WP 1 – REVIEW AND ANALYSIS OF NATIONAL FORESIGHT

D1.1HU – CASE STUDY

HUNGARY – HUNGARIAN FORESIGHT PROGRAMME (TEP) 1997/99

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PARTNER RESPONSIBLE:
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The FISTERA network is supported by the European Community under the FP5 specific program for research, technological development and demonstration on a user-friendly information society (1998-2000).

WHAT IS FISTERA?

FISTERA is a Thematic Network on Foresight on Information Society Technologies in the European Research Area.

The **FISTERA** network is supported by the European Community under the FP5 specific program for research, technological development and demonstration on a user-friendly information society (1998-2002).

The aim of the FISTERA Thematic Network is bring together on a systematic and extended basis, actors and insights in national foresight exercises on IST in the Enlarged Europe.

Main objectives:

- Compare results of national foresight exercises and exchange visions on the future of IST
- Provide a new forum for interactive consensus building on future visions for IST
- Contribute to the European Research Area through benchmarking and community building, by providing a dynamic pan European platform on foresight on IST

In order to meet these three key objectives, FISTERA will:

- Review and analyse the national foresight exercise outcomes (a country synthesis report)
- Build aggregate pan European Technology trajectories (a roadmap of potential developments of key emerging technologies)
- Map the European IST actor space (an analysis of the EU IST actor space)
- Provide an IST Futures Forum (strategically selected scenario exercises that will look at wider aspects of applications of IST)
- Disseminate the results to a targeted audience by various means (a dynamic website at the address http://fistera.jrc.es, an e-mail alert service, publications, conference presentations, a "road-show" of workshops and a final conference)

Network Membership:
Core partners (coordinators, work package leaders):

- JRC-IPTS (Institute for Prospective Technological Studies), part of the European Commission's Joint Research Centre, Scientific Coordinator of the network.
- FZK - ITAS (Forschungszentrum Karlsruhe GmbH in der Helmholtz-Gemeinschaft, Institut für Technikfolgenabschätzung und Systemanalyse), Germany.
- TILAB (Telecom Italia Lab – Scenarios of the Future), Italy.
- ARC/sr (ARC Seibersdorf research GmbH, Division Systems Research Technology-Economy-Environment, Seibersdorf), Austria.
- PREST (Policy Research in Engineering, Science and Technology) of the University of Manchester, United Kingdom.
- GCI (GOPA - Cartermill International), Belgium, Administrative and Financial Co-ordinator.

The group of **Members**, which is expected to grow over the duration of the contract, currently includes the following organisations: TNO-STB (The Netherlands), Danish Teknologisk Institut (Denmark), TecnoCampusMataró (Spain), Observatório de Prospectiva da Engenharia e da Tecnologia-OPET (Portugal), ARC Fund (Bulgaria), IQSOFT (Hungary), Tubitak (Turkey), The Researchers' Association of Slovenia (Slovenia), NMRC, University College Cork (Ireland) and BRIE-Berkeley University (USA). In addition, McCaughan Associates (McCA) runs a group of High-level Experts to the Network Management Committee.

FISTERA Web site: http://fistera.jrc.es/

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Summary

Hungary was the first accession country to run its own foresight programme, which took place from 1997 to 1999. Its goals included enhancing competitiveness, improving quality of life, identifying problems to be addressed by research, identifying required changes in regulation and government policies and outlining possibilities of meeting the challenges of EU accession. It had a time horizon of 15 to 25 years and was organised in 7, later 8, thematic panels, each consisting of between 11 and 24 experts. The exercise involved background papers, Delphi surveys by most panels and the development of scenarios. Over 2000 experts participated in the Delphi surveys. Results were disseminated and discussed in a large number of workshops (over 100).

1 Background and Objectives

The Hungarian Technology Foresight programme itself was initiated in 1997 and launched in 1998 by the National Committee for Technological Development (OMFB). It was the first foresight programme in the Central and Eastern European countries. Part of the work consisted of an analysis of the strengths and weaknesses of the Hungarian economy and R&D system.

The goals of the Foresight Programme were to contribute to the selection of long-term research goals and priorities ("picking winners") and to consensus-building and transparency on the application of such key technologies as information technology, biotechnology and nuclear energy. Technology Foresight was also regarded as a suitable instrument to support decision making in areas of science and technology characterised by interdisciplinary cooperation. In this sense, Technology Foresight was seen as a means to overcome the rigid system of discipline-oriented science. A major supportive role for Technology Foresight was seen in devising long-term strategies through its ability to promote dialogue between various stakeholders, notably researchers, company managers and government officials, and also through its ability to generate alternative visions.

The questions guiding the Hungarian Foresight Programme were as follows:

- Foreseeable social and economic trends in the next 15 to 25 years, the opportunities created by research and development of technology and innovation, identification of the problems to be addressed by researchers;
- The most effective ways to exploit the country's resources towards the goals of economic prosperity and improvements in the quality of life;
- Required changes in regulation and government policies.

2 Organisation of the Foresight Exercise

The Hungarian Foresight Programme was modelled largely on the first cycle of the British Technology Foresight Programme. Panels were set up to develop and explore scenarios and to formulate policy recommendations. The other major component was a large-scale two-round Delphi survey. In this sense, the Hungarian Foresight Programme is a fully-fledged foresight study.

The steering group was composed of members nominated by ministries, government agencies, professional associations and chambers in mid-1997. The majority of the 20-member Group was deliberately selected among industrialists and academics with close contacts with business. Participation was on the basis of personal knowledge and experience and rather than representation of stakeholder interests (cf. Havas 2002a, p. 4).

An inter-ministerial committee was established slightly later to discuss the preliminary findings of the Foresight Programme and to provide the steering group and panels with timely information on initiatives relevant for their work.

The foresight process itself was prepared with a series of awareness seminars directed at experts and professionals ("Pre-Foresight"). Panel members were nominated by seminar participants and organisers – usually chambers of commerce and professional associations – and by government ministries and agencies. There were also advertisements in newspapers drawing attention to the study and offering experts the opportunity to join the project.

The topics of the panels were selected by the steering group. The chairpersons and secretaries of the panels were appointed by the steering group, while panel members were invited by the chairpersons and secretaries, partly on their own account and partly on the basis of suggestions from the awareness workshops.

Initially, there were seven panels on Human resources (education, employment), Health, Information technologies, telecommunications and media, Natural and built environment, Manufacturing and business processes (new materials, production processes and manufacturing techniques, supplier networks), Agri- and food business, Transport.

A smaller panel on energy was set up later in the process on request from the other panels. This did not take part in the Delphi survey. Each of the main seven panels had between 18 and 24 members, with the exception of the "human resources" panel which consisted of 11 members.

Hungary structured its foresight programme partly on the basis of technologies (information technologies), sectors (agriculture and food, energy), but also social functions (health service provision, transport, education).

3 Method and Procedure

Each of the panels produced a status quo report on the situation in Hungary in its field, consisting of an analysis of human resources, techno-economic performance, the institutions and regulations effective in the area, foreseeable technological and socio-economic trends. They also developed alternative visions (or scenarios) for the future. The reports were partly based on the expertises of panel members and partly on specially commissioned reports from other experts. The reports were discussed at over 100 workshops throughout Hungary, again organised by the chambers of commerce and professional associations. In addition, all reports and background material were posted on the Internet as soon as they became available.

Each panel commissioned between 15 and 25 background reports and the seven original panels formulated questions for the Delphi survey, which formed the other major component of the Hungarian Foresight Programme.

The statements in the Delphi survey were formulated and validated by the panels, who drew partly on work done in other countries (Japan, the UK, Germany and Austria). Each questionnaire consisted of between 60 and 80 statements. The potential respondents were identified by a process of co-nomination. The process itself was organised by a commercial pollster company, selected following a call for tender. The target minimum sample size was 200 respondents per panel subject and around 1400 completed questionnaires were received in the first round of the survey.

The procedure for completing the questionnaires was very similar to that employed elsewhere:

- Ranking of respondent's own expertise in the subject area (unfamiliar, casually acquainted, knowledgeable, expert).
- Assessment of economic and social impact, and impact on the natural environment (scale from "strongly harmful" to "significantly positive").
- Estimation of period within which the development concerned would take place (up to "never").
- Rating of relative position of Hungary compared to advanced European countries in four respects: S&T capabilities, exploitation of R&D results, quality of production and services, efficiency of regulation on a scale extending from "unacceptable" via "fairly similar" to "higher level".

- Assessment of the existence or lack of restraints of various types: social/ethical, technical, economic, financial, regulatory, education-related (simple yes/no dichotomy).
- Ranking of various policy tools with regard to their suitability for the promotion of development and application: domestic R&D, purchase as licenses for know-how, ready-made products.

The first round of the Delphi survey was completed in May 1999, the second at the end of the same year. The data produced by the survey was used primarily by the panels for their own final reports.

The panel reports are a synthesis of the background reports, panel discussions, the results of the Delphi survey and of the conclusions from the previously mentioned regional workshops. Each report had a similar structure: a critical appraisal of the present situation (a kind of SWOT analysis), a description of alternative future visions and recommendations for the realisation of those visions regarded as most feasibly desirable (i.e. the best realistic outcomes).

The draft panel reports were discussed at a national conference in June 2000 and revised to incorporate feedback from this conference. Electronic versions were produced a few months later, with printed versions of the final reports becoming available in May 2001.

The report by the steering group recommends dissemination of the results until the end of 2002. The steering group also suggests further assessment exercises during the dissemination phase, e.g. mini-Delphi exercises at professional meetings, and also the setting up of "shadow" working groups consisting of PhD and graduate students to monitor the implementation of recommendations and to feed new thinking into the preparations for the next phases of Hungarian foresight. The steering group further suggests that the result of the national programme could be used to launch regional foresight programmes, or programmes closer to industry, e.g. by firms, businesses or professional and industrial associations.

4 IST in the Hungarian Foresight Exercise

4.1 General findings on IST

Apart from the panel on Information technologies, telecommunications, media, which was obviously concerned mainly with IST, most other panels' work had IST aspects, notably the panels on Production and Business Processes, Agriculture and Food, Health and Life Sciences, Protection and Development of the Natural and Built Environment, Transport, Education and Human Resources.

The final report by the steering group underlines the central importance of knowledge in driving societal change, also arguing for "flatter", flexible and adaptive organisational structures in addition to a system for lifelong learning. It contains a total of 22 recommendations, of which several refer to information technology.

There was a separate panel in the Hungarian Foresight Programme devoted to information technologies, while others dealt with sectors or social functions. IST were also debated in some of the latter. The recommendations are grouped according to their addressees and include many socio-economic issues, mainly intended to enable or facilitate the use and overall situation of IST in Hungary, and to ensure their widespread use throughout Hungarian society.

The subject of the IST panel was "Information Technology, Telecommunications and the Media". Several other panels also addressed IST in their work.

- **Panel on Production and business processes:** New materials will carry greater information content; the new generation of processing and manufacturing equipment will be digitally controlled; use will be made in product design of computer-assisted modelling; intelligent (computerised) measurement procedures and systems in the area of measurement technology will experience rapid growth; "data mining" techniques to search immense volumes of information and to identify relevant connections and relationships will be used in automated production; there will be a continued process of globalisation of design, production and distribution; application of artificial intelligence technologies in automated production will increase; the modern electronic economy is driven by information technology and logistics; information technology will become increasingly significant for Hungarian industry; company strategy, organisational structure and information flows will be subordinated to consumer requirements; the virtual workplace will gain importance. The panel's IT related recommendations are:
  - Creation of a system drawing on a nationwide network to provide advice on matters related to innovation.
  - Promotion of "knowledge networks" involving the Academy of Sciences, universities and businesses, presumably using IT networking tools.
  - Changes in the education system to meet challenges and needs created by new technologies.
  - Measures to develop less advanced geographical areas, including improvement of communications infrastructures.
  - Creation of an information infrastructure for suppliers.
  - Implementation of information networks to provide business with greater flexibility.
  - Development and installation of systems to support logistical operations, navigation and tracking.
  - Integration of information, communications (and logistics) into a system for waste treatment.
- **Panel on Agriculture and Food:** underlines the importance of these sectors for the Hungarian economy. The sector has considerable R&D capacities which have recently shifted emphasis from basic research to commercial services. The panel views this tendency with concern, especially since it sees a distinct danger of loss of know-how in the area which is much needed to improve competitiveness. It recommends the creation of a spatial database system containing all relevant information on land titles, environment, water supply, land use etc. Model farms are recommended as a means to diffuse new knowledge and technologies. Information on new technologies is regarded as an important means of enhancing the competitiveness of the numerous small firms active in the Hungarian food industry.
- **Panel on Health and Life Sciences:** addresses online services as a means of improving the efficiency of public health education, cautioning that internet access is not yet as "universal or widespread as in developed countries" (Hungarian Foresight 2002c, p. 12) and that most information is available in foreign languages (notably English). Distance education is likely to become the main form for delivery of permanent or periodical further education for health care professionals, with computer-assisted online examination used to assess student performance. Information technology is seen as likely to cause dramatic changes in the whole system of health provision with applications in diagnostics, medical instruments and robots, in addition to networks involving hospitals, health centres, general practitioners and even patients, for example in self-treatment. The panel devotes an entire section of its recommendations to IT, underlining that the application of information sci

ence and technology is a basic condition for effective care in the health services (cf. p. 22). In the panel's model, top-level information technology should be concentrated in regional and national centres. The panel further recommends the use of reliable epidemiological statistics, digital access to standardised diagnostic examination results, while avoiding multiplicity of parallel systems.

- **Panel on Protection and Development of the Natural and Built Environment:** recommendations include the following IT-related items:
  - The establishment of an environmental protection data bank, providing data on top-level environmental protection methods and clean technologies
  - Development and application of simulation methods and models for forecasting the impacts of environment-related decision and actions
  - Establishment of a database of sustainable development indicators to enable continuous environmental monitoring, involving remote sensoring and geographic information systems (GIS).
- **Panel on Transport:** recommendations on the maintenance and operation of the transport system include the longer-term introduction of electronic systems enabling the measurement of road usage and toll payment. Prior to the introduction of such systems, the panel recommends detailed assessments of public acceptance and economic risks. In connection with advanced technologies in transport, the panel sees a major role for information technology in increasing efficiency and reliability.
- **Panel on Education and Human Resources:** Hungarian teachers are described as being relatively unfamiliar with teaching methods based on student activity and said to have a "wait and see" attitude towards computers. Over half of the teaching force had, however, taken part in training courses on computer science and the Internet by late 1998. Little specific mention is made of ICTs in these recommendations, save the remark that "special efforts must be made to exploit the potential inherent in modern communications techniques and media for education purposes to increase the importance of distance learning" (Hungarian Foresight 2000d, p. 34).
- **Panel on Information Technology, Telecommunications and the Media**: the panel applied a shorter time scale to the scenarios than did the others. It also gave attention to links and interrelationships to the other sectors, underlining the horizontal and vertical relevance of this group of technologies for foresight. A third aspect picked out by the panel is the danger of social exclusion of individuals or entire societal groups denied access to, or unable to come to terms with, the new technologies. The panel identifies IST as the motors of future economic development and pointing out that sustainable development relies on the efficient exploitation of opportunities provided by the "information revolution". The main bottleneck according to the panel is not lack of financial resources, but lack of social readiness and acceptance. The panel sees a need for intensive public relations and information dissemination activities in this area of technology. The panel calls for an active role of the state in ICTs and the media by providing support and encouragement for the development of the sector, and by creating a regulatory framework conforming to the standards prevailing in the European Union. The panel has four sets of recommendations, addressed to various actors. The state should**:**
  - Create a harmonised legal framework for information technology, telecommunications and the media in preparation of the EU accession process,
  - Formulate a comprehensive law in the ICT field with the participation of organised stakeholders with interests in the field;
  - Exploit opportunities provided by ICTs for participative democracy;
  - Maintain and upgrade existing large state-owned databases and formulate rules and principles governing the management of these databases;
  - Support the Development of IT systems for use in health care;

- Develop an education strategy for the information society;
- Create a new legal framework for work in the information society;
- Support scientific research related to ICTs and the information society;
- Provide electronic access to libraries, museums etc.;
- Upgrade technologically existing broadcasting and transmission facilities for the public media;
- Apply advanced IT systems in public administration, law enforcement and defence;
- Apply IT systems in environmental protection and agriculture, land registry etc;
- Operate national awareness campaigns for the popularisation of IT and the notion of the information society;
- Reform taxation and customs regulations to facilitate the diffusion of ICTs.

The state and the "market participants" are recommended to:

- Formulate a strategy for the information age which takes both global and domestic developments into consideration.
- Co-finance a national information strategy.
- Develop high-performance networks for e-commerce meeting market needs.

"Society and the state" are the addressees of the third set of recommendations:

- Awareness measures of various types by societal groups and the government to prepare citizens for the challenges of the information society;
- Participation of societal groups in the formulation and implementation of the national information strategy;
- Formulation of ethical principles and codes for the information society;
- Management of tensions arising from changes due to the transition to an information society;
- Response to challenges and opportunities of globalisation, e.g. preservation of national cultural heritage and language;
- Creation of institutions or organisations to deal with issues of legal rights, protection of interests and personality.

Four recommendations related to the development of the ICT infrastructure are regarded by the panel as the joint responsibility of the private sector and the government:

- Upgrade and extension of the telecommunications network, rapid diffusion of advanced technologies and tools;
- Upgrade of the computer systems and networks infrastructures etc;
- Development of content services, in particular large databases;
- Development of applications, in particular in the areas of media and entertainment, e-commerce.

The final report by the Steering group underlines the central importance of knowledge in driving societal change, also arguing for "flatter", flexible and adaptive organisational structures in addition to a system for lifelong learning.

The final report also contains a total of 22 recommendations, of which several refer to information technology.

- Hungary should concentrate on highly knowledge-intensive sectors (p. 18).
- Among the skills regarded as vital is "application of up-to-date telecommunication tools" (p. 19).
- Formulation of a government programme for the development of human resources to facilitate the advancement of the information society. This is to include the improvement of IT literacy, to provide opportunities to access modern IT tools (e.g. in schools,

libraries, museums or "tele-houses"), to provide basic IT education and training for the existing workforce, the introduction of subjects and methodologies based on interactive and IT tools into curricula, regular upgrade of the IT infrastructure in the education system (p. 19f.).
- Improvement of the domestic R&D infrastructure including the info-communications infrastructure (p.21).
- Improving performance in information and communication technology (specifically mentioned together with biotechnology) (p. 21).

4.2 Analysis of National Strengths and Weaknesses

The Hungarian reports by the steering committee and the individual panels include no separate SWOT analysis, so it is necessary to analyse findings and recommendations for an implicit analysis. Again, the findings are mainly on the first two elements - strengths and weaknesses – while there is little on opportunities and threats.

The telecommunications industry had been successful up to the transition to the market economy, but was then faced with a loss of its established markets in Central and Eastern Europe. The companies active in this market ceased production and were either bought by new owners (IBM, Philips, Nokia, Ericsson) and/or changed their production profile. Thanks to greenfield investments by inward investors, the sector was again emerging as an "engine of the country's economy".

There was a strong knowledge and skills base for R&D on software and application-oriented org-ware which provided a basis for large companies to establish software development laboratories in Hungary (Siemens, Ericsson). Nokia was in the course of setting up its own research centre in Hungary for research on software products used in mobile telephony.

An opportunity was seen to reinforce Hungary's research capacities for software development for other industrial sectors. Motorola and the Academy of Sciences were, for instance, embarking on joint work on software quality control and applications.

Among the main weaknesses identified by the Hungarian foresight programme is a "low level of absorption capacity amongst people or the social readiness for new technology". Accordingly, the ICT panel's recommendations include the formulation of a new education strategy for the information society and the launch of national campaigns to "popularise the advantages and opportunities of the information society and to increase society's readiness for it."

This theme is varied several times in the recommendations, e.g. by particularly addressing psychological and mental aspects of the information society, information on potential opportunities offered by the information society etc.

Other weaknesses mentioned in a section on "where we are now" include allocation of resources, foreign investment and efficient utilisation of domestic capital. The state is still struggling to find its role under the new regime and the allocation of responsibilities between the various levels of government has not yet been finally determined. Ownership conditions in the agricultural system are also not yet settled, in particular government support is still not effective. Domestic supply is not yet able to fulfil domestic demand, meaning that Hungary at present relies heavily on imports.

While the system of unemployment benefits has prevented visible social conflict, "shadow" economy is very much on the rise. Budapest and Western Hungary have benefited most from the transition while Northern and Eastern Hungary have suffered.

Since there are recommendations to upgrade ICT infrastructures and to create an adequate legal framework for the development of the information society, the present situation would appear to represent a weakness.

4.3 IST Visions

The panel on information technology, telecommunications and the media developed three scenarios for Hungary in the Information Society:

The "small tiger" or active strategy: In this, Hungary is successful in creating the conditions to keep pace with global developments related to ICTs, playing a strong regional role in Central and Eastern Europe. Systems for information and communication provide many opportunities for social and economic innovation. A particular strength are the country's research and development activities in the field of telecommunications.

The "sparrow hawk" or defencelessly drifting strategy: In this scenario, Hungary is subject to strong foreign influence while the state remains largely passive and contributes little to the advancement of the ICT sector. The foreign influence is due to large international companies which continue to dominate the domestic Hungarian market. The state not only fails to provide support for local industry, but also makes little use of ICTs in providing public services or preserving the cultural heritage. While the well-educated labour force is able to find employment, this is precarious and less educated people have few employment opportunities. Existing differences between regions in the country increase as the state fails to compensate for current imbalances.

The "dinosaur" or passive strategy: In this scenario, technological development in Hungary slows down, delaying or hampering convergence, the country is economically and politically isolated, the state plays only a weak role, failing to compensate for any gaps in development. Among the possible factors leading to such an overall development are unexpected difficulties in technological development, the "conservatism" of users, and even outright opposition to the information society.

As the scenarios developed for the other panels in Hungarian foresight, these scenarios were not harmonised with those of the steering group. From the recommendations, it is clear that the panel favours the first, most optimistic, scenario.

5 Other Important Results of Hungarian Foresight

According to Havas (2002a, p. 27) the panel reports including their policy recommendations have been discussed and received favourably by parliamentary committees. In some cases, the committees urged ministers to form task forces to investigate the implementation of recommendations (e.g. in health care, education, the environment).

Certain recommendations have been incorporated in policy documents, e.g. by the Ministries of the Environment and Transport or by the Government Commissioner for Information Technology. Former members of the health panel have since been appointed Minister and the coordinator of a new health programme. The latter programme was launched partly as a result of

the panel's findings. A recommendation by the Steering group on schemes for sabbatical leaves for scientists and engineers working for companies has also been implemented.

The foresight process itself is described as an important "result" (Havas 2002a, p. 27). The workshops are thought to have contributed toward strengthening or even creating networks among actors from the various communities with stakes in certain fields.

Havas (ibid, p.27f.) also feels that the process contributed to the adoption of "pluridisciplinary" thinking and approaches to certain problems and the development of policies to address them.

Although the majority of panel members were recruited from among scientists and engineers, the majority of statements formulated by these panels for the Delphi survey were of non-technical nature (ibid. p. 28). The dominance of socio-economic aspects was also reflected by the results of the Delphi survey itself, where non-technical matters were frequently greeted favourably and awarded high priority.

6 Literature

Havas, A. 2002a
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Hungarian Technology Foresight Programme 2000a
Report By The Steering group. Budapest, Hungarian Ministry of Education.

Hungarian Technology Foresight Programme 2000b
Panel Report Information Technology, Telecommunications and the Media. Budapest, Hungarian Ministry of Education.

Hungarian Technology Foresight Programme 2000c
Panel Report Health and Life Sciences. Budapest, Hungarian Ministry of Education

Hungarian Technology Foresight Programme 2000d
Panel Report Education and Human Resources. Budapest, Hungarian Ministry of Education

Annex 1: Tabular Overview

Foresight effort: Hungarian Foresight Programme (TEP) 1997-1999/Hungary		
Categories, Criteria & Questions	**Answers**	**Comments**
Project promoter / initiator	– National Committee for Technological Development (OMFB)	
Agency or organization responsible for the foresight activity	– OMFB	
Scope / areas covered	– 7 (later 8) thematic panels	
Time horizon	– 15 to 25 years	
Societal dimension	– goals include economic prosperity and improvements in quality of life – some panels organised around "social functions" (e.g. health, transport)	
European dimension	– impact of member ship of EU	
Major explicit objectives	– contribute to selection of long-term research goals and priorities – consensus-building – transparency on application of key technologies	
Second order objectives and indirect effects	– decision-making in interdisciplinary areas – promoting dialogue between stakeholders – generating alternative visions	
Impact	– some recommendations discussed favourably by parliamentary committees – some recommendations incorporated in policy documents – creation of networks among participants	
Target groups	– Ministries, NGOs, Industry, "the state", "market participants", "society"	
Participation	– c. 150 panel members, up to 1400 participants in Delphi survey	
Major Characteristics	– sector oriented foresight – fairly autonomous panels	
Methodology	– 2 round Delphi, scenario building, panels, pre-foresight including "awareness raising" events involving chambers of commerce, professional associations	
In which way have IST been included and treated in the FS exercise?	– expert panel on IT, telecommunications and the media; also subject of several other panels; steering group picked up IST in several recommendations	
Strengths/opportunities weaknesses/threats identified in IST	– loss of established telecommunications market – strength in software development (application software, org-ware) – low level of IT readiness of population – unsuitable laws, regulations – IT infrastructure poor	
– Dissemination	– report on website (also in English), some documentation – many regional seminars	–