



**DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INDUSTRY  
COMMITTEE FOR SCIENTIFIC AND TECHNOLOGICAL POLICY**

DSTI/STP(2001)26/REV1  
For Official Use

**STI OUTLOOK - POLICY QUESTIONNAIRE**

**18-19 October 2001**

*Delegates will find attached the questionnaire to be used in the preparation of the Chapter devoted to the review of policy developments in the 2002 issue of the Science, Technology and Industry Outlook. Preliminary drafts of this questionnaire were reviewed by CSTP and TIP delegates, and their comments have been taken into account in the present version.*

*A related questionnaire [DSTI/IND(2001)13] focusing on industry-related policies will be sent to Delegates of the Committee on Industry and Business Environment (CIBE). Section I is identical in the CSTP and CIBE questionnaires. Delegates to both Committees are invited to co-ordinate their responses pertaining to technology policy included in that section. Section 7 of the present document is extracted from the CIBE questionnaire and is included for information only.*

*Delegates are requested to complete this questionnaire and submit their answers to the Secretariat by 31 December 2001. In completing the Questionnaire, delegates should consult members of the CSTP and CIBE working parties as appropriate.*

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**JT00115581**

## STI OUTLOOK 2002 – POLICY QUESTIONNAIRE

### Purpose

1. DSTI is preparing the 2002 edition of its biennial publication, *Science, Technology, and Industry Outlook*, which will be issued in early Fall 2002. The document will contain a chapter reviewing national science, technology, and industry policies in OECD countries. The enclosed questionnaire is intended to compile information on science, technology and industry policies that are being developed, were recently implemented, or were recently evaluated by Member countries. The OECD Secretariat will synthesise the information provided by Member countries in a document for comments and/or discussion by the Committee on Scientific and Technological Policy (CSTP) and the Committee on Industry and the Business Environment (CIBE) at their first session in 2002. The revised document will be used as a stand-alone chapter in the 2002 *Outlook*. The individual country responses will also be compiled and made available as a separate document.

2. The success of this exercise is directly dependent on the quality of information provided by Member countries, and the Secretariat appreciates the comprehensive responses provided by many countries for previous *Outlooks*. In addition to providing information for the *Outlook*, this exercise provides Delegations with a framework to compare their experiences, exchange views on the effectiveness of different policies and discuss the international implications of recent trends in science, technology, and industry policies. It also helps the CSTP and CIBE identify future projects and issues to investigate.

### Guidelines

3. Countries are requested to provide a general overview of the science, technology, and industry policies in place in their countries and to provide information on major changes that took place between late 1999 and 2001 in specific areas of science, technology, and industry policy listed below. These topics reflect the subject of work currently under way or recently completed within DSTI. Countries need not provide information on all the topics indicated below, but should concentrate on those areas in which the most significant policy developments have occurred. They may draw upon existing policy documents where possible and are encouraged to submit additional supporting materials along with their written responses.

4. The responses to this survey need not be excessively long, but because they will provide the primary material for the Secretariat's report they should at minimum: 1) highlight significant policy changes in the listed areas and outline the background and rationale of these policy changes (such as assessments of previous policy initiatives), 2) indicate and describe the new programmes and measures that reflect these policy changes and how they differ from past policies, 3) briefly recall ongoing programmes or measures that remain in place (indicating changes in implementation conditions that may have occurred)<sup>1</sup>, and 4) include supporting quantitative data describing specific policies and programmes. A

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1. References could be made to your country response to the 2000 STI Outlook questionnaire.

response of approximately 10-15 pages will provide a sufficient level of detail for most countries. If it would be helpful, the Secretariat can provide a sample response from a previous survey.

5. Countries are kindly requested to submit their written responses, along with supporting material, *electronically*. Additional background materials such as white papers (in English or French) may be sent by regular mail if they are not readily available in electronic format. It is requested that countries' responses be submitted **no later than 31 December 2001** to allow the Secretariat sufficient time to clarify information and draft a summary document for the *STI Outlook*. Responses should be sent to:

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6. In completing the Questionnaire, delegates may consult with CSTP and CIBE working parties as appropriate. Nevertheless, country delegations are requested to designate a **primary contact person** with whom Secretariat staff can communicate regarding the survey responses. Countries should also review the list of national science, technology, and innovation policy technology **Web sites** currently listed on the OECD homepage ([http://www.oecd.org/dsti/sti/s\\_t/inte/news/sites.htm](http://www.oecd.org/dsti/sti/s_t/inte/news/sites.htm)) and provide the Secretariat with updated information, as appropriate.

## REQUEST FOR INFORMATION

7. Please provide a written response for Section 1 below, which addresses general science, technology, and industry policies and for those topics identified in Sections 2 through 7 in which significant shifts in policy have been made or new initiatives launched in the late 1999-2001 time period. Topics 2 through 6 relate to science and technology policy, and responses will be provided by delegates to the OECD Committee on Scientific and Technological Policy (CSTP). Topic 7 addresses industry policies, and responses will be provided by delegates to the OECD Committee on Industry and the Business Environment (CIBE).

### **1. General framework and trends in science, technology, and industry policy<sup>2</sup>**

1.1. Please provide a brief overview and assessment of policies for science, technology, and industry, indicating where possible the extent to which such policies have been influenced by consideration of a "National Innovation Systems (NIS)" framework.<sup>3</sup> The overview should highlight the following topics:

- Main features of recent science, technology, and industry policy developments and the rationale behind them.
- Major changes in the legislative, administrative, organisational, institutional, or budgetary framework for the formulation, implementation, and evaluation of science, technology, and industry-related policies. Please include efforts to increase the involvement of civil society, non-governmental organisations, or private sector advisory bodies or to better co-ordinate government activities across ministries, departments, or agencies.
- Major shifts or changes in the balance of the use of different types of policy instruments, and/or attention or support given to particular science, technology, and industry policy areas.

1.2. Please describe major features and changes in the nature and process of policy evaluation, including the outcome of past evaluations and their contribution to policy shifts, and new measures initiated to enhance the feedback for constant monitoring and improvement of policy-making and implementation.

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2. This section is identical in the CIBE questionnaire. CIBE Delegates have been invited to provide information on industry-related policies and to co-ordinate with CSTP delegates when the objectives of such policies are related to technology and innovation.

3. The NIS framework emphasises the interactions among actors in the public and private sectors in promoting innovation. A definition and discussion of National Innovation Systems can be found in several OECD documents, including "Managing National Innovation Systems" (1999, OECD, Paris).

## 2. Public sector research and public research organisations<sup>4</sup>

2.1. Please describe major policy changes related to public sector R&D (mainly performed by universities and public research organisations<sup>5</sup>), and provide the background/rationale for such changes. The following issues should be addressed:

- Shifts in the volume of funding allocated to public research organisations and in the priority/balance of government R&D funding for different kinds of institutions (*e.g.*, universities vs. public research organisations), different kinds of R&D (*e.g.* basic vs. applied research), different socio-economic objectives (*e.g.*, general advancement of knowledge versus mission-oriented research programmes), or different fields of science and technology (*e.g.*, information and communications technology (ICT), biotechnology, and nanotechnology.)
- Major policy initiatives to enhance the efficiency and effectiveness of public sector R&D, including changes in the procedure for policy evaluation, establishment of national criteria and priorities for government support (*e.g.* use of new methods in technology foresight and its application), or the creation of new organisational structures, such as centres of excellence.
- Initiatives for enhancement and effective use of public research infrastructure such as large scale research facilities and R&D related database.

2.2. Please describe major initiatives to reform the organisation and governance of universities and public research organisations to improve the quality of their R&D or their ability to contribute to economic growth or other social objectives. Where possible, provide the background, rationale, and expected outcome of such changes. Please consider reforms such as:

- Initiatives to increase the flexibility and/or accountability of universities and public research organisations in responding to changing scientific opportunities or socio-economic needs (*e.g.* by granting more autonomy, adopting new funding instruments, relying more on contract-based funding, etc).
- Changes in the criteria and procedure for performance evaluation of institutions, as well as individual researchers, and for setting research priorities at the institutional level in universities and public research organisations (*e.g.* involvement of outside stakeholders).

## 3. Government support for private-sector R&D and innovation

3.1. Please describe major policy changes intended to enhance the effectiveness of the individual instruments or the mix of instruments used to provide public support for private sector R&D and innovation, including:

- Tax treatment of business R&D (*e.g.*, tax credits for R&D expenditure and major changes in corporate tax regimes that could affect business R&D activities).

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4. This section, especially sub-section 2.2 partly overlaps with a separate questionnaire circulated to members of the CSTP Ad hoc Working Group on *Steering and Funding of Research Institutions*. When appropriate, countries could make references to responses given to that questionnaire.

5. These public research organisations include government laboratories, government funded non-profit research institutes and other R&D performing public institutions.

- Direct public funding of business R&D and innovation (*e.g.*, grants, contracts, loans, etc.).
- Public procurement policies, new contractual guidelines, more competitive selection processes, etc.
- Other forms of public support for innovation that use instruments other than R&D (*e.g.*, consulting services and extension programmes).

3.2. Please describe major changes in the balance and/or priority of public support of business R&D and innovation in terms of:

- Increased emphasis on specific technological/industrial sectors, such as ICT, biotechnology, and knowledge-intensive services.
- Programmes to support R&D and innovation in SMEs.

3.3. Please provide, if available, recent assessments of the relative effectiveness of different policy measures to support private sector R&D and innovation (*e.g.*, comparative cost-benefit analysis of various measures).

#### **4. Enhancing collaboration and networking among innovating organisations**

4.1. Please describe major initiatives to promote collaboration and networking among private and public-sector organisations, including:

- Initiatives to strengthen regional/local innovation systems (*i.e.*, innovative clusters), such as measures to boost collaboration among firms, universities, public research organisations, and other various stakeholders at regional/local level.
- Programs to stimulate and support networking and collaboration between firms (either domestically or internationally), such as through joint R&D programmes or through measures to increase the mobility of human resources among organisations.
- Efforts to boost collaborative research through public/private partnerships in R&D.<sup>6</sup>
- Changes in competition policy or its enforcement to enhance networking and co-operation between firms and creation of clusters for technology diffusion and commercialisation.
- Efforts to promote technology diffusion to the service sector or to open existing programmes to service firms.

4.2. Please describe major policy initiatives to promote stronger industry/science relations (*i.e.*, linkages between industry and public research organisations), such as efforts to:

- Promote licensing of the results of public research results by reforming the rules governing ownership (title) and licensing of publicly funded research results, or through policy initiatives to support the establishment of technology licensing or technology transfer offices for the management of intellectual property derived from publicly funded research.

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6. This item will be covered by a separate questionnaire to be sent to TIP delegates as part of the project on public/private partnerships for innovation. Countries are asked to provide a brief overview here.

- Enhance opportunities for collaborative research through changes in regulations or guidelines governing the types of agreements negotiated between universities/public research organisations and the private sector and their implications for access to and exploitation of research results.
- Increase the mobility of human resources between sectors by revising employment and financial rules governing public-sector scientists, engineers, and technicians to allow them to more easily collaborate with industry, move between the public and private sectors, participate in the creation of spin-offs, take equity positions in technology based firms emerging out of public research, etc.
- Establish and develop venture capital funds and/or second stage financing for the support of new technology based firms or spin-offs from public research (*i.e.*, research conducted in universities or public research organisations).

## **5. S&T human resources**

5.1. Please describe the extent to which there are real or perceived shortages of scientists and engineers in particular fields (or mismatches between supply and demand for scientists and engineers) and policy initiatives taken to address these shortages or mismatches.

5.2. Please describe changes in training and education programmes for scientists and engineers, including policy initiatives to boost interest in scientific and technological studies, especially among women and other under-represented populations in science and engineering.

5.3. Please describe policy changes related to the international migration and mobility of scientific and high-skilled personnel (inward or outward mobility) including programs to attract foreign students, researchers and skilled workers or to promote "return migration" of expatriate students, researchers and skilled scientists and engineers.

## **6. International co-operation and globalisation**

6.1. Please describe policy initiatives to reduce obstacles to and otherwise promote international co-operation in science, technology and innovation, including:

- Measures to enhance access of foreign firms to domestic technology programmes and to enhance access of domestic firms to foreign/international technology programmes.
- Policies and programmes to encourage or support international R&D alliances, especially among SMEs.
- Policies and support programmes to foster greater international co-operation among researchers in universities and public research organisations.

6.2. Please describe major policies and government-sponsored programmes to foster international collaboration in research and development. Include programmes related to very large and smaller scale research equipment (*e.g.*, synchrotrons, neutron sources, telescopes, high-intensity lasers) and research infrastructure, such as IT based networks and scientific databases in natural and social sciences. Consider programmes that operate at the regional level (*e.g.*, European Framework programmes), as well as on a bi-lateral or multi-lateral level.

6.3. Please describe policy initiatives to attract foreign direct investment into local high-tech industries and R&D activities.

## 7. **Industry-related policies**<sup>7</sup>

7.1. **Globalisation** – Please describe special programmes or initiatives introduced to promote industrial globalisation and enhanced competitiveness in world markets.

7.2. **Manufacturing** – Please describe changes in the nature and direction of programmes (*e.g.* subsidies, tax incentives, technology diffusion) for supporting specific manufacturing sectors (*e.g.* electronics, textiles, steel).

7.3. **Services** – Please describe specific initiatives to promote innovation and productivity in services sectors, both traditional services (*e.g.*, health, food, tourism) and high-technology services (*e.g.*, information, finance).

7.4. **Intangible Investment** – Please describe major initiatives (*e.g.* tax measures, training, information programmes) to provide incentives for firms to invest in managerial or organisational changes and employee training.

7.5. **Corporate Responsibility** – Please describe programmes to stimulate greater corporate responsibility among firms, *e.g.* in areas such as environmental management.

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7. CIBE Delegates will answer questions included in this section.