

## Country Profile: The Netherlands

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### 1. Political, institutional and economic framework and important actors

The OECD Economic Survey of the Netherlands 2005 identifies the enhancement of research and innovation activities as a key to reinforce the recovery of the Dutch economy after a period of stagnation. Knowledge creation in the Netherlands is strong, but innovation activity is only around the average for OECD countries according to the EIS Summary Innovation Index. The main weaknesses are in business R&D intensity, the share of the population with tertiary education and in commercial application of new knowledge. Annual R&D expenditure has been decreasing from 1.90% of GDP in 2000 to 1.77% in 2004, of which the Private Sector funded 50.9% in 2003. This means that the Netherlands do not exceed the EU average and are still considerably behind the EU's Barcelona target of 3%.

In view of these challenges, reforms of framework conditions and tertiary education, as well as the rationalisation of the various forms of government support to innovation and of related governance structures were initiated to make the Netherlands more attractive for both domestic and inward R&D spending.<sup>1</sup>

Priorities and structures of the Dutch Science and Innovation System are intensively debated among all actors. The Netherlands have a long tradition of participatory policy making in a complex landscape with a multitude of actors, funding mechanisms and interrelations. The key actors of the Dutch Science and Innovation System are described in the following section.

#### **a. Political/ governmental authorities and advisory bodies**

In the Dutch *Parliament*, committees on education, culture and science and on technology policy discuss fundamental issues of science and innovation policy, deliberate on items such as draft laws and motions, and prepare plenary decisions in these areas.

On the government level, the responsibility for research and innovation policy is divided between two ministries. The *Ministry of Education, Culture and Science* (Min. OC&W) focuses on scientific research and education. It is responsible for funding basic research and for the public research infrastructure<sup>2</sup>. The Min. OC&W's policies are implemented by agencies and research institutes that fall under its remit. The mission of the *Ministry of Economic Affairs* (Min. EZ) is to strengthen the innovation capabilities and competitiveness of the Dutch economy and to ensure economic growth. As a part of this mission, the ministry's *Directorate-General for Enterprise and Innovation* concentrates on the improvement of the innovation climate, the stimulation of enterprise innovation activities, the promotion of collaboration between businesses and knowledge institutions and the development of opportunities in strategic technological areas. The Min. EZ implements its programmes also through agencies. In addition, *other ministries* with sectoral responsibilities (e.g. the Ministry of Agriculture, Nature and Nutrition or the Ministry of Health, Welfare and Sports develop and implement specific research policies for their sectors. The *Ministry of Finance* (Ministerie van Financiën) is responsible for provision of funds for research and for the relevant fiscal framework.

The government's decisions in the field of research and innovation policy are coordinated and prepared at two levels. The *Council on Science, Technology and Information Policy* (Raad voor het Wetenschaps-, Technologie- en Informatiebeleid, RWTI) co-ordinates rele-

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<sup>1</sup> Sources of data in this and the previous paragraphs: Organisation for Economic Co-operation and Development (OECD), *Economic Survey of the Netherlands 2005*, Paris, December 2005; Carey, D., Ernst, E., Oyomopito, R. and Theisens, J., *Strengthening Innovation in the Netherlands: Making better Use of Knowledge Creation in Innovation Activities*, Working Paper ECO/WKP(2006)7, Organisation for Economic Co-operation and Development, Paris, February 10, 2006, European Trend Chart on Innovation, *Annual Innovation Policy Trends and Appraisal Report Netherlands 2004-2005*; Eurostat, *Science and Technology in Europe, Data 1990-2004*, Luxembourg, 2006.

<sup>2</sup> Including financing and governance of certain actors in the system (in particular the universities, KNAW, NWO, TNO for its basic funding) and the GTIs.

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vant activities of the various ministers involved in innovation policy and prepares plenary cabinet decisions. An interdepartmental *Committee on Science, Technology and Information Policy* (CWTI), consisting of high-level civil servants, coordinates the work of all involved ministries and prepares proposals which are presented to the RWTI.

Policy making by cabinet and ministries relies heavily on a sophisticated advisory system, in which the Private Sector plays an important role<sup>3</sup>. It consists of the following components:

- The *Advisory Council for Science and Technology Policy* (AWT) advises the government and the parliament on research, technology and innovation policy with a focus on middle- to long-term research policy issues of general high importance. AWT's duties and rights are defined by law. This legal foundation, a secured long-term financing and an own support infrastructure guarantee the council's independence. AWT consists of a maximum of 12 members which are appointed in their personal capacity and do not represent any vested interests. Currently, approximately 50% of the members have a Private Sector background. The AWT publishes its advice in the form reports, advisory letters and background studies.
- The *Innovation Platform's* mission is to act as an 'ice breaker', which drives the development and application of knowledge and the cooperation between knowledge institutions and enterprises through specific initiatives. Proposals are worked out by currently five working groups, each headed by a Platform member. In addition, the Platform seeks to create a long-term vision of the optimal use of human talent and economic capital in the Netherlands and initiates different kinds of projects<sup>4</sup>. Unlike AWT, the Innovation Platform was established as a temporary body, installed by Royal Decree for a three-and-a-half year period, from January 2004 to July 2007. Its 18 members are key players in the Dutch knowledge economy and leaders in government, industry, academia and education. The Prime Minister chairs the Platform. It is supported by an Implementation Office.
- A third group of important research policy advisory bodies are the *Sector Councils*. Their mission is to explore scientific and social trends in their sector and to derive an independent view of priorities for strategic, medium-term and long-term research. For this purpose, they carry out for example foresight studies and other analyses as input for the concerned ministries' policy making, co-ordination of research and organisation of the knowledge infrastructure in their relevant sector. Co-operation between the existing five sector councils is supported by the *Consultative Committee of Sector Councils* (COS). The ministries involved fund the sector councils and have the final responsibility for them.

These bi- or tripartite platforms for research, technology and innovation policy advice are complemented by other advisory institutions under the auspices of the Dutch government:

- The *CPB Netherlands Bureau for Economic Policy Analysis* provides advice for policy makers, increasingly also on research policy issues. CPB conducts research on its own initiative or upon request by a limited group of institutions. It is allowed to work only for policy makers. But It is noteworthy that in addition, employers' and employees' organisations, the Social Economic Council and several other institutions and organisations can also call on CPB's research efforts.
- Besides its other duties, the *Royal Netherlands Academy of Arts and Sciences* (KNAW) advises government on matters of science and technology, especially in the field of basic research. For this reason, the Academy has several councils and committees with members and non-members of the Academy.
- The *Rathenau Institute* is the national organisation for Technology Assessment. Its initial mission to advise the government about the societal implications of technological change was extended in 2004 to science system assessment to analyse the current status of science and technology in the Netherlands. Its projects involve a wide range of actors – citi-

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<sup>3</sup> For a detailed description, see the case study *Research Policy Advisory Structures in the Netherlands* in Appendix 4 of this report.

<sup>4</sup> For example in 2004, the Innovation Platform ran a number of Consultation Groups to identify practical barriers that stand in the way of excellence, ambition and entrepreneurship.

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zens, institutional stakeholders, and experts. Its advisory and reading committees consist mostly of scientific experts; the Private Sector is represented by an industry expert on its board.

- As an independent<sup>5</sup> platform for exchange on research and research policy issues, the *Netherlands Society of Technological Sciences and Engineering* (Forum voor Techniek en Wetenschap, FTW) seeks to advance the understanding of interactions between technology, science and society and promotes contacts between research decision makers from all sectors in its plenum or working parties. FTW advises also – with or without request – the government, societal organisations or political parties. Membership is limited to approximately eighty distinguished professionals from industry, universities and (applied) research organisations, which are chosen by peer election<sup>6</sup>.

### **b. Executing agencies**

A number of dedicated public agencies act as intermediaries and implement research and innovation policies with varying levels of independence in defining their strategies<sup>7</sup>:

- The *Netherlands Organisation for Scientific Research* (NWO) is the most important national funding organisation for fundamental research, mostly financing research at the 13 Dutch universities and at NWO institutes. NWO hosts also (temporary) initiatives in four key technologies fields where Private Sector enterprises participate intensively<sup>8</sup>.
- The independent *Technology Foundation* (STW) supports applied university research and promotes utilisation of results of research by third parties. Its research grants can be allocated to any research area, provided that proposals include aspects of utilisation.
- The Min. EZ's *Agency for Sustainable Innovation* (SenterNovem) implements innovation schemes with a focus on innovation in energy, environment and sustainable development through advice, the stimulation of networks and financial support schemes (fiscal, grant, credit) for public research and Private Sector enterprises<sup>9</sup>.
- The *Syntens* Innovation network for entrepreneurs consists of regional centres aiming to strengthen innovativeness of SMEs by making technological and non-technological innovation-oriented knowledge accessible and applicable. Syntens performs programmes and projects to mobilise knowledge transfer from research to Private Sector enterprises (particularly to SMEs) at a regional level.

Private Sector representatives are involved in policy making of all of these institutions through membership in programme committees, advisory boards, etc.

### **c. Research performing institutions**

Public Sector research institutions in the Netherlands consist of 14 *universities*, 18 *KNAW Institutes*<sup>10</sup>, 6 *NWO Institutes*, 5 *Large Technological Institutes* (GTIs)<sup>11</sup>, 14 *TNO Institutes*,

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<sup>5</sup> Financed by annual membership dues, donations of corporations, foundations and organisations and by subsidies of the Min. EC and the Min. OC&W.

<sup>6</sup> The Technology Committee of VNO-NCW, the employers' organisation, occupies one quality seat, as do the Royal Netherlands Academy of Arts and Sciences and the Royal Institute of Engineers.

<sup>7</sup> Focus on the most important agencies under the auspices of Min OC&W and Min. EZ, not comprehensive. In addition, other ministries with sector research and innovation policies use the services of these agencies or operate own institutions. For example, the *Ministry of Agriculture, Nature and Food Quality* (LNV) implemented its research and innovation policy through LASER (which was brought under the umbrella of DRL (Dienst Regelingen LNV)).

<sup>8</sup> These include the *National Genomics Initiative* (NGI; see Chapter 5.3), the *ICT Research and Innovation Authority* (ICTRO), and the Institute for Advanced Catalytic Technologies for Sustainability (ACTS; see [http://www.nwo.nl/nwohome.nsf/pages/NWOP\\_5U6DHN\\_Eng](http://www.nwo.nl/nwohome.nsf/pages/NWOP_5U6DHN_Eng)).

<sup>9</sup> For example, the 'Innovation Vouchers' scheme sought to enhance the access of SMEs to knowledge institutes. SMEs could buy knowledge from knowledge institutes (or large R&D-intensive companies) by handing the voucher in to SenterNovem to receive payment. This initiative was recommended by the Innovation Platform.

<sup>10</sup> So called because KNAW acts as the umbrella organisation for these institutes.

<sup>11</sup> Conducting applied research in aerospace, water management, hydraulic engineering, maritime research and energy research.

and a number of other state owned research and advisory centres. Other actors of the Dutch research and knowledge infrastructure include the agricultural research institutes of the DLO Foundation and other smaller, state-owned research centres, e.g. in health or social sciences. As virtual research institutes, based on a partnership between Public and Private Sector, four *Technological Top Institutes* (TTIs) complement the array of centres (see Chapter 5.2).

In the area of application- and market-oriented research institutions, the *Dutch Organisation for Applied Research* (TNO) is the most important institution. TNO is an independent, semi-public contract research organisation, established by law in 1930, with currently approximately 5000 employees. Its institutes provide contract research and specialist consultancy, grant licences for their inventions and set up new companies to market innovations. As one of TNO's major clients, the Private Sector is involved in the governance of the TNO umbrella organisation and its defined five key areas of competency.

The Private Sector is involved in this research system through a multitude of collaborations, membership in advisory or other governance boards, programme committees, etc. In addition, there are several smaller commercial research service providers, e.g. NIZO food research B.V. (research in the areas of flavour, texture, health, food safety and processing).

A large part of R&D in the Netherlands is performed by Private Sector enterprises. However, the bulk of these activities are performed by a limited number of large multinational companies, even if the share of SMEs has increased in recent years<sup>12</sup>.

### **d. Private Sector**

As the largest employers' organisation in the Netherlands, the *Confederation of Dutch Industry and Employers* (VNO-NCW) represents the common interests of over 100,000 enterprises (including some 80% of all medium-sized companies and nearly all larger companies in the Netherlands), organised in approximately 170 (branch) associations. As the voice of (especially large) Private Sector enterprises, VNO-NCW is often represented in committees and discussion platforms. Its Technology Commission discusses research, technology and innovation issues and prepares and communicates common viewpoints, e.g. in the form of advice to government. In this Technology Commission, the Netherlands' most important research performing companies are represented. Based on this, VNO-NCW also maintains an intensive permanent dialogue with the government and the described advisory bodies.

Further actors are *MKB-Nederland*, representing in particular the interests and needs of SME's with a multitude of sectoral and regional organisations and the *Netherlands Chamber of Commerce* whose third main task (besides its other legal obligations) is to stimulate the regional economy in co-ordination with the regional employers' and employees' organisations. Other sectoral associations may also touch occasionally on research and innovation issues, for example the *Dutch Organisation for Agriculture and Horticulture* (*Land- en Tuinbouw Organisatie Nederland*, LTO Nederland) which seeks to stimulate a strong economic position for farmers and for the agricultural and horticultural industry and pursues considerable political activities for this purpose.

## **2. National research policy decisions and private sector involvement**

### **Instigation and design stages**

As an overall framework for national STI policy, the Dutch government publishes an updated strategic plan every 4 years, setting out policy initiatives for the coming four years. The most recent one, published in December 2003, titled *Science Budget 2004*, focuses on excellence and greater value. In preparation of its innovation policy, the government uses elaborate

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<sup>12</sup> Seven large firms perform roughly half of the total Private Sector R&D in the Netherlands. These are Philips (electronics), AkzoNobel (chemicals/pharmaceuticals), Shell (oil & gas), ASML (integrated circuits equipment), DSM (chemicals), Unilever (food, personal care) and Océ (copiers). Philips alone accounts for roughly 20% of the total R&D expenditure of all enterprises in the Netherlands (Source: European Trend Chart on Innovation, *Annual Innovation Policy Trends and Appraisal Report Netherlands 2004-2005*).

analyses of the Dutch National Research and Innovation System and of its strengths and weaknesses. A series of background studies have been looking into various aspects of research and innovation strategy, including the research and innovation governance system<sup>13</sup>. In parallel, a significant reflection took place on current innovation policy and governance structures, fuelled by contributions from advisory bodies, various stakeholders and task forces like the mixed team of independent advisors and civil servants (IBO) who presented the report *Innovation Policy – Co-Operation and Streamlining: Options for an Effective Innovation Policy*<sup>14</sup>. Other elements of this debate include public events like the annual *Innovation Lecture* and a multitude of inputs from Private Sector and other stakeholders. Another important input for the instigation and design of research and innovation policies is the advice provided by the advisory bodies described in Chapter 1<sup>15</sup>.

An intensive preparation of the design and implementation of research and innovation policy guidelines and measures through the described continuous, intensive consultation process is characteristic for Dutch policy making. The Private Sector is involved in these processes through its participation in policy debates, its representatives in most councils and own contributions. This ensures a considerable influence at this level.

Foresight studies have been used at several occasions to identify key research and technology areas. For example, the 1998 *Technology Radar Study*, which identified technology fields of likely strategic importance for Dutch business and industry within the next ten years, was one of the origins of the NGI initiative. Another interesting approach in this area is the *Dynamo* data base, maintained by TNO. Dynamo is a relational database that facilitates the information management and analysis of foresight studies through linking future innovations and issues to research, business, trends and other dimensions<sup>16</sup>.

### Implementation and Assessment/Revision stages

Historically, the two ministries most active in research and innovation policy have developed different approaches to the design and implementation of research and innovation policies and policy measures. The Min. OC&W has delegated responsibility for agenda setting and strategic choices to the funding organisations and the research organisations themselves. For example in the field of fundamental research, the boards of the NWO divisions have a substantial role in decision-making. In contrast to this approach, the Min. EZ takes a strong leading role and is deeply engaged in policy development and programme definition. Agencies like SenterNovem mainly focus on the implementation. This gap has triggered an intensive debate in the last two years. At this level, the Private Sector is not involved intensively in decision making, but contributes, mostly through its associations and through its representatives in advisory boards considerably to the debate about possible changes of this system.

The mobility of research staff between the Public and the Private Sector is addressed by the Casimir programme, which was recommended by the Innovation Platform as a means to improve the availability of highly qualified research staff under the conditions of an increasing shortage in the Netherlands.

The importance of monitoring and evaluating research and innovation policies has increased in the last years in the course of a general trend towards higher accountability of policies. Under the headline *From Policy Budgets to Policy Accountability*<sup>17</sup>, the link between policy objectives, activities, the allocation of resources and achieved results has been strengthened significantly. As a result, the definition of clear and measurable targets, the use of perform-

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<sup>13</sup> See for example *Working on innovation strength*, published by Min. EZ, or *Pillars under the knowledge economy*, published by CPB.

<sup>14</sup> Document available under [http://www.minfin.nl/default.asp?CMS\\_TCP=tcpAsset&id=MFCWD10C695E0E72D4F35B91D8845EACC1A06X10X50529X08](http://www.minfin.nl/default.asp?CMS_TCP=tcpAsset&id=MFCWD10C695E0E72D4F35B91D8845EACC1A06X10X50529X08)

<sup>15</sup> See the case study *Research policy advisory structures in the Netherlands* in Appendix 4 to this study.

<sup>16</sup> <http://www.dynamo.tno.nl/index.asp?langid=1>

<sup>17</sup> Original title: *Van Beleidsbegroting Tot Beleidsverantwoording*; VBTB; see <http://www.minfin.nl/default.asp?CMSITEM=2375A2EFC598477EACB0C83FC0CC9035X1X58333X2>

ance indicators and a systematic monitoring and evaluation have been strengthened also in the research and innovation policy area. A 2002 ministerial decree on performance measurement and evaluation has provided a legal basis for this initiative. The Ministry of Economic Affairs has further detailed this in guidelines for a systematic evaluation of policy instruments. In this context, a multitude of evaluations of research and innovation policies and individual policy measures have been carried out, many of them with intensive Private Sector involvement both in the role of participants and beneficiary of the evaluated policy measures or as stakeholders in the debate of their results and of conclusions.

### **Observations: Possible barriers and current initiatives**

The described concept of a very intensive Private Sector involvement in research policy making fits into the overall interactive and consensus-oriented Dutch policy making culture (often referred to as the 'Polder model'). The Netherlands' elaborate policy advisory model provides efficient instruments for the Private Sector to contribute to the Netherlands' research policy on an advisory and consultative level. And with initiatives like the TTIs, the Netherlands have also developed successful examples of research-based collaboration between Public and Private Sector. But a recent OECD study<sup>18</sup> stated a still existing need to "...improve the responsiveness to industry needs of public research organisations, especially universities, through new financing mechanisms, entrepreneurship and improved capability to manage IPRs". Another factor to be considered is the relatively high complexity of research policy decision processes which creates a multitude of Private Sector interfaces. This supports an extensive exchange of perceptions and positions, but may become very time-consuming and slow down especially radical change decisions.

The high degree of institutionalisation of advisory bodies like the AWT provides them with a high impact on research policy instigation and design. However, Private Sector impact seems to be weaker in the sector councils and on the level of research policy implementation. In the current debate about this issue, it has been criticised for example that the Innovation Platform can develop and recommend new initiatives, but lacks own means to implement them and has to rely on the willingness of the government and the administration to do this.

There has also been a debate about the allocation of responsibilities for research and innovation. Traditionally, there has always been a strong division of labour between the areas of science and basic research on one hand and of technology and innovation on the other, both in terms of policy design, funding and of policy execution and research performers. This has an important impact on the interaction of the two responsible ministries with the beneficiaries of their measures to promote research and innovation. The European Trend Chart's *Annual Innovation Policy Trends and Appraisal Report Netherlands 2004-2005* states:

*"As a result, two different governance cultures in the science and innovation parts of the system have emerged. While the EZ's approach can be characterised as "hands on" with an active role in policy design, programme design and programme management, the OCW's approach is rather "hands off", delegating more responsibilities to NWO and the various organisations in the science and research system. However, at different levels in the system these two spheres are gradually moving towards each other. The EZ and the OCW have, for example, cooperated intensively in the process towards formulating the innovation policy White Paper 'Innovation Letter'."*

According to Carey et. al.<sup>19</sup>, barriers to enhanced collaborations exist also on the level of research institutions:

*"...It appears that universities are not given enough incentives to exploit their in-house knowledge and patents and have insufficient capabilities to commercialise their research. This may be*

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<sup>18</sup> Organisation for Economic Co-operation and Development (OECD), *Public-Private Partnerships for Research and Innovation: An Evaluation of the Dutch Experience*, Paris, 2003

<sup>19</sup> Carey, D., Ernst, E., Oyomopito, R. and Theisens, J., *Strengthening Innovation in the Netherlands: Making better Use of Knowledge Creation in Innovation Activities*, Working Paper ECO/WKP (2006)7, Organisation for Economic Co-operation and Development, Paris, February 10, 2006

*related to university funding being mainly based on historical distributions, a lack of intellectual property rights (IPR) management skills in the public research domain, and salary scales that make incentive provision for technological transfer organisations (TTOs) difficult. A small step towards making university budgets more dependent on co-operation with firms in innovation activities is being taken by reallocating part of the university research budget (€100 million out of a total budget of € 2 billion) on the basis of the funds a university receives for research projects from the national research council (NWO) and third parties.”*

### 3. Other important examples of policy decisions with Private Sector involvement

#### Governance of regional research and innovation systems

Regional development policies have gained importance in the Netherlands, promoting also research and innovation at this level<sup>20</sup>. In this context, links between regional and local Public and Private Sector actors are strengthened. The *Inter-Provincial Council* (IPO) emphasises the importance of mobilising regional actors and stimulating collaborative networks and Public-Private-Partnerships with a focus on identified high-opportunity clusters. In these regional initiatives, the *Regional Development Agencies* have an important role. Furthermore, Syntens (via its initiatives to mobilise regional SMEs and knowledge transfer) and the Chambers of Commerce are involved. The Regional Development Agencies were evaluated by the Ministry of Economic Affairs in 2004.

#### 4. Overview: Types and extent of Private Sector involvement

Private Sector involvement in Dutch research policy making has a long tradition and takes place in a variety of forms:

- Networking, *general dialogue and informal involvement* form the basis for all more forms of interaction and are well anchored in the Dutch policy making culture.
- An intensive involvement in the Dutch *advisory* structures plays a central role in Private Sector interaction, especially in the instigation and design stages. The Netherlands' advisory system benefits from its strong legal and support base and a high level of commitment from all involved actors.
- A *formal involvement* of the Private Sector in decision making and *joint activities*, e.g. in Public-Private-Partnerships, takes place especially on the operative level (e.g. in the TTIs) and on the regional level.
- Industry associations participate intensively in the preparation of research policy decisions and related debates. Their *proactive involvement* is an important part of this engagement.
- *Research funding* by the Private Sector has a high importance for application- and market-oriented research institutes.

#### 5. Selected useful examples of transferable approaches and experiences

Several useful practices with a potential to be transferred to other Science and Innovation Systems have been mentioned already in previous chapters. Additional good practices are outlined in the following sections:<sup>21</sup>:

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<sup>20</sup> As outlined in a 2004 policy paper *Peaks in the Delta* (<http://appz.ez.nl/publicaties/pdfs/04I26.pdf>), priorities have shifted from the previously dominant support for less developed regions towards a policy of 'backing winners' which emphasises the strengthening of the critical masses of high potential regions. This is achieved by stimulating the development of an efficient local and regional innovation network involving public authorities, public research and related institutions and Private Sector enterprises (for details see European Trend Chart on Innovation, *Annual Innovation Policy Trends and Appraisal Report Netherlands 2004-2005*, pages 11 ff.).

<sup>21</sup> Representative examples to highlight good practices. Not intended to serve as a comprehensive list and description.

### 5.1 Research policy advisory structures

The sophisticated Dutch research and innovation policy advisory structures are a key element of Private Sector involvement in research policy decision making. The empowerment of key advisory councils through a legal and own resource base and their strong anchoring in decision processes make them a model of potential interest for other countries. The case study *Research policy Advisory Structures in the Netherlands* in Appendix 4 of this study describes this model in detail.

### 5.2 Technological Top Institutes (TTIs)

To induce intensified Public and Private Sector research collaborations at a world class level in priority areas, four TTIs were established since 1997: *Telematica Institute* (situated at the Twente University campus), *Wageningen Centre of Food Sciences* (WCFS; situated near Wageningen Agricultural University Research Centre), *Netherlands Institute for Metals Research* (NIMR; situated at Delft Technical University) and *Dutch Polymer Institute* (DPI; situated at Eindhoven Technical University). These four institutes were selected from 19 proposals forwarded by industry-led consortia, using scientific and economic criteria. The objective is to maximise the longer-term socio-economic benefits of the research programmes.

The (mainly virtual) institutes combine the strengths of public research organisations and Private Sector partners in an innovative model for research-based collaboration and engage them in joint programmes with a high application and commercial relevance. The industrial partners have a leading role in the definition of research programmes, thus ensuring that the programmes are in line with the long-term needs of industry and that favourable conditions encourage the transfer of new knowledge from the academic environment to industry. The participation of competing companies in each consortium and the availability of knowledge generated to each of them ensure a wide diffusion of the research results.

An evaluation of the TTIs<sup>22</sup> carried out by the OECD in 2003 concluded:

*“... the four Leading Technology Institutes (LTIs) represent one of the purest forms of PP/P, both in their rationale and organisation. The OECD peer review of the LTI programme concluded that it is a proven good practice in mobilizing public and private research towards common objectives of high importance for the economy and society. The four LTIs perform well, are based on a sound rationale and are implemented efficiently. Other OECD countries could learn from them, especially with regard to:*

- *The competitive process that has been used to select LTIs.*
- *The organisational arrangements and incentive structure (financing, IPRs) that ensure industry commitment and leadership in determining the strategic research orientation of each LTI, while securing the pursuit of public interest (public access the research results, strengthening of public research capabilities in fundamental research)...”<sup>23</sup>*

But the OECD evaluation also suggests that this new policy concept still needs to be used to its full potential and addresses several main issues for improvement.

### 5.3 Example National Genomics Initiative (NGI): Stakeholder involvement in strategic action plans<sup>24</sup>

The NGI was established in 2002 as a temporary independent task force affiliated with NWO to bundle the efforts and competencies of a variety of ministries, agencies and other actors, including Private Sector enterprises in genomics research. The objective was to create a world-class genomics knowledge infrastructure and a continuous flow of research and innovation. The NGI established a national strategy which is based on the three main elements of prominent international research, industrial innovation and embedding within society. The

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<sup>22</sup> The term ‘LTIs’ used in the quoted paper is synonymous with ‘TTIs’

<sup>23</sup> Source: OECD (2003); see this source also for description and evaluation details.

<sup>24</sup> This good practice example has been described in detail in the European Trend Chart’s *Annual Innovation Policy Trends and Appraisal Report Netherlands 2004-2005*, pages 47 ff.

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genomics community received a substantial amount of public funding in a period where investments in science and technology were not growing.

The preparations for the launch of the NGI started as early as 1998 and involved multiple stakeholders, including various ministries and agencies, the research community, the Private Sector and other groups of the Dutch society to create political support and a good collaboration for mutual benefit. Stakeholders were given a strong role in determining the contents and priorities of the foreseen investments.

A key success factor in this combination of bottom-up and top-down elements is to keep the necessary balance between involving stakeholders in a participatory role in the development of a needs-driven policy, and the policy principle not to be steered by lobbyists. In the NGI initiative, the trade-off was resolved through a filter of an independent advisory committee that kept the contents of the original Action Plan mostly intact but made alternative suggestions for the implementation of the Genomics Initiative. But this required a rather time-consuming and complex process which led to a certain dissatisfaction of some stakeholders with the slowness of the process.

**Appendix 1: Overview of identified instruments for Private Sector involvement and their use in The Netherlands**

Instrument	Intensity of use	Initiated by	Used for	Used in				Examples and remarks
				Instigation	Design	Implement.	Review	
General dialogue	Insight studies, roadmapping, foresight	Frequent	Public Sector	Awareness & identification of emerging technologies & trends	✓	✓		Technology Radar
	Conferences	Occasional	Public Sector	Discussion platform	✓	✓		
	Brainstorming / task forces	Frequent	Public Sector	Identification of priorities and possible policy actions	✓	✓		Ad-hoc advisory groups
Informal decision involvement	Evaluation studies	Regular	Public Sector	Programme review, identification of policy needs			✓	(see MEET 3 report)
	Advisory groups	Regular	Public Sector	Participation in design, evaluation, etc.	✓	✓		AWT
	Informal consultations	Occasional	Public Sector	Exchange of viewpoints between stakeholders	✓	✓	✓	
	Formal consultations	Occasional	Public Sector	“Official” opinion	✓	✓	✓	
Formal decision involvement	Task force	Frequent	Public Sector	Joint policy development	✓	✓		IBO task force
	Participation in decision making bodies (observer status)	Not common	Public Sector	Decision involvement				
	Participation in decision making bodies with (co-) decision right	Not common	Public Sector	Decision involvement, shared responsibility				
	Administrative / supervisory boards	Frequent	Public Sector	Private Sector representatives involved in important institutional decisions		✓	✓	
Joint activities	Initiation of networks	Frequent	Public Sector	Stimulation of joint Public-Private Sector initiatives		✓	✓	Regional networks
	Co-financing of projects / programmes	Regular	Both sides	Sharing of cost / risks			✓	
	Public Private Partnership	Selective	Both sides	Pooling of resources			✓	TTIs
Staff interaction	(Temporary) Staff exchange	Not common	Both sides	Enhance mutual understanding and mobility				
	Staff mobility	Occasional	Public Sector	Public Sector expertise in research leadership positions			✓	CASIMIR programme
Unsolicited contributions	Statements, studies, white papers, etc.	Frequent	Private Sector	Express views, recommend changes, influence decisions	✓	✓		
	Dialogue platforms	Occasional	Private Sector	Initiate / facilitate dialogue with Public Sector	✓	✓		
	Research funding	Frequent	Private Sector	Initiate / support research in desired areas			✓	

Table 1: Overview of instruments used for Private Sector involvement

### Appendix 2: Selected relevant sources and literature

#### 1. General and country information

European Trend Chart on Innovation, *Annual Innovation Policy Trends and Appraisal Report Netherlands 2004-2005*.

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M. Lankhuizen, A. Ostling, *Study about relevant multi actors and multi measures programmes (STAR MAP)*, Country report Netherlands, undated (approx 2001).

#### 2. Important actors

<a href="http://www.houseofrepresentatives.nl/">http://www.houseofrepresentatives.nl/</a>	International Website of the Parliament (Tweede Kamer)
<a href="http://www.ez.nl">http://www.ez.nl</a>	Ministry of Economic Affairs (MIN. EZ)
<a href="http://www.minocw.nl">http://www.minocw.nl</a>	Ministry of Education, Culture and Science (Min. OCW)
<a href="http://www.awt.nl/">http://www.awt.nl/</a>	Advisory Council for Science and Technology Policy (AWT)
<a href="http://www.innovatieplatform.nl/">http://www.innovatieplatform.nl/</a>	Innovation Platform
<a href="http://www.toekomstverkennen.nl/">http://www.toekomstverkennen.nl/</a>	Sector Councils
<a href="http://www.cpb.nl/">http://www.cpb.nl/</a>	CPB Netherlands Bureau for Economic Policy Analysis
<a href="http://www.knaw.nl">www.knaw.nl</a>	Royal Dutch Academy of Arts and Sciences (KNAW)
<a href="http://www.rathenau.nl/default.asp">http://www.rathenau.nl/default.asp</a>	Rathenau Institute
<a href="http://www.nwo.nl">http://www.nwo.nl</a>	Dutch Organisation for Scientific Research NWO
<a href="http://www.stw.nl">http://www.stw.nl</a>	Technology Foundation STW
<a href="http://www.senternovem.nl">http://www.senternovem.nl</a>	SenterNovem Agency for sustainable innovation
<a href="http://www.syntens.nl">http://www.syntens.nl</a>	Syntens – Innovation network for entrepreneurs
<a href="http://www.oostnv.nl">http://www.oostnv.nl</a>	Regional Development Agencies
<a href="http://www.bom.nl">http://www.bom.nl</a>	
<a href="http://www.liof.nl">http://www.liof.nl</a>	
<a href="http://www.nom.nl">http://www.nom.nl</a>	

## Country Profile: The Netherlands

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<http://www.vno-ncw.nl/>

Confederation of Dutch Industry and Employers  
(VNO-NCW)

<http://www.mkb.nl>

MKB-Nederland

[http://www.kamervanakoophandel.nl/  
home/homeUK.asp](http://www.kamervanakoophandel.nl/home/homeUK.asp)

Netherlands Chamber of Commerce

### 3. Further information and feedback

This country profile has been prepared by Dr. Michael Braun. For further information and feedback, please contact the responsible author under [Michael.Braun@proneos.com](mailto:Michael.Braun@proneos.com)