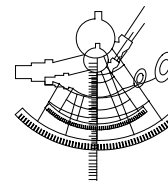


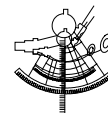
# European Trend Chart on Innovation



## Theme-specific Country Report

### Estonia

Covering period: up to March 2003



Innovation is a priority of all Member States and of the European Commission. Throughout Europe, hundreds of policy measures and support schemes aimed at innovation have been implemented or are under preparation. The diversity of these measures and schemes reflects the diversity of the framework conditions, cultural preferences and political priorities in the Member States. The 'First Action Plan for Innovation in Europe', launched by the European Commission in 1996, provided for the first time a common analytical and political framework for innovation policy in Europe.

Building upon the Action Plan, the *Trend Chart on Innovation in Europe* is a practical tool for innovation organisation and scheme managers in Europe. Run by the Innovation Directorate of DG Enterprise, it pursues the collection, regular updating and analysis of information on innovation policies at national and Community level, with a focus on innovation finance; setting up and developing innovative businesses; the protection of intellectual property rights; and the transfer of technology between research and industry.

The Trend Chart serves the 'open policy co-ordination approach' laid down by the Lisbon Council in March 2000. It supports organisation and scheme managers in Europe with summarised and concise information and statistics on innovation policies, performances and trends in the European Union. It is also a European forum for benchmarking and the exchange of good practices in the area of innovation policy.

## The Trend Chart products

The Trend Chart on Innovation has been running since January 2000. It tracks innovation policy developments in all EU Member States, plus Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Iceland, Israel, Latvia, Liechtenstein, Lithuania, Norway, Poland, Romania, Slovak Republic and Slovenia. The Trend Chart website ([www.cordis.lu/trendchart](http://www.cordis.lu/trendchart)) will provide access to the following services and publications, as they become available:

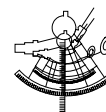
- a database of policy measures across Europe;
- a 'who is who?' of agencies and government departments involved in innovation;
- a series of six-monthly country reports for all countries covered;
- a series of six-monthly trend reports covered on each of the four main themes;
- a number of benchmarking reports;
- the European Innovation Scoreboard and other statistical reports;
- a news service and thematic papers;
- the annual reports of the Trend Chart.

The present report was prepared by the **Economist Intelligence Unit Ltd**. The information contained in this report has not been validated in detail by either the Member States or the European Commission.

Contact: Christophe Guichard; [Christophe.guichard@cec.eu.int](mailto:Christophe.guichard@cec.eu.int)

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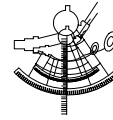


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***Note to the reader:***

***The present report focuses on four specific themes.  
For an overview of national developments in innovation policy,  
please refer to the October 2002 Country Report available on the website.  
This yearly publication will be updated in October 2003.***



## Theme 1: Cluster policies

### 1.1 Introduction

'Clusters' have been subject to intense academic, industry and policy interest since the last decade, and in particular since Porter popularised the concept in his work, *The Competitive Advantage of Nations* (1990).

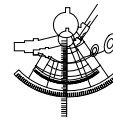
The concept of clusters is far from being homogenous and a number of schools of thought and empirical phenomena have adopted the concept. Closest to Porter's original concept are the 'mega clusters', defined at national or regional levels, on the basis of quantitative mapping exercise. More micro-economic approaches have given the name of clusters to smaller groupings of enterprises, often SMEs, established on a voluntary basis and around common projects. These may be based in the low-tech or traditional sector (i.e. as industrial districts) but may encompass high-tech activities. In the latter case, the core of the cluster is often a large technology-creating firm or public research institution and the main driving force behind the cluster is the need to ensure flows of ideas and people between the knowledge base and companies. For the purpose of this exercise, the definition below is proposed:

"The cluster is a mode of organization of the productive system, characterized by a geographical concentration of economic actors and other organizations, specialized in a common field of activity, developing inter-relations of a market and non-market nature, and contributing to innovation and competitiveness of its members and the territory."

Cluster policies may also take different shapes: they can be explicit and labelled as such, or implicit, in the sense that they affect clusters without being necessarily designed with this purpose. They can relate to different policy areas: e.g. industrial policy, regional development policy, technology policy; they can comprise different policy mixes, ranging from one or two instruments to a complete portfolio; they may address cluster creation or cluster support; they act on the cluster environment or more directly on the dynamics of the cluster itself; and they may be developed at various levels - local, regional or national.

This workshop based on this exercise will focus on the **European dimension of innovative clusters and cluster policies**. Starting from the claim that clustering can be good for innovation, the question is how to develop innovation policy that can promote the establishment and growth of clusters, and how to reconcile the national or regional scope of policies with the expanding frontiers of clusters. Contrary to previous Innovation Trend Chart policy workshops dealing with more established policy areas, this workshop addresses a subject where policies are still experimental or loosely defined or, concerning the trans-border dimension, not yet in practice. Therefore, the focus will be more on questions for the development of new policies than on 'learning from good practices'.

The following questions seek to develop information on a number of key issues to be addressed at the workshop.



## 1.2 Cluster-specific questions

### 1.2.1 General issues

1. What types of cluster policy currently exist in your country and how recently were they introduced?

There is no single cluster policy in Estonia. During recent years there has been increased discussion, whether Estonia should have a cluster policy and what clusters types already existed. The policy on tourism could be interpreted as a cluster policy, although it has no relevance to innovation.

The Competence Centre Programme represents a first step for fostering clustering through bringing together the people dealing with the same technology area from both business and research sectors to develop new competitive products and services.

2. How important is 'cluster policy' at the national and regional levels in your country (i.e. are there any explicit cluster policy measures that have been introduced nationally or regionally)?

There is no explicit cluster policy measure.

3. Briefly, how important is 'policy push' in identifying the need for the establishment of clusters in your country (i.e. is clustering basically a bottom-up, market-driven process or does government have a role in facilitating the emergence of innovative clusters)?

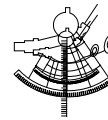
The few existing clustering initiatives, not necessarily driven by the theme of innovation, have mainly been bottom-up and market-driven processes. Only recently has there been a 'policy push' and discussions from the government side on transit transport, tourism, biotechnology and perhaps ICT. At the same time, the forest and timber industry has formed a rather strong cluster in Estonia, but this has never been supported by State policy.

So far, the State has preferred to support horizontal measures allowing access to a wider range of enterprises with the same problems more quickly. At the same time, the programmes in the key technology areas (ICT, biotechnology and materials technology) of the National R&D Strategy are types of cluster programmes in these sectors. The Competence Centres Programme is dealing with the 'knowledge-clusters' in the technology sector, where industry and science have common mid-term research plans. Implementation is shared between the public and private sector.

### 1.2.2 Design

4. What are the main driving forces behind the establishment of cluster policy in your country (e.g. for stimulating interactions and knowledge exchange between various actors in a cluster; to encourage the setting-up of science parks; as a response to any national or international studies dealing with clustering policies etc.)?

The main driving forces have been the initiatives taken by the enterprises. To some extent (although currently rather weak) there has also been a push from the State and/or municipality, for example, the Tallinn City Government Business Development Office.



5. Is there any evidence of 'transnational learning' in the design of new clustering policies (i.e. best practice examples taken from other countries)?

The Netherlands has been serving as a benchmark country in the case of transit policy, and Ireland for tourism. However, there has been a delay in implementation of any lessons learned.

The Austrian, Australian and Swedish experiences were also analysed for developing the Competence Centre Programme. Moreover, the programme developers were also actively involved in international work on this theme.

6. What is the main aim of the State in the design of any clustering policies? For example: is it to address wider policy issues (such as regional economic development or employment growth), or to support focused objectives associated with a particular industry or technology area, (such as biotechnology, IT, environmental services, energy conservation)?

It is impossible to discuss the main aim of clustering policies without any current clustering policy.

### **1.2.3 Implementation**

7. Which are the main ministry departments or other government organisations/agencies responsible for the implementation of cluster policies in your country? (Please supply contact details.)

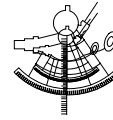
Last year (2002), a new post was created of Deputy Chancellor incumbent, responsible for transport and transit transport policy. Among the Deputy Chancellor's tasks is the fostering of the formation of clusters. In future, the Tallinn City Government Business Development Office may also take on a similar role and assume responsibility for developing tourism cluster policy.

8. Can you provide some brief details of any cluster policy programmes that may already have been implemented, with respect to their mode of delivery (e.g. through government funding support or through industry support), their selection rules if any, budgets to facilitate implementation of any regional clustering initiatives, and are there any intermediary organisations involved in the implementation (e.g. regional government bodies, academia, trade associations, trade unions, small business representatives, or any other types of intermediary organisation)?

There are no concrete programmes. In very general terms, the initiative of the Machinery Foundation to foster the co-operation of the member companies in fulfilling the orders of foreign companies may be cited. The several attempts of the Transit Transportation Foundation to solve common problems between railway, ports and transport firms are also worth mentioning.

9. What, if any, are the policy implications arising from any international business characteristics of the clusters found in your country? For example, are the clusters geographically or technology defined? Are they supported or reinforced by e-technologies or other initiatives? Are the clusters self-sufficient or do they exploit a core competence and supply or purchase or collaborate outside the cluster?

Some attempts have been made to create e-technology solutions with government support in the transit transport industry.



10. Can you identify the main clusters, in your country, that are supported by 'clustering policy' measures or through other policy measures with an incidental impact (e.g. co-operation between research establishments, universities and companies, science park initiatives, or small business research initiatives)?

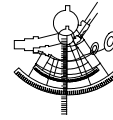
Biotechnology can be mentioned here – the formation of a biotechnology incubator, techno-park, also the 'Gene treasury' project etc.

### **1.2.4 Evaluation**

11. Have there been any evaluations of cluster policy initiatives or studies evaluating the performance of a particular cluster in your country? If yes, briefly what are the main findings? (please provide any reference sources).

Estonia has placed great emphasis on the development of the information society. Several programmes are implementing information and communication technology (ICT) solutions in public organisations and in educational institutions. Moreover, the private sector has also been eager to use ICT. For example, since 2000 Estonian citizens have been able to submit their tax declarations to the National Tax Board via the Internet. In general, the Internet has disseminated very quickly in Estonia. There are several suppliers who offer home Internet access with different prices and conditions. Estonians are eager to use the Internet services, especially for banking business as well as for tax declarations.

The problem is (like everywhere else in the world) the lack of good IT specialists and their training. The most widespread overview of situation and evaluations of ICT sector are presented in the Estonian eVikings website: [www.esis.ee](http://www.esis.ee)



## Theme 2: IPR – ‘strategic patenting’

### 2.1 Introduction

An important new trend in IPR is ‘strategic patenting’, but this term is frequently misunderstood. The legal function of a patent is to provide firms with protection against infringement of a patented invention that the firm intends to commercialise or license. Strategic patenting, however, covers patent strategies that are used by firms to expand the function of patents, such as defensive<sup>1</sup> and offensive<sup>2</sup> patenting. Both defensive and offensive patenting are linked to policy because both can decrease economic efficiency. Defensive patenting can increase costs to firms (via the patent preparation, application, and defence costs) without producing any real financial benefits. Offensive patenting could reduce the rate of technological progress by blocking competitors from areas of research and increase consumer costs by reducing competition.

Although they are potentially undesirable by-products of patent legislation, both types of strategic patenting are generally beyond the reach of policy. For this reason, we do not ask you to identify policies that are relevant to strategic patenting. Nevertheless, three new trends in patenting, described below, are of indirect relevance to strategic patenting. Items 1 (extending patent rights) and 2 (restrictions on the fair use exemption) open up new opportunities for strategic patenting, while strategic patenting could increase the costs associated with patent infringement (item 3). The fourth item asks specifically if information campaigns to promote patenting discuss problems with strategic patenting. The fifth item, on patenting by public research organisations, is not related to strategic patenting, but is a very important new trend in patent policy.

### 2.2 Strategic patenting issues and questions

#### 2.2.1 Extension of patent rights

The United States has extended patent rights to new areas such as gene sequences, software, and business methods. Europe has been under pressure to follow suit. Some of these extensions, particularly to gene sequences, create opportunities for offensive patenting, such as when a firm patents multiple gene sequences without a clear idea of what they are for.

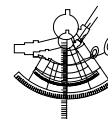
1. Does your country have a national policy or position on the extension of patent rights to new areas, including:
  - Gene sequences (expressed sequence tags, single nucleotide polymorphisms, etc)
  - Software
  - Business methods
  - Other?

At present, patent rights do not extend to the abovementioned new areas. For example, software programmes have been protected with copyright and related rights. Many programme developers do not think of the extension of patent rights to this area as a feasible option. This is due to the fact that applying patents is a very long lasting process, opposite to the development of software programmes.

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<sup>1</sup> A firm patents *defensively* to stop other firms from patenting its invention, even though the firm does not need a patent itself in order to earn a return on its investment in innovation. The firm earns a return through non-IPR appropriation methods. A variation of defensive patenting is when a firm patents its inventions so that it has patents that it can trade with other firms.

<sup>2</sup> Firms patent *offensively* to prevent other firms from patenting inventions that are similar, but not identical, to the invention that they plan to commercialise. In this case, the firm builds a patent family or ‘wall’ around its invention. This prevents other firms from commercialising competitive products, even though the firm does not intend to market these other products itself.



The national policy on this issue depends on the European Patent Office policies. In other words if the EPO extends patent rights to these new areas, Estonia will follow suit.

### **2.2.2 Restrictions on the fair use exemption**

Widespread patenting of near-basic research in biotechnology, health applications, and possibly nanotechnology could be creating confusion regarding the boundary between research with commercial and non-commercial applications. If true, this could make it difficult for both firms and public research institutes to claim a fair use or research exemption that would allow patent infringement for basic research, thereby extending the potential for offensive patenting. There are concerns, for example, that public research organisations are unable to use this exemption fully because the boundaries between basic research and applied research are unclear. This could be particularly true in biotechnology and in nanotechnology.

2. Have any policy actions been introduced to enforce the fair use exemption, particularly for public sector research?

There are no special policy actions in general.

3. Have any policy actions been introduced to clarify when the fair use exemption applies?

There are no special policy actions.

4. What is the state of policy discussion on this issue?

In general, both public and private research activities in Estonia are coordinated by the same acts and regulations. This means that there is no exception for anybody and the issues eligible for patenting are described in the Patent Act.

### **2.2.3 IPR Infringement**

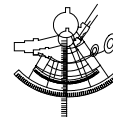
One side effect of the 'pro-patent' era and strategic patenting is an increase in litigation over patent infringement. This can increase costs to all firms, but particularly to SMEs that lack the financial resources to defend their patents against infringement by a larger competitor.

5. Are there any policies to reduce the costs of litigation over patent infringement? These can include:

- Expert court for patent infringement cases
- Subsidies for litigation insurance (particularly for SMEs)
- Policies to 'level the playing field' between SMEs and large firms
- Support for voluntary patent pools or other methods for reducing conflict

If yes, are there specific target groups for these policies?

There are no policies to reduce the costs of litigation over patent infringement.



6. What is the state of policy discussion on this issue?

Patenting activity in Estonia is at very low level, hence this question has not yet arisen.

### **2.2.4 Information campaigns**

Most information campaigns are designed to encourage firms, particularly SMEs, to patent more.

7. Do any of these campaigns (education materials etc) include information on how SMEs can avoid the dangers of strategic patenting by their competitors?

Patenting activity in Estonia is at very low level. At the moment, there are only a few educational initiatives on IPR issues. Strategic patenting has not yet become the norm.

### **2.2.5 IPR and public research**

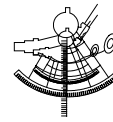
A common belief is that firms are unable to commercialise inventions discovered by public research institutes without patent rights. These rights give the firm an incentive to invest in an invention in order to develop it into a market-ready form. Without patent rights, it is assumed that no firm will invest, resulting in social welfare losses.

8. Are there policies to encourage patenting by public research organisations and universities?

The universities themselves encourage and promote patenting. The public policy involves only university spin-offs right now through the SPINNO programme (ES 17), which trains researchers in IPR issues.

9. Are there guidelines or rules for licensing public IP on an exclusive versus non-exclusive basis?

There are no such guidelines.



## Theme 3: Organisational and Entrepreneurial Innovation

### 3.1 Introduction

This theme deals with issues related to the concept of 'Third Generation Innovation Policy'. Both concept and understanding of the innovation process have evolved since the development of the linear model process, which views innovation as a process from ideas conceived in the laboratory through to commercial products in the market place. It is on this concept that first-generation innovation policies are based. We are now in the age of second-generation innovation policies, which understand innovation as a more complex, feedback dependent process, heavily influenced by the existence of 'innovation systems'. Policy here deals primarily with the nodes and interfaces of these systems. Third-generation innovation policy has emerged from our current perception and embodies the realisation that a fuller understanding of the concept of the knowledge-driven economy is still required. This entails the fusion of two sorts of knowledge: the first relating to knowledge of the changing nature of innovation processes and innovation policy, and the second relating to knowledge of the rationale and reform processes under way in the specific policy areas. Key elements of this fusion centre on acceptance of a broader view of not only the application of innovation but also the factors that influence it and the need to improve dialogue and mutual learning between policy-makers in a wider range of policy areas. Thus 'third generation innovation policy' would place innovation at the heart of each policy area.

Innovation Tomorrow - Innovation policy and the regulatory framework: Making innovation an integral part of the broader structural agenda, 2002, References: EUR 17052, Catalogue Number: NB-NA-17037-EN-C, ISBN 92-894-4549-1: see [www.cordis.lu/innovation-policy/studies/gen\\_study7](http://www.cordis.lu/innovation-policy/studies/gen_study7)

At present, research into the types and nature of policies which would fulfil the criteria of third-generation innovation policies is still sparse and in its formative stages. Obviously it is not possible to make detailed enquiries into national policies that address a type of policy of which there is little awareness as yet. However, some current approaches to policy reform appear to be leading towards the prerequisites for the development of third-generation innovation policy. These largely focus on regulatory and institutional reform and reform of governance. The raising of awareness of a culture of entrepreneurship is also relevant, so also are policy learning and coordination.

The following questions aim to build up a picture of the current European situation with regard to innovation policy reform (and, ultimately, to the development of third-generation innovation policies).

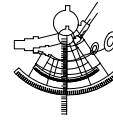
### 3.2 Specific issues and questions

#### 3.2.1 Coordination of innovation and other policies

1. What is the range of topics that are generally perceived to be included under 'innovation policy' in your country? How far does innovation policy go beyond traditional science and R&D policy (i.e. does it also involve such topics as education and training, stimulating entrepreneurship, aligning regulatory structures with innovation, labour market policy, etc.)?

In the Estonian Strategy for Research and Development, the Estonia of the future is seen as a knowledge-based society where the sources of economic and labour force competitiveness, and also improvement in the quality of life, stem from research directed towards the search for new knowledge, the application of knowledge and skills and development of human capital.

This strategy for Research and Development and Innovation (RD&I) has following strategic objectives:



- updating the knowledge pool, and
- increasing the competitiveness of enterprises.

In order to realise the RD&I objectives, work continues on the adoption of effective RD&I financing mechanisms and proportions, on the development of human capital, and on the formation of integration mechanisms between research, development and business.

In a broader sense, in addition to the traditional science and R&D policy, Estonian innovation policy deals with stimulating entrepreneurship, lifelong learning issues and aligning regulatory structures with innovation. Labour market policy has the least weak relationship to the innovation policies. For instance, the development of human resources in enterprises is organised to some extent through training grants from 'Enterprise Estonia'. Innovation Policy and general Enterprise Policy are somehow merged at the level of Enterprise Estonia as a policy implementation body – as it provides a full range of services to enterprises.

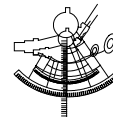
2. Briefly, how is innovation policy formulated and implemented in your country? Does a single agency, ministry or department take the lead or is it shared by several agencies/departments, etc. whose responsibilities relate to different parts of the innovation system and to different policy areas (e.g. IPR, education, employment, competition, environment, taxation, etc.)?

The Parliament and Government figure at the highest level of the Estonian National Innovation System, as they respectively hold the legislative and executive functions. Education and science policies in Estonia fall under the responsibility of the Ministry of Education and Research, while the Ministry for Economic Affairs and Communications is responsible for innovation and technology policy. **The Research and Development Council (RDC)** is the main strategic advisory body to the Government, chaired *ex officio* by the Prime Minister. This body has been reformed and became operational from the beginning of 2002.

The daily work of the RDC is split into two sub-committees, (science policy and innovation policy), headed respectively by the Minister of Education and Research and the Minister of Economic Affairs and Communications; the former specialising in science issues and the latter in applied research and innovation. The involvement of R&D and innovation Ministers in the council's activities can be cited as an indicator of RDC success. The items addressed in the RDC session agendas require approval (depending on the issue) by one or both of the sub-committees. When forming the council, the institution-centred approach was replaced by one centred on competence. Besides, various experts may be involved in the activities of the committees when necessary (including experts from regional innovation centres). The materials of either committee will be made mutually accessible (a corresponding IT solution is being developed to make this technically easier).

Science policy falls under the responsibility of the Ministry of Education and Science, while the Ministry of Economic Affairs and Communication works out the innovation policies. The main organisation that implements the innovation policies is Enterprise Estonia with its agencies. Technology Agency ESTAG plays the main role in implementing innovation policy. Science grants are provided through Estonian Science Foundation.

3. How are policies in general coordinated – by a single body or by inter-ministerial dialogue, or alternative processes? How far does this apply to innovation policy? Is innovation taken as a central determinant or factor in policy coordination? For example, is policymaking for innovation taken into account in the formulation of policies dealing with unemployment, taxation, transport or education for example?



The basic document for innovation policy is the Estonian Strategy for Research and Development and Innovation (RD&I).

The **Ministry of Economic Affairs and Communications** holds the central position in formulating state policies in promoting the development of technology and innovation. The main administrative unit within the Ministry is the **Division of Innovation and Technology Development in the Industrial Department**. The Ministry is responsible for planning, coordinating, and supervising the execution of the technology and innovation policy. In addition, industrial property policy (patents, trademarks, geographic signs and useful models) is coordinated by the Ministry of Economic Affairs and Communications, while the protection of copyright and related rights is coordinated by the Ministry of Culture.

The Government's main arm in executing innovation policy is the **Estonian Technology Agency (ESTAG)**, restructured from the former Innovation Foundation and fully operational since 1 January 2001. ESTAG has been the basic source for public co-financing of market-oriented research and technological innovation projects. It is part of the umbrella organisation of the **Foundation Enterprise Estonia**, a national foundation for supporting enterprises.

The **Ministry of Education and Research** is responsible for formulating and coordinating science and education policies, and also for working out the strategy for lifelong learning. The **Estonian Academy of Sciences** and the **Science Competence Council** are the bodies advising the Ministry on science and education issues. It is the responsibility of the Science Competence Council – which comes under the authority of the Ministry of Education – to decide on financing research projects. This gives the Government real control over the use of funds to serve strategic goals, and will reduce the pressure from professional lobby groups. The Estonian Academy of Sciences is a private advisory body.

The functions of the Ministry of Education in R&D are supported by the Archimedes foundation, which carries out evaluation surveys of Estonian higher education and science programmes. It also acts as a national contact point for the EU Framework programmes.

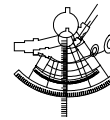
4. Is there any effort to make innovation a key criterion for development and assessment of policies (and policy reform and governance processes) across the board?

The strategy for RD&I views science, technological development and innovation in a holistic manner and regards them as tools for ensuring economic competitiveness and achieving social welfare. It follows that enterprise and educational policies and working plans should follow this strategy's objectives and prescriptions.

Several strategies and programmes have been worked out in different ministries, but the problem is that very often these are separate documents and are not very well integrated to foster the competitiveness of Estonian enterprises and economic development as a whole. Therefore, more and more attention has been paid lately to the integration of different policy documents and programmes.

### 3.2.2 Learning and dialogue

5. How is the effectiveness and impact on innovation of policy formulation and implementation measured, if at all? Are there regular evaluations (*ex post* approach) or broader strategic reviews (*ex ante* approach), or is the process more ad hoc? Are innovation and innovation policy experts or officials involved in these activities? Are the results of evaluations fed back into policy making, and to a wider audience?



The first large-scale evaluation of Estonian innovation policy was made during 1999 by Hannu Hernesniemi, a Finnish ETLA researcher. After this a Technology and Innovation Division was then set up at the Ministry of Economy and the reforms in the Estonian national system of governance of innovation policy started (2000).

The larger innovation programmes are foreseen to have *ex ante* feasibility studies like the latest programme of Technology Competence Centres<sup>3</sup> (ES 20), which estimated that Estonia has the potential to run five to six technology competence centres in the near future. The feasibility study was made together with the foreign experts from Technopolis B. V. The Spinno Programme (ES 17) will undergo an *ex post* evaluation this year (2003). This assessment will form the basis for deciding whether to continue the project next year.

During 2002, several foreign experts were also involved in the process of developing the Estonian Single Programming Document (SPD) essential for drawing additional finances from the EU pre-accession and structural funds. Evaluations were made of Estonian business support measures, including R&D and innovation support measures. These analyses show that well designed and rather effective support schemes for R&D development do exist, but only a few measures are intended for the majority of the companies and their development. These documents have been taken into account when designing (and redesigning) the future policy measures.

Enterprise Estonia has initiated the assessment of the organisation's effectiveness in 2002. At the moment, work is being done on restructuring of co-operation schemes between agencies and on improving service provision to client enterprises.

### 3.2.3 Framework conditions

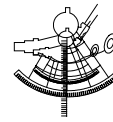
6. Are there any recent examples of reforms to regulations (e.g. employment conditions, planning processes) or other framework conditions (IPR regimes, taxation regimes) that have had a positive impact on innovation policy (especially if intended)? Have inconsistencies and mismatches in policy as it impacts innovation been noted, and if so how, and what has been done about it?

During 2000, several reforms were started, leading to the implementation of today's innovation policy. They have proved to be very positive for the development of Estonian innovation system. Initially the Technology and Innovation Division was created within the Ministry of Economic Affairs and Communications responsible for development and coordination of innovation policy. With the launch of the Estonian Technology Agency (ESTAG) as the agency of the Foundation 'Enterprise Estonia' on 1 January 2001, a strong basis has been created for the development of a competent and well-functioning organisation. The agencies are well prepared to implement the government's innovation policy for the next few years.

The reorganisation of the Research and Development Council (RDC) – the Government advisory board shaping the national development scenarios – was completed at the end of 2001. In comparison to the previous set-up, where the RDC was too overtly a science-oriented institution, it is presently much more focused on addressing strategic and complex questions. The present Council has two sub-committees: one focuses on Innovation Policy and the other is specialised on science policy issues. In order to stimulate coherence, the sub-committees are linked to the Ministry of Economic Affairs and Communication and the Ministry of Education and Science respectively.

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<sup>3</sup> Competence Centre Programme Estonia. Feasibility Study. *Innovation Studies No. 1/2002*. Foundation Enterprise Estonia. Tallinn.



In autumn 2001, a special foundation 'Centre for Strategic Initiatives' was formed by the Bank of Estonia, Chamber of Commerce and Industry as well as leading universities. Its function is the analysis of long-term development trends.

When the Ministry of Education was renamed the Ministry of Education and Research (starting from 2003), it was also decided that greater emphasis should be placed on the role of science in society. The main objective of the merger of the Ministry of Economic Affairs and the Ministry of Communication and Transport (December 2002) is to achieve a better coordination and unity of economic policy. Several Ministry of Economic Affairs action principles and procedures (drawing from sectoral development plans) plan to cover also the field of infrastructure (transport and communications). The principles of innovation policy and procedures will also be applied in the areas of transport and communication. It is presumed that this should raise the quality of innovation policies and processes in the field of transport and communication.

The main framework change entered into force on 1 January 2000 with the Corporate Tax Act. Worthy of note is the abolition of corporate income tax on all re-invested revenues, which step has released extra funds also for business R&D investments. It has given some extra resources to companies, as lack of finances is the most common obstacle for enterprise development.

A major problem is the lack of qualified labour. The first steps to remedy this situation have been taken through educational reforms. These reforms will however only yield results in the long term. With regard to vocational education, the State has aligned its decision-making process for a vocational training system with business community needs. The year 2001 was the first year when the State did not allocate funds for new study places in vocational schools before establishing with the Estonian Confederation of Employers and Industry the number of students to be accepted in different disciplines.

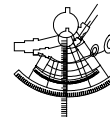
Patenting activity is very low, since there are no special tax incentives for researcher's mobility, for IPR, etc... Another reason is the high cost of patenting, acting as a deterrent to patent-oriented research. There have been discussions regarding tax allowances for the social security of employed researchers during their first year of employment. However, no concrete measure has been taken yet.

### **3.2.4 Entrepreneurial culture**

7. Are efforts made, at the national level, to stimulate an entrepreneurial approach? What forms do these efforts take? (e.g. business benchmarking, dissemination of best practice – including management best practice, training in 'entrepreneurship skills', etc.). Who are they aimed at - students and young people, junior employees, the self-employed, etc.? What sorts of intermediary and support structure are seen as useful?

At the beginning of 2002 the government approved the document *Enterprising Estonia* drafted by the Ministry for Economic Affairs and Communications (in co-operation with businesses associations) on Estonian national policy for the development of small and medium enterprises for 2002-2006. The document defines the institutional structure, principles and measures for state support of SME development: the development of human resources (training and consultation support), and the improvement of financing opportunities (start-up support, loan guarantees, etc.). Amongst other topics, the document mentions the establishment of incubation centres and industrial parks, in which case "the State shall support their establishment and long-term investments in the building of the necessary infrastructure."

The main efforts to stimulate an entrepreneurial approach and thinking are done through Enterprise Estonia (EE). For two years (2001 and 2002), the EE organised the 'Business Award' competition, designed to recognise successful Estonian companies at the national level and promoting the support



given by the State. Awards are given in the following categories (the structural unit of Enterprise Estonia giving the award):

1. Top Investor 2002 (Estonian Investment Agency);
2. Exporter 2002 (Estonian Trade Promotion Agency);
3. Small and Medium Size Enterprise 2002' (Estonian Trade Promotion Agency);
4. Region's Promoter 2001 (Estonian Regional Development Agency);
5. Tourism Innovator 2002 (Estonian Tourist Board);
6. Developer of Technology 2002 (Estonian Technology Agency).

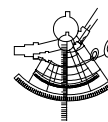
The winner of the main prize 'Business Award 2002' was selected from 30 candidates by a committee of state officials and entrepreneurs. The award was given to the winner in the official award ceremony by the President of the Republic, Arnold Rüütel.

The Estonian Labour Market Board ([www.tta.ee](http://www.tta.ee)) supports unemployed people with grants of 20,000 Estonian kroons (about €1,300) and arranges consultations to start their own business.

8. Innovation also depends on organisational, social, marketing and other knowledge. It frequently requires intellectual and artistic creativity. 'Organisational innovation' for instance reflects the recognition that new ways of organising work in areas such as workforce management, distribution, finance, manufacturing, etc. can have a positive influence on competitiveness. Do you know of any efforts, at the national level, to encourage and support this approach of innovation?

The Estonian CISIII survey showed that the share of innovative companies was 51% among enterprises implementing significant internal organisational change, and while it was only 15% among companies which had not introduced any organisational changes. Innovators were also twice or even three times more active in modifying their organisations' strategies, marketing plans, management etc. EE, as the publisher of the survey results, decided to emphasise in the brochure sent out to the entrepreneurs that innovation is a complex process.

The 'InnoAwareness' programme (ES 18) is designed to encourage precisely a wider approach to innovation through different publications, seminars, workshops etc. The new website sponsored by the Estonian Technology Agency is the High Tech Estonia ([www.hightechestonia.com](http://www.hightechestonia.com)) website and was launched in 2002. It is an online catalogue presenting innovative products, services, and technologies that have been developed by enterprises and academic institutions. This encourages enterprises and academic institutions to submit information to be published in the catalogue, as this is the best way to reach potential partners and customers.



## Theme 4: Stakeholder debates on innovation

This section is intended to provide an update on information contributed in the set of Theme-specific Country Reports (April 2002), Section 5.1 'Stakeholder debates on innovation'.

1. Does the government encourage comprehensive 'stakeholder' debates on innovation involving scientists, industry, consumers and public authorities?

At the moment, no special need has arisen for conceptual debates, due to resolutions made in 2001 that placed representatives of economic and business circles in the councils of both RDC and ESTAG. Moreover, the overall political direction and activities have been coordinated and accorded with various actors.

The programme of seminars 'Guidelines for National Execution of Innovation Technology Policies in View of EU Accession' was completed by the Ministry of Economy in Autumn 2001 and attended by approximately 40 individuals representing political, business and research communities. The seminars were policy-oriented, discussing the roles of all parties in the development of innovation policy. There are plans to organise more detailed seminars, for example, on foresight issues.

The thematic debates and workshops are held regularly, usually in the framework of the development of some programme or measure. For example, there are ongoing discussions on whether the Estonian government should foster the widespread use of local professional design in industry and how this could be achieved. This working group also includes international experts to assess the Estonian situation and make recommendations.

On a regular basis there are inter-council meetings involving the SME's Council, ESTAG's council, and other EE agencies.

2. Please provide a brief overview of the key stakeholders (organisations/personalities) involved in national debates on innovation (industry, trade unions, consumers, associations, scientists, etc.).

Depend on the current agenda, all main stakeholders are often involved, e.g.:

Chamber of Commerce and Industry – [www.koda.ee](http://www.koda.ee)  
Estonian Association of SMEs (EVEA) – [www.evea.ee](http://www.evea.ee)  
Estonian Business Association – [www.esea.ee](http://www.esea.ee)  
Estonian Employers' Confederation – [www.ettk.ee](http://www.ettk.ee)  
Representatives of Venture Capital Foundations  
Various specialised associations

Estonian Academy of Sciences – [www.akadeemia.ee](http://www.akadeemia.ee)  
R&D departments of the universities:  
Tallinn Technical University – [www.ttu.ee/](http://www.ttu.ee/)  
Tartu University – [www.ut.ee](http://www.ut.ee)  
Tallinn Pedagogical University – [www.tpu.ee](http://www.tpu.ee)  
Estonian Agricultural University – [www.eau.ee](http://www.eau.ee)  
Other educational institutions

Policy research institutions, including:  
Estonian Institute for Futures Studies – [www.eti.ee](http://www.eti.ee)  
Centre for Policy Studies 'Praxis' – [www.praxis.ee](http://www.praxis.ee)