

**INFORMATION SOCIETY TECHNOLOGIES
(IST)
PROGRAMME**



Accompanying Measure

FINAL REPORT

Project acronym: **Estonian *e* Vikings**
Project full title: Establishment of the Virtual Centre of Excellence for IST
RTD in Estonia
Proposal/Contract no.: IST-2000-26452

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Abstract

The Estonian *eVikings* project aimed according to the original project proposal to integrate Estonian leading IST research and development labs and companies through the everyday collaborative RTD projects much better with the European academia and industry, innovation networks. We also aimed to facilitate international exploitation of abroad developed RTD results in Estonia and help the Estonian labs in disseminating their solutions in Europe. Conclusion of the European Commission's evaluation of the project proposal was to launch the project with the feasibility study, as the first step, keeping open possibilities for the "full-scale" project to be modified and resubmitted at the later stage.

Accordingly, the feasibility phase of the project started building up the Virtual Centre of Excellence for IST RTD by strengthening the existing IT innovation infrastructure in Estonia, opening additional synergies, enabling to benefit in a cost-effective way from the main objective of the project – European integration in information society technologies research and technological development.

Steps defined for feasibility study phase were the following:

1. In-depth assessment of the Estonian IT Sector Innovation System;
2. Wide-scale public dissemination of the results and contribution to relevant policy formulation process;
3. Reviewing recent foresight results abroad, creating awareness and integrating critical mass of stakeholders for national technology foresight practice;
4. Preparing policy recommendations.

All these objective have been achieved. Namely, mapping the Estonian IT sector innovation system and producing policy recommendations have had major public impact, in many terms:

- The cluster mapping exercise itself has served, as an good practice example in STI policy-making process. Similar type of approach has been now also taken up by in mapping Estonian biotechnology capacity, and to start preparing respective biotechnology R&D programme;
- The foresight review has served as a valuable learning process into foresight methodologies and practices. Several foreign experiences have been analysed. The process itself – preparing ground for more in-depth large-scale participatory foresight process to follow under STRATA eForesee project has been project probably the most important outcome of this work;
- Most of the detailed policy recommendations coming from the project team have been integrated into specific information society technologies programme being part of the National Development Plan 2004-2006, currently under preparation.

Current project has bridged most of relevant stakeholders to pursue concerted actions

under the IST follow-up project eVikings II. Preceding the launch of national R&D Competence Centres programme, eVikings II serves in a way also as a model for setting up a Centre of Excellence on national scale, with distinct relations and reach also to common European Research Area. Finally, follow-up initiatives and projects mentioned above will open up additional synergies in carrying out the activities once started under this contract, ensuring continuity and even stronger policy impact.

1. Project objectives

The Estonian eVikings project¹ concentrated its efforts, during the pilot phase under this contract, on:

- strengthening the links between the Estonian and European IST research and development communities;
- supporting the strife of the Estonian R&D labs' to become modern eVikings of the Information Society, through assistance to introduction of new European co-operative research and development projects (either European framework, bi- or multilateral);
- updating and giving advice for better focusing of the national research and technology policies.

The Estonian eVikings project concentrated on building up a critical mass of the intellectual capital needed for overcoming the bootstrap problem in competitive IST RTD in Estonia today.

To achieve this consensus building processes, series of awareness, information, support and training measures were applied in parallel to all main target groups: researchers, entrepreneurs, government officials and non-governmental organisations. The main objectives of this project followed from the most prominent and recent study of the Estonian Innovation System (NIS), performed by the Finnish expert Hannu Hernesniemi in 2000². According to the study the major weaknesses of the Estonian NIS are:

- 1) *“low awareness, which can be seen as a lack of realised technology development needs in firms and an unwillingness among politicians to invest in technology development,*
- 2) *the low RTD funding level and serious deficiencies in practical funding,*
- 3) *over allocation towards basic research and sciences not related to technology and unsubstantial contact between research units and firms, and*
- 4) *poor functioning of technology policy management and non existing contacts to firms.)”* (Hernesniemi 2000, p. 28)

The findings of the feasibility study demonstrated what we lack the most in Estonia

¹ See also <http://www.esis.ee/eVikings/index.en.html>.

² Hernesniemi, Hannu. 2000. Evaluation of Estonian Innovation System. Phare Support to European Integration Process in Estonia.

today is neither the overall level of higher education and basic research nor the financial resources for RTD. **Most of the weaknesses come rather from the lack of “big picture”, and limited scope of strategic planning.** All this starts with better background and abilities needed for taking the correct strategies and directions, both in public and private sector. Also present contacts base and experiences need improvements enabling more successful participation in international competitive RTD co-operation and accessing the technology markets. We can summarise it, as lack of critical mass, while the Estonian eVikings project had to take concrete actions for overcoming that.

Also, in the course of our research we came to the following statement in our report:

“Estonia’s transfer to market economy could be used as a standard economics textbook example of the neo-liberal, laissez faire approach to economics. Estonian economic policy is described as having a heavy reliance on market mechanisms, ‘getting the state out of the economy’, rapid and large-scale privatisation, free trade and liberal investment laws”³.

This also explains why we have included wider economic analysis in our activities leading to the understanding that without innovation policy one can not expect any active revival of the Estonian ICT Sector and its innovative capacity.

³ Kalvet, T., Pihl, T., Tiits, M. 2002. Analysis of the Estonian ICT Sector Innovation System. Executive Summary. Tartu: Archimedes

2. Public benefit and policy impact of the project

Established consensus between the ministries, research labs and companies was considered being critical success factor for all the work under this project. Estonian eVikings project team has been quite successful in marketing the whole idea of the virtual centre of excellence to the Information Society research and development community, politicians and different Government officials in Estonia and abroad.

The Government appreciates very much the work done under the project - Estonian eVikings were presented to European Commission among the most important initiatives in Estonian regular report 2001 on accession preparations.

The Research and Development Council discussed the analysis of Estonian IT sector innovation system on 29th of November 2001, and there is wide consensus now to use the analysis, prepared by this project, in further preparation for national IST R&D programme(s).

The next phase of the project, Information Society foresight review activity contributed further to increasing the competitiveness of Estonian IST RTD by expanding the strategic planning horizon of RTD performers. Full-scale participatory foresight to follow will be serving also as a basis for the further focusing of National IST R&D Programme under preparation.

The very outcome of this activity is the emerging project-based Centre of Excellence, which consolidates a substantial number of Estonian ICT cluster participants, who share the ideas and implement the recommendations posed by this Estonian eVikings project.

3. Detailed description of deliverables by the work packages

WP1. Kick-off of the pilot project

Project kick-off event on 30 January 2001 focused primarily on setting up administrative structure, building thematic working groups, and involving local experts into the project as advisory board to feasibility study findings. The project team, which has been built, involves key persons in the IST RTD from the:

- Ministry of Education:
 - o Mr. Jaak Anton, IT advisor
- Ministry of Economic Affairs:
 - o Ms Kitty Kubo, Head of the Industry and Innovation Department;
 - o Mr. Ott Pärna, specialist at the Industry and Innovation Department.
- Ministry of Transport and Communications:
 - o Mr Arvo Ott, Head of State Information Systems Department.
- representatives of the Association of Estonian IT and Telecommunication Companies:
 - o Mr. Ülo Suursoo, Head of Research Department; CEO of Columbus IT Partner;
 - o Mr. Teet Jagomägi, Member of the board, CEO of Regio Ltd.
 - o Mr. Ülo Jaaksoo, Member, CEO of Cybernetica Ltd.
 - o Mrs. Kersti Katkosild, project manager.
- Estonian Information Technology Foundation;
 - o Mr. Jaak Anton
- Estonian Information Technology Society (professional union);
 - o Mr. Jaan Oruaas, Member of the Board.
- Tallinn Technical University;
 - o Prof. Jaan Penjam, Institute of Cybernetics, Director.
- Estonian Technology Agency:
 - o Mr. Argo Luik, ESTIRC partner

As a result of the kick-off meeting the following points were agreed:

- a) Estonian eVikings project analysis team will consist of Mr. Marek Tiits, project manager, Mr. Tarmo Kalvet, analyst and Mr. Tarmo Pihl, analyst.
- b) Advisory board for the analysis and further thematic groups will be formed on the basis of project team.
- c) Project initial results will be discussed with project team and relevant amendments made to the results upon constructive propositions.
- d) Project team is also expected to participate actively in subsequent follow-up

activities.

Several roundtables and discussions at the participation of the above partners encompasses the whole project life cycle, and therefore has strongly contributed to the successful outcomes of the project as well as wider policy impact.

Active communication between project team members has facilitated consensus building and shared vision in terms of Estonian ICT cluster present state and outlooks, mobilising therefore critical mass for undertaking changes at strategic management and innovation policy level.

WP2. Evaluation of Estonian IST R&D sector

Evaluation exercise under this Work Package includes a number of tasks aiming at identification and documentation of the strengths and weaknesses of the Estonian IT cluster, research and development and higher education system. Also, Information Society benchmarking was performed as a part of the exercise. For these purposes public information and statistics were collected, questionnaires to specific target groups elaborated and validated.

WP2 – I. Survey of Estonian ICT enterprises

Survey of Estonian ICT companies was conducted in May 2001. An interviewing method was used and altogether 133 companies were approached by the interviewers, 99 of them were ready to share information on their research and development activities, but also on the organisation of learning processes in their companies. Based on the Business Registry database, the included companies covered all together 85..90% of the domestic ICT market by turnover.

In composing the questionnaire, both the VTT Baltic IT companies questionnaire⁴ and the 3rd Community Innovation Survey questionnaire were used a methodological basis. It was, however, modified according to the purposes of the current study (data collection for cluster study). The questionnaire was elaborated in cooperation with Estonian leading ICT experts and consulted with the Association of Estonian IT and Telecommunication Companies. Also, professional assistance from the public poll company Saar Poll OÜ was used concerning the formulation of questions, codification and the selection of data collection methodology.

WP2 – II. Estonian IT sector innovation system evaluation reports

Deliverables

⁴ VTT Technology Studies Group (Finland) have developed a questionnaire for analysing Latvian-Lithuanian IT enterprises. For comparability of data Estonian eVikings followed to a large extent their approach.

Estonian IT sector innovation system evaluation reports consist of the following reports:

- Kalvet, T., Pihl, T., Tiits, M. 2002. Analysis of the Estonian ICT Sector Innovation System. Executive Summary. Tartu: Archimedes Foundation (available in Estonian, English and Russian)

The executive summary is based on the following detailed working paper:

- Tiits, M. and Pihl, T. 2002. IST R&D and Innovation in Estonia. Working Paper. Tartu: Archimedes Foundation.
- Kalvet, T. 2001. Analysis of the Estonian ICT Sector Innovation System. ICT, Innovations and Innovation Policy: The Case of Estonia. Working Paper. Tartu: Archimedes Foundation
- Pihl, T. 2001. The Estonian ICT Cluster: Present State and Future Outlooks. Working Paper. Tartu: Archimedes Foundation

Also, the following methodological materials are available:

- Analysis of Estonian IT Sector Innovation System: Introduction and Methodology
- Annexes to the analysis consisting of enterprise survey questionnaire, tabular and graphic results of the survey, and list of the enterprises interviewed

Full reports with an analysis on Estonian ICT Innovation System are publicly available and downloadable from the project web-site⁵. Executive summary is also available as paperback and is delivered free of charge by post upon requests.

Also, we have issued a "Estonian IT Solutions" 2002 CD-ROM (5000 pcs), which was distributed at the IST 2001 Conference and Exhibition in Düsseldorf, to Estonian IST community including ministries and non-governmental organisations, but also Ministerial Conference in Ljubljana, 3-4 June 2002. The CDs is distributed over international NCP and IRC First Tuesday, etc. networks as well. Also, ca 1000 CD-s were sent to the Estonian embassies all over the world to promote Estonian IT sector. Another 150 CDs were sent to Estonian IT enterprises and organisations.

Estonian eVikings materials, Executive Summary as well as IT Solutions CD were distributed also in Riga, at Baltic IT&T conference on 3-5 April 2002.

Methodology

The methodology used in the reports is an adapted version of the popular National Innovation System (NIS) assessment practice, whereas general ICT cluster analysis approach is integrated into the NIS framework for gaining better understanding about the existing interrelations between IT and supporting industrial sectors. The NIS methodology helps to indicate the role of different structures in generating sustained innovation in IT sector and assess the efficiency of their performance. The results enable to highlight the major obstacles confronted by the industry, and consistent with the results to define certain measures for adopting the necessary rearrangements. Cluster analysis represents an economic dimension of the NIS approach, giving

⁵ Please see <http://www.esis.ee/eVikings/evaluation/index.en.html>

insight to the competitiveness and productivity issues, supply and demand side of IT products and services, competition driven innovation etc., while serving as a tool for determining ICT industry's place in Estonian economy on the whole.

Public discussion

The draft reports prepared were discussed at the day-to-day working meetings with academia, industrial leaders and authorities in Estonia.

- Preliminary evaluation conclusions were discussed at the expert seminar on 24 August 2001. The expert seminar involved the representatives from the Ministry of Education, the Ministry of Economic Affairs, Ministry of Transport and Communication, Estonian Technology Agency, Tallinn Technical University, Estonian Information Technology Society, Estonian Information Technology Foundation, the representatives of the Association of Estonian IT and Telecommunication Companies and private enterprises. Also, opinions of international experts were received by this time. The aim of the expert seminar was to collect feedback and receive new ideas to complete the first draft of the Analysis of Estonian IT Sector Innovation System. After presenting the main findings of study the floor was given to the representative of Ministry of Economic Affairs and Institute of Cybernetics for their assessment. Roundtable discussion then followed to finalise the recommendations outlined in expert session. During the visit of F. de Bruine to Estonia (June 18, 2001) the presentation on eVikings project first results was made to the Director as well as several high Estonian government officials.
- The results of eVikings first phase were presented to the representatives of Hansabank, the largest bank and almost autonomous leader of financial sector IT solutions development Estonia. The representatives expressed their interest towards the ICT cluster study, where they found appropriate information for implementing risk analysis for the ICT sector.

Related articles in national and international media

- Pihl, T. and T. Kalvet. 2002. Eesti IT-sektor uute väljakutsete künnisel. Luup, No 5 (144), pp. 36-37.
- Kalvet, T., Pihl, T., Tiits, M. 2002. The Estonian ICT Cluster: The Current Status and Future Challenges. Baltic IT Review, No. 2 (25), pp. 56-59.
- Kalvet, T. and Kattel, R. 2002. Majandusareng, innovatsioon ja tehnoloogilis-majanduslik paradigma: väljakutse Kesk- ja Ida-Euroopa riikidele. / Economic Development, Innovation and Techno-Economic Paradigm: Challenge for Central and Eastern Europe Countries. Riigikogu Toimetised (Journal of Estonian Parliament), no. 5, pp. 142-148.

WP2 - III. Information society developments monitoring

Under the eVikings project the team also continued with information society benchmarking. The main objective was to build close links with the European initiatives, most notably with eEurope. The following materials were produced:

- Braliev, A., Kalvet, T. (forthcoming in 2002). Country Reports. .ee. in The Global

Information Technology Report 2001-2002: Readiness for the Networked World. pp. 200-201. Oxford University Press

- Kalvet, T., Meriste, M. 2001. e-Estonia and the Information Society. Baltic IT Review, No. 1 (20), 2001, pp. 68-71
- Article "Information Society Developments in Estonia" for the CD-journal Baltic Sea Region E-Business Forum Brochure. The Forum Baltic Sea Region e-Business Forum - International conference on e-commerce, e-business and e-government was held in Riga, Latvia, 26-28 September 2001.
- Report on the Estonian information society developments in 2001. Was published on the CD-ROM "Estonia – IT Solutions 2001".
- Promotion material introducing eEurope+ initiative. The material was disseminated among Estonian civil servants and politicians.
- Article: *IKT arengu võrdlusandmeid teiste Euroopa riikidega 2000/2001* (ICT development (Comparison of Estonian and European ICT Sectors' State of Affaires and Development) in "IT Avalikus halduses. Aastaraamat 2001" (IT in Public Administration. Yearbook 2001) by Liivar Leppik.
- Article "Comparison of Estonian and European ICT Sectors' State of Affaires and Developments" was published in the annual Estonian Informatics Center overview.

Other activities included:

- in line with the eEurope+ initiative the structure of new information society portal was drafted. The portal will be established during 2002;
- Collecting the statistics proceeding from the eEurope+ initiative objectives and their presentation as working paper;
- Assisting the Ministry of Transport and Communications in the issues related to the eEurope+ initiative, mainly in relation of collecting and analysing relevant data.
- Lecture on 28 May 2002 to the key decision-makers from Central Asia. Course "E-governance Academy for Public Sector Decision-makers", lecture on take-of of ICT in Estonia, different initiatives and development programs, and foresight.

WP3. Technology Foresight Review for the Estonian context

Background and objectives of the workpackage

One of the problems confronting Estonian decision-makers (incl. RTD policy planners) is the lack of adequate information and "broad picture" on modern industrial R&D strategies. In order to tackle the problem during the implementation phase of the project technology foresight review, analysis of government policies and industry strategies together with analysis and foresight of socio-economic impacts and linkages of socio-economic impacts with national and EU policies was conducted.

Thus, the main objective of the present work package was to initiate public dialogue and create a uniform understanding of the importance of regular technology foresight. In current situation we see foresight as one of the most efficient means in bringing

together different socio-economic actors, where the process itself contributes to general awareness raising, visionary insight creation and consensus building. The formal results of foresight coming mainly in the form on different reports should be finally used at the level of research labs for defining strategic roadmaps for Estonian RTD activities.

Given the relatively limited time horizon of the project and the detailed approach to the mapping of existing situation, the current project was limited to reviewing earlier foresight results and experiences internationally and making preparations to the full-scale participatory foresight to follow.

Findings of the IT sector innovation system analysis and foresight review exercise will be used, as the initial basis for preparing the policy recommendations. In parallel there are already under FP5 STRATA programme preparations on-going for a joint eForesee foresight initiative⁶ of Estonia, Cyprus, Malta, where more systematic large-scale participatory foresight activity with close involvement of the relevant European competence networks (RIS-RITTS, FOREN, FOMOFO, etc.) is foreseen. In Estonia, eForesee project focuses on pilot foresight activities in ICT and biotechnology sectors. As the scope and objectives of eForesee project are closely related to the ones performed by Estonian eVikings, mutual complementarity between the two projects is foreseen to avoid any unnecessary duplication of activities.

Thus, the work done by Estonian eVikings regarding the ICT foresight will be developed further, synthesised with eForesee project activities and extensive foresight completed within the latter project by 2003.

Preparations for carrying out technology foresight in Estonia

The following activities were carried out under the project:

Review and translations of various materials:

- Translation of the executive summary and four scenarios of ISTAG's Visions on Ambient Intelligence in 2010. The report was published on the project web-site;
- Translation of Hungarian and German '98 Delfi studies have been completed and the results of the studies presented on the project's web site⁷;
- Collection of public information on the previous ICT related foresights elsewhere. Over 25 technology foresight related reports have been analysed.
- FOREN 'Practical Guide to Regional Foresight'⁸ (approx 100 pages) has been translated. The guide will be adopted for Estonia and developed further under the eForesee project, concluding this way with a comprehensive localised guide to use of foresight in strategic planning.

International contacts:

- On 28 September 2001 Tarmo Kalvet met with Gabriella Eglesz (Hungarian

⁶ Please see <http://www.eforesee.info>

⁷ Please see <http://www.esis.ee/eVikings/foresight/index.en.html>

⁸ Please see <http://foren.jrc.es/>

Foresight Programme) to discuss the Hungarian experience in carrying out the foresight exercise.

- The eVikings project team has also been in contact with the Fraunhofer Institute for Systems and Innovation Research (ISI), Karlsruhe, that carried out on behalf of the Federal Ministry for Education, Science, Research and Technology (BMBF) Delphi '98 Study in Germany.
- On 14-25 January 2002 Marek Tiits attended to *CIPRE seminar in Science, Technology and Innovation Policy* in Budapest and series of meetings with NSF, AAAS, etc representatives.
- Meeting with Malta S&T Council and other members of eForesee project to discuss the specific situation and initial thinking behind planned IT foresight pilots in Estonia and Malta, 11-13 February 2002.
- On 18-22 February 2002 Marek Tiits presented Estonian R&D strategy and challenges in implementing knowledge-based economy, and had series of meetings with the World Bank, OECD, European Commission, EBRD, EIB, representatives at the "Knowledge Economy Forum" organised by the World Bank in Paris.
- Participation in the concertation meeting of FOMOFO and other Foresight projects on 28 February 2002. Further development of the contribution of Regional Foresight to implement the European Research Area.

The second STRATA foresight project is the Four Motors Foresight Initiative (FOMOFO), a one year Accompanying Measure to FOREN. As the name suggests, FOMOFO is a partnership involving teams from each of the Four Motors for Europe regions. The 'Motors' regions are Baden-Wuerttemberg, Lombardy, Rhône-Alpes and Catalonia. The network was established in 1988, and together the four members undertake activities in all cultural and economic spheres to enhance competitiveness and quality of life.

- Participation in the SPRU conference Sponsored by the STRATA Programme of the European Commission, Research Directorate General at the University of Sussex "Rethinking Science Policy. Analytical Frameworks for Evidence-Based Policy", 21-23 March 2002.
- Participation in the Spanish Presidency organised conference *The Role of Foresight in the Selection of Research Policy Priorities* in Seville on 13-14 May 2002. Members of the eViking project were present on the meeting in order to find further international relations and add value to the ongoing foresight exercise.
- Further to the above regular contact has been kept with the
 - o Foresight unit in DG Research,
 - o Institute of Prospective Technology Studies, Joint Research Centre (an invitation by IPTS to present the results of eVikings project was issued, but due to the time limits, the seminar did not take place yet),
 - o PREST, Manchester University,
 - o various members of FOREN and ESTO networks.

Meetings and events in Estonia

- Meetings on 11 March and 3 April 2002 with Center for Strategic Initiatives (founded by the Bank of Estonia, University of Tartu, Tallinn Technical University, Chamber of Commerce and Industry) and Institute of Future Studies. Discussion of foresight action plan.
- Discussion of foresight activity action plans with the Ministries of Education, Economic Affairs, and Transport and Communications.
- Series of round tables on foresight basics were held with prospective participants and stakeholders from converging IT, bioinformatics and nanotechnology domains on 4 January, 8 and 18 February and 18 March 2002.

WP4. Preparing National IST R&D policy recommendations

Synthesising the findings of different studies conducted during the project, comments and suggestions taken up during the discussion of the findings at expert meetings has been the main objective and motivation of the work under this work package.

Estonian eVikings project team consulted regularly with foreign experts, organised round tables with the academia, industry and government discuss the conclusions of the analysis, looking at the same time for specific motivators, which would enable to build on specific initiatives underway both in public and private sector.

Most of the IST RTD related macro level innovation policy recommendations coming from the Estonian eVikings project have been integrated directly into specific information society technologies programme, which has become integral part of the National Development Plan 2004-2006. Preparation of the programme is still on-going process, where first outlines of specific instruments have been prepared and work is still on-going to see, what would be the best modality and organisational setup for actual implementation of the national IST programme to be launched by 2004.

Finally, workshops for preparing the follow-up project eVikings 2, aiming at establishment of the IST Centre of Excellence in Estonia, have been serving as another efficient way for communicating findings of the eVikings project to the researchers and entrepreneurs. Gathering most of the key players from Estonian IT sector to the support of common project and establishment of the joint action plan has supported consensus-building and take-up of the eVikings recommendations at the level of R&D labs involved into this process.

Meetings and events:

- Tarmo Kalvet participated in the seminar "Implementing an Estonian Innovation Policy Strategy in the Context of EU Accession" and workshop "Outlining an Estonian Innovation Policy Strategy" organised by the Ministry of Economic Affairs, 3-4 October 2002.
- Participation in series of workshops on R&D Competence Centres programme⁹,

⁹ Please see: Competence Centres programme Estonia. Feasibility study.
<http://www.mineco.ee/download.asp?kood=803>

- organised by the Ministry of Economic Affairs and Technopolis Group.
- The eVikings project team has also been consulted several times by the Ministry of Economic Affairs in relation to the Industrial Policy White Paper that they are preparing.
 - Participation in ISTC Working Group for IST RTD Portal, aiming at better exchange of information about national research priorities and programmes for information society technologies at the European level.
 - Visit to the Research Institute of the Finnish Economy (ETLA), 11 April 2002. Presentation of the results of Estonian eVikings project and discussing opportunities for closer IST co-operation between Estonia and Finland.

Results and deliverables:

- Contribution to the preparation of Estonian R&D Strategy “Knowledge-based Estonia” 2002-2006, especially to the specific focus given to information society technologies, as one of three key technology areas leading current change of socio-economic paradigm.
- Members of the Estonian eVikings project team have been elaborating to the Estonian National Development Plan for 2004-2006 by posing recommendations and assisting the Ministry of Transports and Communication and Ministry of Finance in drafting the respective IST programme.
- Analytical cluster based approach to the STI policy-making originating from eVikings is very much highlighted in the Review of Research and Development in Estonia 2000-2001, compiled by the Research and Development Council of Estonia. This type of approach has been now also taken on board in the work plan of the Research and Development Council. Accordingly, Estonian eVikings project team have been actively contributing to the elaboration of the terms of referencs of the project *Evaluation of the Estonian Biotechnology Innovation System* initiated by the Ministry of Economic Affairs.
- In addition, several meetings have taken place with Mr Ivar Tallo, member of Parliament (starting 2002 former MP), one of the most important politicians dealing with information society legislation in Estonia. He has been consulted on the development of the newly revised version of the Principles of Estonian Information Policy and respective action plan.

WP5. Preparing the final report

This WP focuses on finalising the national IST R&D policy recommendations and development of the follow-up plans.

Having several opportunities for more direct policy impact by contributing directly to the formation of different national IST strategy papers and programme documents, no separate comprehensive recommendations paper have been elaborated under this project. However, Executive Summary of the analysis of IT sector innovation system has been printed in Estonian, in English and made also electronically available in Russian. For now this has become the master report of the Estonian eVikings project, which is extensively in use, disseminating the results of the project both nationally and

internationally.

Expert meeting was organised on 2 May 2002 to conclude the work of the project by describing findings of the project to the members of IT community in Estonia. At the conference attracting about 30 key persons from the IT sector the above report and final conclusions of the project, state of the art in planning the national IST programme were presented. As the conclusion several participants of the event called once more for further joint action of all players in Estonian IT community to improve the sector's export potential.

This arising understanding of the need for government-industry-academia joint action is demonstrated the best by another vision-building seminar organised by IT companies through the Look@World foundation on 20-21 June 2002 in Haapsalu, Estonia. However, despite the original plan to seek for more systematic opportunities for inter-sectorial co-operation the seminar concluded with a number of recommendations for relatively close-to-market actions motivating wider use of Internet among the current non-users.

We conclude therefore, that there is continued need for analysing longer-term development prospectives in information society (technologies) and the related needs of socio-economic development. This is the work to be continued under STRATA eForesee project and the eVikings 2 project.

WP6. Consulting establishment of IST project strategies

Awareness, training and consultation meetings with prospective researchers for establishment and management of the new international RTD projects for the major part of this Work Package. During the reporting period series of efforts have been made to stimulate Estonian participation to the final calls of IST Programme. Main direction of the work have been stimulation of the Estonian participation to the various capacity building measures for:

- integrating national eEurope-like Look@World initiative, with its European counterparts in different Member States and Candidate Countries, as well with the Northern eDimension actions. As a result, an involvement of [Look@World](#) in IST project proposal took place.
- strengthening IT higher education and graduate studies (including technology and innovation management) via joint training activity under specific IST Improving Human Potential activity. To test the idea pilot action has been launched in the University of Tartu, and relevant project proposal has been submitted to the IST Programme as well.

In addition to the above approximately 250 partner searches originating from the NCP network and other sources have been sent to the prospectively interested parties in Estonia. Active partner search has been conducted on behalf of IST Exploratory Award, resulting with successful IST proposal submitted into 7th call of IST Programme. Hands-on assistance has been provided on the case-by-case basis to

approximately 12 organisations interested in taking up a partner search or preparing a proposal based on their own idea.

Finally, successful follow-up project to Estonian eVikings was submitted to IST 8th call. The project acronym is eVikings II: Establishment of the Virtual Centre of Excellence for Information Society Technologies RTD in Estonia.

The aim of the project is to facilitate the development of ICT cluster in Estonia in coherence with the vision of Ambient Intelligence by ISTAG, underpinning considerably international co-operation in everyday activities of the Estonian leading IST research and development labs and companies for these purposes. Virtual Centre of Excellence for IST related R&D work will be set up, which will primarily act as enabling competence building platform for establishing critical mass and performing top level integrated national and international research initiatives in the field of information society technologies.

Another major activity, the establishment of Estonian Research Information System (ERIS)¹⁰ is under way, as a separate project funded by the Ministry of Education. The Information System incorporates all Estonian publicly funded R&D projects, where IST database with project information will be integrated into as a separate module.

Tight interaction with Estonian Technology Agency (ESTAG) has been pursued during the project implementation phase. Several Estonian IT enterprises found the way to the Agency through Estonian eVikings consultants. As well, co-funding to 'Estonian IT solutions CD' publishing was received as a recognition to the helpful work done under the project.

¹⁰ Please see <http://www.eris.ee>

4. Deliverables

Deliverables list

Del. No.	Deliverable name	WP no.	Lead participant	Estimated person-months	Del. type*	Security**	Actual delivery (project month)
D1	Web site and list servers, articles in regional journals	WP1	1	1.5	Publications	Public	1
<p>World-Wide Web site (www.esis.ee/eVikings) was established in January 2001. Mailing list (e-vikings@ibs.ee) was also established and key persons in the domain were asked to join. Web based electronic forum has been also established to facilitate on-line discussions on project findings and foresight exercise. Several articles were published in international journals like Baltic IT Review, CD-journal Baltic Sea Region E-Business Forum Brochure, The Global Information Technology Report. Also, a number of articles were published in national media to disseminate project results.</p>							
D2	Database of IST RTD projects, Database of the Key Persons and Contact Organisations	WP2	1	2.2	Database	Public	3
<p>ESIS II database of key persons and contact organisations has been updated and used for the Survey of Estonian ICT organisations. Substantial part of the information is also integrated into Estonia IT Solutions CD.</p>							
D3	Report on information society, IT cluster and national RTD, legal developments	WP2	1	6	Report	Public	15
<p>The following three working papers, which have been updated throughout the duration of the project, have been made available on project web-site: Kalvet, T. 2001. Analysis of the Estonian ICT Sector Innovation System. ICT, Innovations and Innovation Policy: The Case of Estonia; Tiits, M. and Pihl, T. 2002. IST R&D and Innovation in Estonia; Pihl, T. 2001. The Estonian ICT Cluster: Present State and Future Outlooks.</p>							
D4	Technology Foresight and scenarios for Estonia	WP3	1	5.3	Report	Public	15
<p>Preparatory work and background information collection and desk research have been conducted. Summary of the ISTAG visions for 2010 have been translated with the permission from European Commission into Estonian. Hungarian and German Delfi questionnaires and FOREN guide to regional foresight have been translated into Estonian. More in-depth foresight work is set to continue under STRATA eForesee project.</p>							
D5	Expert seminar on the findings of the IT cluster evaluation	WP2	1	1	Seminar	Public	8,11,17
<p>The high-level expert seminar took place on 24 August, 2001 in Tallinn. Presentation of project results to high rank policy decision makers, members of academia and business executives took place on 29 November 2001. Project final seminar was held on 2 May 2002.</p>							

D6	National IST R&D Policy Recommendations and report on international research programmes	WP4	1	6	Report	Public	17,18
General policy recommendations are given in the executive summary report, more detailed approach is integrated directly into planning of the national IST programme, being part of the National Development Plan 2004-2006.							
D7	Roundtables to discuss National Policy Recommendations	WP4	1	1.2	Seminar	Public	11-18
Series of roundtables, seminars and workshops have been held throughout the work of work packages 3 and 4.							
D8	Reports and recommendations on Estonian IST RTD	WP5	1	5.4	Report	Public	17
Executive summary of the analysis of Estonian ICT sector innovation system is published in Estonian, in English and in Russian on project web-site. Printed version is available in Estonian and in English by postal delivery.							
D9	New RTD partnerships, quality FP5 IST project proposals	WP6	1	3.5	New projects	Public	1-18
Hands-on consulting and assistance in on-going with three "promising" proposals, based on initiative coming from Estonian side. These three projects are eVikings II (IST-2000-37592) – successful, POSA DWDM (IST-2001-34850) – successful, ESMENET (IST-2001-37300). In addition to that routine IST information and partner search distribution was done. More than 250 partner searches have been disseminated and thus a considerable number (approximately 50) expressions of interest created.							
D10	Project mid-term and final reports	WP7	1	1.5	Reports	Public	9-10, 18, 19
Hereby project final report is submitted.							

5. Annexes (for period 1 January 2002 – 30 June 2002)

**Information society measure for the National Development Plan 2004-2006,
Working Draft**

Report “Analysis of Estonian IT Sector Innovation System” in Russian

**Article "Comparison of Estonian and European ICT Sectors' State of Affaires
and Developments"**

Kalvet, T., Pihl, T, Tiits, M. 2002. The Estonian ICT Cluster: The Current Status and Future Challenges. Baltic IT Review, No. 2 (25), pp. 56-59.