delphi method.

So far the NAVI network has available 12 reports and draft reports produced by support projects (most of them in English): the current regulatory framework, intangible rights concerning positioning and location, the foundations of user-oriented design in personal navigation products and services, classification of personal navigation products and services from the viewpoint of the user, internationalization and integration of services, guidelines for ethical product development, the users' need for information on the basis of interview research, user cultures and development, foundations for personal navigation service architecture, local portal survey and market reviews on Japan and North America.

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## 5.16 LIIKE Transport Forecasting R&D Programme 1997-2001

The LIIKE programme has developed a national scenario technique for long-term forecasting and drawn up scenarios, an overall economy transport forecasting model for short and long-term forecasting and expert assessment techniques.

Recommendations have been drawn up for the regional level in order to harmonize regional transport research, forecasting models and forecasts. Participation by local inhabitants in transport planning and their need for transport are becoming increasingly important in transport forecasting, too. It is in anticipation of this trend that a survey has been made charting the needs of local inhabitants in transport planning. Instructions have been drawn up for project forecasts. A prototype has been developed for utilizing the knowledge base and recommendations have been made for monitoring passenger transport performance.

The impact of increasingly prominent values and attitudes and of information technology has also been investigated. Changes in personal mobility have been charted by comparing passenger transport studies from past years since 1986. The

possibilities of modelling non-vehicular have also been studied, methods based on time management models charted, and we have participated in an urban economy project with a transport component.

In 2001, the transport forecasts for the 2003-2006 operating and financial planning period were updated with an overall economy model and an additional expert assessment. The compilation of the final report and brochure of the LIIKE programme and assessment for further research have also started. The passenger transport study based on the 1998-1999 material studied the differences in personal mobility between population groups and regions, specifically on a provincial basis. The potential utilization of the material was charted more extensively in the same context, particularly in terms of complementing regional research.

The findings of the project have been publicized by distributing reports as extensively as possible, by arranging seminars and by giving presentations. Six presentations were given on the LIIKE project at the 2000 Corridors and Transport- conference, and various other presentations have been made in various contexts in Finland and abroad. LIIKE research has also been part of a number of ongoing or completed dissertation projects. The findings of the programme have been utilized intensively in strategic work by both the Ministry of Transport and Communications and the agencies representing the various modes of transport.

In 2001, regional mobility was investigated on the basis of the 1998-1999 passenger transport material in relation to population groups and the impact of family situation and phase of life on the use of transport. The regional units studied were provinces and various sub-regional groupings. The results can be used as starting points in regional and provincial transport system plans. Individual variation in mobility is, however, considerably greater than regional variation. The findings indeed give material for debate on the regional and social aspects of transport.

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## **5.17 Transport Economics**

### *Transport pricing*

The transport pricing pilot project was completed in early 2001. It charted current Finnish knowledge on the estimation of marginal costs and investigated what the marginal costs would be if calculated in accordance with the proposals made. The extent to which the current transport pricing instruments are based on marginal costs in Finland was also investigated. The information available was used to chart the impacts of potential pricing changes on current taxes and payments, the industries and the community structure.

The findings of the transport pricing pilot project were presented to the transport pricing expert group of the European Commission, the OECD / CEMT working group and in the context of various EU research projects (e.g. UNITE).

Targets were achieved successfully as far as transport pricing is concerned in 2001. The pilot project made Finland's transport pricing viewpoint known to the

Commission. The findings of the project are being utilized in the current renewal of the Act on track charges. Complementary research has also been carried out (external cost of road traffic accidents, marginal costs of wear and tear to the infrastructure). The findings are utilized on a continuous basis to support national decision-making and to assess the impacts of the transport policy outlines proposed by the Commission in Finland.

#### *Utilization of business accounting*

In developing the steering of corridor property, business accounting information can be utilized increasingly. The balance sheet has been particularly useful in monitoring the value of corridor property. Assessment of the relation of investment to depreciation shows whether the condition of the corridors is deteriorating or improving. This information has also been used in drawing up the operating and financial plan, the budget and the operating report. In addition, this concept has been used by the Ministry of Finance working group developing government budgeting.

As for financial management, a similar cash flow statement has been developed to the private sector. Unlike budgeted allocations, the cash flow statement gives more extensive information on the funding available (including external funding). The cash flow model has been utilized by the above-mentioned Ministry of Finance working group.

#### *Development of transport statistics service*

In 2001, a project was started to explain the management and expert data system to the ministry. The project aimed at assessing the cost of developing the system by charting the needs, defining the requirements and specifying action. A pilot was also made of the data system with the aim of illustrating the operation of the new data system, its visual appearance, analysis potential and information content. At the same time, the pilot is an internal presentation tool that helps in explaining the potential of the new system to the various units.

#### *Financing modes of transport infrastructure*

A working group was set up by the Ministry of Transport and Communications to form an overall view of developing the financing of transport infrastructure in the long term. The working group decided on a model to be implemented within 10-20 years. The aim of the model is to respond to the change factors in the future operating environment with maximum efficiency. The working group considered transport pricing and development of taxation important financing and steering tools, for they offer the most significant development potential in the chain and an opportunity to steer transport in keeping with transport policy goals.

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## **5.18 Research on Neighbouring Areas**

#### *Transport safety in Estonia*

A basic course was arranged in transport safety work for Estonian transport experts in Haapsalu on February 20-22, 2001 by the Finnish Ministry of Transport and Communications and the Estonian Road Administration transport safety unit. The aim

was to improve transport safety cooperation in Estonia. The seminar supported cooperation in neighbouring areas between Finland and Estonia in order to advance the accession and approximation of the Baltic States to European Union practice, including the transport safety sector.

#### *BEATA database*

The geographical information system for the Barents Euro-Arctic area, BEATA GIS, is part of the Barents Euro-Arctic Transport Area (BEATA). The first phase of the project defined the BEATA backbone transport network and geographical data. The second phase built a database-based Internet application and created a contractual and technical basis for a continuation project. The project now carried out continued the development of the Barents Euro-Arctic Transport Area geographical information system, or the BBEATA GIS, map and database by making a user version, extending the applications and continuing the updating system of the database and the contractual structure. The goal is to extend the service by showing the pages partly in Russian and by complementing the GIS database information specifically in view of the BEATA transport connections. The system was completed at the end of 2001.

The project utilizes the BEATA Steering Committee's internal coordination and acts as a communication and information tool for the regions, federations and provinces participating in BEATA's work. The GIS geographical information system facilitates the adoption of uniform views between the parties, since there is already a common backbone network with complementary data. The next phase will add project data to the system. This will produce an overall view of what should be done in the northern BEATA region. The project is an instrument for information and interaction. In addition to this, the GIS serves the Northern Dimension, the Arctic Council and Nordic Customs cooperation.

#### *Russia and the challenges of the Northern Dimension in the transport sector*

The analysis will focus on the outlines of Russian transport policy and key factors affecting them. The material used consists primarily of decisions made by the Russian government and programmes and proposals made by the Russian Ministry of Transport and Ministry of Railways concerning the development of the transport system. Apart from this, the material includes speeches by and interviews with Mr Frank, the Russian Minister of Transport, from the past two years, and newspaper articles concerning the development of international transport corridors in particular.

#### *Russian transport safety guidelines*

The project continues another project implemented with the help of the Nordic Council of Ministers to draw up transport safety instructions for Russia. The aim was to draw up practical transport safety guidelines comprising small-scale, low-cost and rapidly applicable methods of improving transport safety, that have been tested and found useful in the Nordic countries. The project has helped in creating a general model for a transport safety programme for urban conditions, presented a general review of the impact of technical vehicle equipment and human behaviour on transport safety and the financial impacts or pricing principles concerning traffic accidents, and introduced a proposal for traffic accident pricing principles in Russia. The aim was to teach Russian traffic planners to give lower accident costs as grounds for the cost of various measures. The principles governing the improvement of transport safety were approved by the public authorities responsible for transport safety in the cities of Murmansk and Arkangel.



Another result is overall improvement in Russian transport safety, particularly in urban and built-up areas. The parties to benefit most from the project will be the local transport users in northwestern Russia, but it will also benefit Finnish professional drivers, tourists and pedestrians in Russian traffic. A concrete benefit will be the transfer of Nordic and Finnish transport safety thinking to the traffic planners of northwestern Russia via a prepared model.

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## 5.19 The Media

### *Grounds for press subsidization, future needs and impacts*

The study investigated the utilization of “selective” subsidization of newspapers by studying material related to the financial statements and accounts of the papers that have received subsidies. The results of the study support the work of the ministry as the public authority supervising press subsidies.

### *International competitiveness of the Finnish content production industry*

The study investigated the international status of the Finnish content industry, the reasons for its international competitiveness and the ways in which the public authorities could promote the development of the content production industry. It compared the Finnish content industry in terms of statistical and corporate-level analysis with the situations in Sweden and Ireland. It supports the ministry’s work to promote the requirements of the content industry.

### *Media flow on the Internet. Development prospects for web videos in Finland*

The study is a descriptive review of the current situation, providing observations on the outlook for services such as mass communication in developing telecommunication and information networks. It describes media flow technology, business prospects and the legislative environment of operations, and supports legislative development in electronic communications.

### *Survey of self-regulation on the Internet and its prospects in Finland*

The survey studied the extent to which the Internet contains harmful content and how the Finnish authorities should react to it. The survey recommends that Finland’s international obligations to control harmful and damaging content be fulfilled by setting up an open forum for debate and a monitoring group to accompany the existing police information hotline system. Through this survey the ministry has tried to encourage debate on harmful and damaging web content and to activate self-regulatory measures.

### *Mass communication development trends in 2001*

The Ministry of Transport and Communications monitors the development of the structure and finances of Finland’s mass communication markets on a continuous basis. Information obtained through continuous monitoring of statistical and other material is used as background material in the preparation of communications policy and legislative development work. The project also includes participation in the

development and harmonization of mass communication statistics in cooperation with other Finnish and foreign information-producing parties.

*Freedom of speech in mass communications – estimated impacts of the bill on web media operating modes and costs*

Legislation on freedom of speech is closely related to new electronic services and utilization of information networks. The Ministry of Justice has prepared a bill on freedom of speech in mass communications, introducing new storage and other obligations for web publishers. The survey estimated the concrete technical and financial consequences that the proposed bill would cause in relation to private individuals and organizations using electronic information networks and helped in identifying concrete needs for amending the bill.

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## 5.20 Communication Networks

*Telecommunications charge level in Finland*

This study is carried out annually to survey Finland's telecommunications charge level (long distance, local and international telephone calls and mobile telecommunications). Internet and ADSL prices are also examined.

*Service level in telecommunications enterprises*

Every second year a survey is carried out on the experiences and satisfaction of private and corporate teleoperator customers concerning the quality of teleservices in Finland. The study produces information on trends in the telecommunications service level to support telecommunications policy decisions, taking into account regional and user group variation.

*Drawing up a guide for assessing the impacts of masts on the landscape*

Clear, uniform instructions have been drawn up for local authorities and teleoperators concerning the handling of permits granted for telemasts.

*Detailed calculations by teleoperators*

The study investigated 1) how certain teleoperators detailed their 1999 teleoperations accounts and followed the ministry's instructions on detailed accounting and 2) the potential impact of the detailed accounting included in the new Act on communications markets on the costs and human resources of teleoperator companies.

*The text message market in 2000-2003, the service producers' role in a changing operating environment*

The study focused on Finnish text services for mobile communications. It consisted of four parts: a) updating the figures illustrating Finland's text message market b) international comparison with the Swedish, Norwegian, Danish, UK and Italian text message markets c) description of current market dynamics and assessment of the creation of potential alternative business operating models and d) the prerequisites for text services from the service producer's viewpoint.

*Digital mobile phone charges, international comparison*

The trend in digital mobile phone charges has been studied in various countries over the past three years. The survey examined the subscriber connection charges, monthly charges and mobile call charges of the biggest operator, considering probable future developments in third generation mobile phone subscriber charges.

#### *Changing market definitions*

The study investigates what has been stated in EC Court of Justice legal practice concerning the criteria for dominating market position. The study also investigates the impacts of dominating market position on Finland's situation, which teleoperators would have a dominating position and how a market analysis should be carried out for it to be as compatible with Finnish telemarkets as possible.

#### *Surveys of communications legislation*

Grounds for government proposals concerning the Act on communications markets and other communications legislation, and other surveys related to legislative preparation: 1) A section giving grounds and discussing international comparisons was commissioned concerning the government proposal on an overhaul of the communications legislation 2) A section giving grounds and discussing the government proposal on an overhaul of the communications legislation will be commissioned to discuss its impacts on government finances or the financial status of individual citizens or companies 3) A survey on the comparability of the detailed accounting requirements concerning electricity and gas markets to those concerning telemarkets, and a survey on the economic impacts of the provisions on detailed accounting 4) A survey on SIM cards. Public debate has raised the idea that content producers should be free to install their own services on the SIM cards of mobile telephones.

#### *Public telephone services in Finland*

The study examined the public telephone situation in Finland, analysing future prospects. It also comprised an analysis of the trend in the number of public telephones, in suppliers and service points, rate of utilization in various places, e.g. emergency phones and future prospects.

#### *Prices of data transfer services in 2001*

The study focused on the prices of data transfer services in Finland, Sweden, the United Kingdom and Germany in 2001. It was a continuation of studies carried out by the Ministry of Transport and Communications in 1994, 1997 and 1999 and covered comparisons with OECD price baskets.

#### *Fast connections and needs related to the Internet*

The study charted the trends in fast connections to the Internet now and in the future. It charted the basic technology related to connection, phases of development, supply and the current market situation. The study reveals the location of "bottlenecks" in relation to speed. The survey is one of the key elements in the debate concerning a better Internet and better information society services.

#### *Regional availability of teleservices*

The study investigated the extent to which teleservices important to households are available in different parts of the country, particularly the supply of new broadband services.

#### *Internet survey*

The study investigates the trend in Internet operations in Finland up to the present and forecasts the future up to 2003, looking at the operators on the market and their development, and analysing market trends. Internet operator services were studied in relation to trends in prices, turnover, connections and numbers of persons using them.

*Utilization of cable television networks in teleoperations*

The study was a continuation of the Ministry of Transport and communications studies of 1996 and 1998, on which this study was based. It investigated the telecommunications uses of cable television networks and related problems and potential.

*Portability of telephone numbers*

The study investigated the reasons behind the fact that number transfers in the fixed telecommunications network have been extremely rare and assessed measures to promote number portability in future, considering the need to amend or adjust the legislation concerning number portability. (The study will be completed in 2002.)

*Study on compensation of costs caused by public authorities to teleoperators*

The principle of compensation of costs caused by public authorities to teleoperators not included in their normal operating costs was studied, since teleoperators must build their networks so that e.g. the telelistening and telesupervision referred to in the Coercive Measures Act can be implemented in accordance with requirements laid down by public authorities.

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## 5.21 Network Business

*Privacy protection in the digital television world*

The project investigated the technical potential offered by digital television to gather personal data, e.g. on the consumer behaviour and lifestyle of the viewer, the economic importance of data in business, the probable threat posed by digital television to privacy, and the means available to public authorities, companies and citizens to protect privacy.

*Observation and solution of information security violations in Finland*

The project investigated expectations related to observation and solution of information security violations and the need for CERT units, charted the CERT units operating in Finland and their mode and extent of operation and carried out a survey of CERT operations in other countries and international CERT cooperation.

*Impacts of expansion of the union on the EU information society budget*

The purpose of the project was to assess the impact of the expansion of the EU on the Union's information society budget. The study covered budget lines helping the union to promote information society development.

*eEurope report*

The project compared the Commission's eEurope action plan with Finland's information society goals and assessed national progress in implementing the goals. It

also defined the most important and urgent eEurope measures in relation to Finland and gave recommendations on the renewal of national information society policy content and organization.

*Assessment of the need for a national information security strategy*

The project assessed the threats to information security and Finland's capacity to protect itself from them, recommending creation of a national information security strategy and reorganization of information security policy.

*Market for verification services*

The project investigated the market and competitive situation in verification services that form the basis for electronic signatures, concentrating on assessing the demand for and supply of services and problem areas on the market.

*Electronic identification in higher education*

The programme developed an electronic smart card offering an opportunity for unambiguous user identification. The Ministry of Transport and Communications participated in funding the programme's pilot projects in the University of Technology and the University of Oulu. The University of Technology pilot project developed an authentication system based on a smart card. The feasibility and reliability of this card was tested in the University of Technology student classes and in connection with certain applications. A University of Oulu pilot studied circulation of electronic documents, particularly in functions involving a lot of work but little profit.

*Internet service model*

The project developed a method for measuring the quality of services offered by teleoperators: connection stability, band width, etc. The results were used to assess the level of technological advancement on the communications market.

*Telework 2001*

The project investigated changes in work caused by information society development and was carried out jointly with the Ministry of Labour. An international seminar was arranged in Helsinki as part of the project in September 2001.

*Mobile services development programme MONA (under way)*

The project concentrates on advancing mobile services development using a cluster programme model supporting the government's overall innovation policy. The goal of the programme is to strengthen the competitive edge of the sector's enterprises on the market and to create a foundation for services to be developed for third generation mobile communications networks. The programme's key operating goal is to activate a cluster offering a framework and opportunities for cooperation between developers of mobile services. The content goals were specified during the start-up phase of the programme, a model for further advances was created and a web service was set up.

*Wireless Cluster Initiative (WCI)*

The project investigated the development and prospects of a wireless cluster in The United States and in Finland. It consisted of three parts: critical market trends in the private sector, critical political outlines in the public sector and development of a Finnish wireless cluster. The project helped to identify the critical wireless market trends in Finland and the United States and how they should be taken into account in public decision-making.

*Telecommunications Administration Centre development /part 2*

The project identified the requirements set for the senior management of the Telecommunications Administration Centre and its operating environment.

*Consumer services in an information society*

The project was based on the trends in the Finnish information society and related changes in service systems. Special attention was paid to the role of various services in the daily lives of families with children and the aged, and the potential and problems of network business. A wider analysis based on various population groups was also made and the service provision of selected municipalities was charted in detail.

*Children and the information society (under way)*

This three-year research programme investigates children as subjects, active players in the information society. It concentrates on studying children of 0-12 years. The aim is to produce comprehensive information on children in the information society, keep children's way of thinking and acting as a starting point, encourage new innovative thinking in the product developers and decision-makers of the information society, offer families and those who work with children instruments for acting with children in the new society, take information direct from the children to social decision-makers, and to promote interdisciplinary dialogue.

*TIEKE 2001*

The project studied and developed issues related to network business standards, regulation and self-regulation, organized an information service for network business legislation, produced an information package for consumers concerning the potential and risks of network commerce and organized a network development seminar entitled "Net Value". It also participated in monitoring development of the US information society.

*SME corporate barometer 2001*

The project charted the utilization of the Internet in Finnish SMEs and changes that took place in action and attitudes during the year, in cooperation between the Ministry of Trade and Industry and the Federation of Finnish Enterprises. Changes in the prerequisites for network business from the viewpoint of SMEs were also studied.

*Finns and the future information society*

The project is an extensive interministry joint project that helps assess the spread and adoption of new technologies among various population groups and regions. It studies the progress of the information society at household and individual level. The project started in 1996 and is continuing. The practical research is being carried out by Statistics Finland.

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