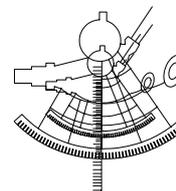
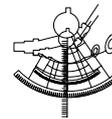


European Trend Chart on Innovation



Annual Innovation Policy Report for The Netherlands

Covering period: September 2003 – August 2004



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 policy Unit of DG Enterprise, it pursues the collection, regular updating and analysis of information on innovation policies at national and European level.

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 (EU). 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 now tracks innovation policy developments in all 25 EU Member States, plus Bulgaria, Iceland, Israel, Liechtenstein, Norway, Romania, Switzerland and Turkey. It also provides a policy monitoring service for three other non-European zones: NAFTA/Brazil, Asia and the MEDA countries. The Trend Chart website (www.cordis.lu/trendchart) provides access to the following services and publications, as they become available:

- a database of innovation policy measures across 33 European countries;
- a news service and related innovation policy information database;
- a 'who is who' of agencies and government departments involved in innovation;
- annual policy monitoring reports for all countries and zones covered;
- all background material for four annual policy benchmarking workshops;
- the European Innovation Scoreboard and other statistical reports;
- an annual synthesis report bringing together key of the Trend Chart.

The present report was prepared by **Shonie McKibbin, Technopolis BV**. The information contained in this report has not been validated in detail by either the Member States or the European Commission.

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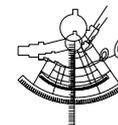
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Executive Summary

1. Snapshot of innovation performance

The Netherlands has a population of over 16 million, which makes it one of the most densely populated countries in the world with around 475 people per km². Small as it is (approx. 34,000 km²), the Netherlands is one of Europe's and the OECD's top performing countries in terms of Gross Domestic Product (GDP). However, in terms of real GDP growth the Dutch economy has performed lower than other EU countries since 2000, and in fact showed a negative growth in 2003, although improvement in the first quarter of 2004 has been recorded - with an economic growth of 0.9 percent. This has affected the Netherlands position in the international sense, the Global Competitiveness Report (2003-4) from the World Economic Forum showing that the Netherlands moved from 15th to 12th position between 2002 and 2003 in terms of Growth Competitiveness.

Unemployment is increasing both in the Netherlands and the EU-15. However, in the Netherlands it is still among the lowest in Europe with 3.8 percent in 2003, compared to 8.1 percent for the EU-15 in the same period. Despite these trends the Netherlands has managed to keep public deficit to 3.2 percent (2003) just above the three percent criterion set by the Stability and Growth Pact.

Labour productivity (GDP per hour worked) in the Netherlands is among the highest in Europe, although its growth remains low. In 2002 the cost of labour in the Netherlands increased more than that of the EU-15, making it much higher than in other EU-15 countries. According to a recent White Paper from the Ministries of Economic Affairs and Social Affairs and Employment¹ the reduction of the labour supply, through a decrease in participation, is one of the main factors contributing to the reduced possibility for growth the Netherlands, it also highlights factors such as ageing and internationalisation of labour having a strong influence on this trend.

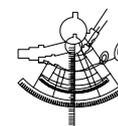
The Netherlands has a very open economy and Dutch export volume is among the highest in the EU. In the past growth in export volumes has been high, with an 11.3 percent increase being recorded for 2000. However, the situation has changed, and in 2003 a decrease of -0.5 percent was recorded. Main reasons for decreasing export volumes are the deteriorating competitive position of the Netherlands, low growth of world economy, and the high value of the Euro compared to the US dollar. The trade balance of the Netherlands, however, has remained positive at \$28 billion in 2003.

In an international context R&D intensity in the Netherlands (1.89 percent) is lower than both the European and OECD average 1.93 percent and 2.33 percent², and showed a slight decrease from 1.9 percent to 1.89 percent between 2000 and 2001. Broken down by institutional sector, there is a relatively low R&D intensity in the Dutch business sector (1.1 percent of GDP in 2001), again lower than both the EU and OECD averages - 1.24 percent and 1.62 percent. However Dutch universities and research institutes show an above average R&D intensity - 0.79 percent, higher than both European and OECD figures of 0.69 percent and 0.71 percent. The services sector in the Netherlands is relatively large compared to the other countries, but again is marked by a relatively low level of R&D intensity, while R&D expenditure in the public sector is comparatively high, especially within the government sector (0.27 percent of GDP) comprising of a wide spectrum of research institutes, although the lead of the Netherlands in public R&D spending has diminished quite significantly in the recent past.³

¹ Ministry of Economic affairs & Ministry of Social Affairs and Employment (2004) Choosing Growth

² CBS (2004) Kennis en Economie 2003 (Knowledge and Economy 2003)

³ NOWT (2004) Science & Technology Indicators 2003



As for innovation performance, the 2003 innovation scoreboard shows that the Netherlands is above the EU-15 average in terms of level of the performance but is in danger of losing momentum - its average trends lagging behind other countries. The Netherlands performs better than the EU-15 on 17 of 26 innovation indicators, but only better on five of the 14 trend indicators.

Dutch strengths lie within its human resources – the population with higher education and lifelong learning, although this contrasts with a comparatively low growth in the number of S&E graduates (-0.6 percent compared to the EU-15). The Netherlands is the third highest performer in Public R&D within the EU, although it shows a negative growth trend, it is relatively higher than the trend in the EU. Business R&D (lower than EU average) remains a laggard, and with a negative growth trend could become a serious weakness for the Netherlands. The Netherlands does well in terms of knowledge production, with patent performance being above the EU average – however with a performance just above the European average for innovation by SMEs, and levels below the EU average for overall innovation expenditure the translation of knowledge appears to be weak. Low performance in hi-tech venture capital and a large negative growth (-38 percent) in early stage venture capital are also worrying.

The strengths and weaknesses presented in the European Scoreboard are reflective of current analyses made in the 2003 Innovation White Paper of the Ministry of Economic Affairs – ‘In action for Innovation: tackling the Lisbon ambition’. According to the Innovation White Paper (and based on various studies of the Dutch climate and context) the Netherlands has the potential to achieve more growth through innovation than it currently does. In spite of its strong innovation base, the trend in a number of areas crucial to innovation are clearly negative, The Netherlands is losing momentum and has a number of persistent problem areas.

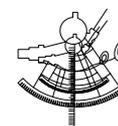
The Innovation White Paper presents these as three main challenges for the future⁴:

1. *Innovation climate not attractive enough.* The climate in the Netherlands is insufficiently inviting for companies to innovate. This is evident from the fact that corporate R&D intensity is low from an international point of view, and is declining further. In addition, there is an impending shortage of knowledge workers.

2. *Lack of companies that innovate.* Insufficient business activity is generated in the Netherlands. This is evident from, amongst other things, the low R&D expenditure by new companies, the small number of spin-offs, and innovation that lags behind among small and medium-sized enterprises and the service sector.

3. *Insufficient focus and mass in research.* The Netherlands is not successful enough in exploiting (new) innovative opportunities. The underlying reasons are the lack of collaboration between the business sector and knowledge institutions, and the lack of clear and convincing choices. However the basis for a more innovation-driven growth process is good and the Dutch starting position is favourable.

⁴ Ministry Economic Affairs (October 2003) In Action for Innovation, tackling the Lisbon Ambition



The following table provides an overview on main strengths and weaknesses, as well as opportunities and threats of the Dutch innovation system⁵.

Strengths	Weaknesses
<ul style="list-style-type: none"> • High percentage of knowledge workers • A good educated population on average • High employment share in high-tech services • High levels of Life-long learning • High quality of scientific research • Good (high-tech) patent performance 	<ul style="list-style-type: none"> • Increasing premature school 'dropout' – i.e. no follow through to higher levels (diplomas) • Negative trend in the level of early-stage venture capital • Lagging behind in business R&D intensity • Low levels of innovative entrepreneurship and activity in general • Financing of innovation • Insufficient exploitation of the potential of venture capital
Opportunities	Threats
<ul style="list-style-type: none"> • Good access to and use of ICT • Relatively high co-financing of public applied research by the business sector • High number of knowledge workers • A good (but according to the data in decline) investment environment • Good opportunities and culture to organize co-operation between public and private organisations 	<ul style="list-style-type: none"> • Low number of S&E Graduates • Growing shortage of knowledge workers, particularly scientists, technologists and R&D workers • Low levels of business R&D • Low levels of value added and employment in high-tech manufacturing • Insufficient use of results of scientific research • Interaction between knowledge infrastructure and the business sector • Costs of patents • Increase in foreign based R&D by national firms

2. National objectives for innovation

The philosophy behind the Innovation White Paper has evolved over the past years, and is strongly based on the concept of Dynamic Innovation Systems, and building a policy portfolio around the bottlenecks and challenges in the system (see below for discussion about the basis of Dutch policy developments). Some key aspects of this philosophy are improving the interaction between R&D actors in the system, improving the exploitation of knowledge and streamlining policy instruments. The policy instruments that match these concepts can be divided into categories of generic instruments that stimulate private investment in knowledge (e.g. the tax facility WBSO (NL_5), a category that aims to improve the exploitation of knowledge (mainly co-operation in R&D), and a number of targeted instruments to support strategic technology areas. In addition there is increased emphasis on facilitating high-tech start-ups, and in the future on developing human resources (knowledge workers).

More specifically and in line with the three challenges presented in the Innovation White Paper – policy options for strengthening the Dutch innovation position are:

1. Strengthening the climate for innovation

• The heart of this policy line is the Netherlands as an attractive partner in & with which to innovate. Options for solutions:

- Intensify the Tax Credit Scheme (WBSO) to stimulate private R&D
- New tool for stimulating R&D collaboration
- New approach for tackling the impending shortage of knowledge workers

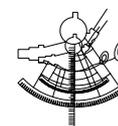
2. Dynamism: towards more companies that innovate

The heart of this policy line is that more innovative companies ensure more dynamism

Three options for solutions to achieve more innovative business activity are:

- Stimulate new innovative business activity
- Exploit the potential of small and medium-sized enterprises
- Attract knowledge-intensive business activity to the Netherlands

⁵ This table has been completed using the European Innovation Scoreboard 2003, Dutch Innovation White Paper 2003, and AWT (2004) Time to Reep! - Renewal in Innovation Policy.



3. Taking advantage of opportunities for innovation by opting for strategic areas

The heart of this policy line is making choices in order to exploit innovation opportunities better.

The major options for solutions in this area are:

- Create conditions for joint knowledge development and use,
- Stimulate programme-based R&D collaboration on key points,
- Link up to international knowledge clusters,
- Total commitment to the choices made.

3. Appraisal of the policy process

Over the last years the notion of a Dynamic Innovation System has surfaced in the policy mainstream and a series of background studies have been performed within and on behalf of the Ministry of Economic Affairs, methodically looking into various aspects of innovation strategy, and appraising the Dutch position. Numerous studies were performed (both by internal teams as well as external experts) to analyse various aspects of innovation such as the rationale for innovation policy, innovation governance, possibilities for streamlining various categories of schemes, international aspects of innovation, interaction between science and firms, framework conditions, innovative entrepreneurship, breakthrough technologies, etc. These studies can be seen as the base for formulating the new Innovation White Paper. A document integrating these various studies and formulating a policy agenda and policy options was published in December 2002 - *Working on innovation strength*⁶. This document flagged a number of key problems/challenges. Another study was undertaken by the Centraal Plan Bureau (CPB) - 'Pillars under the knowledge economy', which used three pillars on which to focus its discussions: education/human resources, scientific research, and innovation in firms.

In parallel to this, a period started in which a significant reflection took place on current innovation policy. A mixed team of independent advisors and civil servants⁷ presented the report 'Innovation Policy - Co-Operation and Streamlining: Options for an Effective Innovation Policy' (IBO)⁸, which is now proving to be an important factor in changing Dutch innovation policies. The IBO report was mainly concerned with the functioning of the policy mix itself, the report looking into the appropriate design and effectiveness of the direct and indirect innovation policies aimed at firms, concluding that innovation policy at the time was fragmented and not well coordinated between the various departments and that there was room for further streamlining.

Current policy definitely seems to respond to identified challenges presented through the various channels and reports, the Innovation White Paper taking into consideration the policy challenges set out in the CPB and IBO reports (which were in fact used to highlight the strengths and weaknesses in the second part of the Innovation Paper – Analysis of the Dutch situation). The policy concentrates on three objectives, a number of which have already been supported by various plans, actions, and activities.

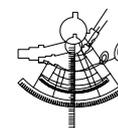
4. Implementing innovation policy – what's new!

In political terms the period September 2003 – August 2004 was one of settling down in the political arena after a fairly turbulent period. After the resignation of the newly elected government (three months in office) at the end of 2002, new elections were held in January 2003 – leading to another shift in the party coalition of Parliament. After three months of negotiations, a new government

⁶ Ministry of Economic Affairs (Dec 2002) *Werken aan innovatiekracht: Eindrapport projectgroep Integratie Bouwstenen Innovatie (IBI)*, Den Haag.

⁷ Including most ministries with innovation policies, and published by the Ministry of Finance and the Ministry of Economic Affairs

⁸ See Trend Chart policy document No. 2: 2002 Netherlands - *Samenwerken en Stroomlijnen - Opties voor een effectief innovatiebeleid*



coalition (Balkenende II) was formed, introducing (once again) several new ministers, including a new Minister for Economic Affairs responsible, among others, for innovation policy.

The instatement of the new government led to a very busy period in terms of developing new policy strategies. Until then there had been very little activity due to both the long period of instability and to new ministers taking up their seats. The new innovation policy strategy was developed and published in October 2003, associated instruments, action plans, and studies initiated in the current reporting period have been designed in reaction to the options set out in the Innovation White Paper.

These are:

1. Strengthening the climate for innovation

- In order to stimulate R&D collaboration further, a single new (project-based) collaboration tool, announced by the government in its response to IBO, was introduced in January 2004.
- A joint memorandum on knowledge workers delta plan science/technology 'Δ-plan β/technique: Action plan for the approach to the shortage of beta's en technicians' was published by the Ministries of Education, Culture & Science, Social Affairs & Employment and Economic Affairs which presents an analysis of the shortages and the approach in concrete measures (divided across 7 main themes relating to education, the labour market and migration)

2. Dynamism: towards more companies that innovate

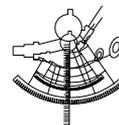
- Action programme TechnoPartner was developed to stimulate innovative business activity and to improve the climate for high-tech start-ups.
- In an attempt to promote the exploitation of the potential within SMEs the Action plan for Entrepreneurship 'In action for Entrepreneurship', has been published by the Ministry of Economic Affairs.
- The TWA network has been modernised, in particular strengthening the antenna function and extending the intermediary task on key points, in an attempt to attract knowledge intensive business activity to the Netherlands

3. Taking advantage of opportunities for innovation by opting for strategic areas

- The bridging function of TNO and GTIs has been evaluated, during the course of 2004 the government will determine its position, the aim is to determine the best way to allow the business sector and knowledge infrastructure to develop and use knowledge together.
- In support of making a total commitment to choices made, the Bsik (formerly ICES/KIS) has taken decisions on key issues for the current round of funding. In addition a number of key areas have been taken into consideration and action plans published. The national ICT agenda and memorandum on ICT as a key technology 'Competing with ICT Competences: direction and efficiency in the ICT knowledge chain', and the Action Plan for the Life Sciences 'Using opportunities, removing bottlenecks' have been published.

One important decision of the new government was to launch an Innovation Platform to draw-up plans and develop a vision to give an impulse to innovation in the Netherlands. This high level advisory organ, aiming at a more integrated policy approach, was inaugurated in September 2003, and set up under the chairmanship of the current Prime-minister – Balkenende. The Innovation Platform consists of 18 members from Government, industry, and knowledge & education institutes, and participate on personnel title.

Since its inauguration, four working groups have been set up, each headed by a member of the Innovation Platform. New working groups will be established when the Innovation Platform requests them. Workgroups are: Dynamics of the Dutch Innovation System, Long-term Choices, Moving up in higher education, Innovation in Public Governance. In addition to working groups, the Innovation Platform also initiates different kinds of projects. In March and April 2004, for example, the Innovation Platform ran a number of Consultation Groups to identify practical barriers that stand in the way of excellence, ambition and entrepreneurship.



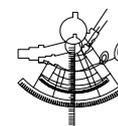
In the period September 2002 - August 2004 a number of new initiatives were introduced. The new initiatives actually focus on streamlining technology policy instruments in order to increase transparency and reduce overlaps. This entails the merging of some existing instruments and the replacement and termination of others. The first action was the amalgamation / streamlining of a number of existing measures into an overall programme to provide support for co-operation in innovation programmes. The new measure Innovation subsidy collaboration projects (NL_44) has the aim of stimulating co-operation between businesses and between businesses and knowledge institutes and will replace Technological development projects (NL_34), Technological Co-operation (NL_37) and E.E.T. (NL_13).

Following the streamlining trend, the integral approach adopted in Technostarters scheme (NL_39) was adjusted by putting it into a broader perspective – with the aim of minimising the overlap of different instruments on technology-based start-ups and to strengthen starters support. The outcome of this operation is an integral policy on technology-based start-ups published by the Ministry of Economic Affairs in the beginning of 2004 called TechnoPartner⁹ (NL_43). Again a reflection of streamlining saw the Stigon measure (NL_42) incorporated into the Biopartner (NL_24) specifically in the form of BioPartner First Stage Grant under the name FSG/STIGON in January 2004.

There has also been much debate about innovation measures in the cabinet in the Netherlands in the period under review. With a number of parties petitioning for the continued decrease in the number of innovation measures available in the Netherlands, the saved funding to be put into tax deduction schemes. However the Minister of Economic Affairs, Minister Brinkhorst, is against such a radical reduction.¹⁰ According to Brinkhorst the subsidies are required to stimulate innovative businesses through support of projects based on economic strengths in specific domains, and to support excellence. Brinkhorst, in his various public statements, supports the mix of generic fiscal instruments and more specific subsidy measures, expressing his opinion that this mix works well.

⁹ Ministry Economic Affairs (January 2004) Actionplan TechnoPartner: From knowledge to prosperity.

¹⁰ EZ Nieuwsberichten, June 2004 and NRCHandelsblad 23 June 2004



1. National Innovation System in the Netherlands

1.1. Innovation performance

The Netherlands has a population of over 16 million, which makes it one of the most densely populated countries in the world with around 475 people per km². Small as it is (approx. 34,000 km²), the Netherlands is one of Europe's and the OECD's top performing countries in terms of Gross Domestic Product (GDP). Dutch GDP per capita is among the highest in Europe. However, since 2000 economic growth, in terms of real GDP growth, has been much lower than other EU countries, and in 2003 Dutch growth was even negative. The first quarter of 2004, however, has improved to show an economic growth of 0.9 percent.

Unemployment is increasing both in the Netherlands and the EU-15, however, in the Netherlands it is still amongst the lowest in Europe with 3.8 percent in 2003, compared to 8.1 percent for the EU-15 in the same period. Despite these trends the Netherlands has managed to keep public deficit to 3.2 percent (2003) just above the 3 percent-criterion set by the Stability and Growth Pact. At the same time government debt is rising, the Netherlands however hasn't exceeded the maximum of 60 percent of GDP.

Labour productivity (GDP per hour worked) in the Netherlands is among the highest in Europe, although its growth remains low. In 2002 the cost of labour in the Netherlands increased more than that of the EU-15, making it much higher than in other EU-15 countries. According to a recent White Paper from the Ministries of Economic Affairs and Social Affairs and Employment¹¹ the reduction of the labour supply, through a decrease in participation, is one of the main factors contributing to the reduced possibility for growth the Netherlands, it also highlights factors such as ageing and internationalisation of labour having a strong influence on this trend.

The Netherlands has a very open economy and Dutch export volume is among the highest in the EU. In the past, growth in export volumes has been high, with an 11.3 percent increase being recorded for 2000. However the situation has changed, and in 2003 a decrease of -0.5 percent was recorded. According to the CBS, the main reasons for decreasing export volumes are the deteriorating competitive position of the Netherlands, low growth of the world economy, and the high value of the Euro compared to the US dollar. The trade balance of the Netherlands, however, has remained positive at \$28 billion in 2003.

In an international context R&D intensity in the Netherlands (1.89 percent) is lower than both the European and OECD average 1.93 percent and 2.33 respectively¹², and showed a slight decrease from 1.9 percent to 1.89 percent between 2000 and 2001. Broken down by institutional sector, there is a relatively low R&D intensity in the Dutch business sector (1.1 percent of GDP in 2001), again lower than both the EU and OECD averages – 1.24 percent and 1.62 percent. However Dutch universities and research institutes show an above average R&D intensity - 0.79 percent, higher than both European and OECD figures of 0.69 percent and 0.71 percent. The services sector in the Netherlands is relatively large compared to the other countries, but again is marked by a relatively low level of R&D intensity, while R&D expenditure in the public sector is comparatively high, especially within the government sector (0.27 percent of GDP) comprising of a wide spectrum of research institutes, although the lead of the Netherlands in public R&D spending has diminished quite significantly in the recent past.¹³

¹¹ Ministry of Economic affairs & Ministry of Social Affairs and Employment (2004) Choosing Growth

¹² CBS (2004) Kennis en Economie 2003 (Knowledge and Economy 2003)

¹³ NOWT (2004) Science & Technology Indicators 2003

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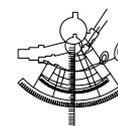


Table 1 Comparable indicators of economic performance – The Netherlands

Indicator	National performance		EU 15 average		Source ¹⁴
	2000	2003*	2000	2003*	
Economic growth – Real GDP growth rate at constant prices (1995) (percent change previous year)	3.5	-0.7 (-0.9 ¹⁵)	3.5	0.7	EUROSTAT
GDP per capita in Purchasing Power Standards (PPS) (EU-15= 100)	110.7	109.5	100	100	EUROSTAT
Unemployment rate - unemployed persons as a percentage of the labour force.	2.9	3.8	7.8	8.1	EUROSTAT
Inflation rate - Annual average rate of change in Harmonized Indices of Consumer Prices (HICPs)	2.3	2.2	1.9	2.0	EUROSTAT
Labour productivity per person employed (=GDP/person employed) (EU-15 = 100)	96.2	95.6	100	100	EUROSTAT
Labour productivity per hour worked (=GDP/hour worked)	111.9	112.8	100	1000	EUROSTAT
Labour cost per unit produced (percent change from previous year)	2.1 (average 96-2000)	4.7 (2002)	3.6 (average 96-2000)	2.1 (2002)	EUROSTAT/CBS
Export volume, national accounts (percent change from previous year)	11.3	-0.5	OECD Economic Outlook nr 75 June 2004
Trade balance goods/services (\$ billion)	19.3	27.9	46.9	143.9	OECD Economic Outlook nr 75 June 2004
General government consolidated gross debt as a percentage of GDP	55.9	54.8	64.0	64.2	EUROSTAT
Government financial balance (percent of GDP)	2.2	-3.2	1.0	-2.6	EUROSTAT

Looking at the more specific innovation indicators presented in the 2003 European Innovation Scoreboard (EIS) – Exhibit 1 below, we see that for the Netherlands the indicators are spread across 'falling further behind', 'losing momentum', and 'moving ahead'. The strengths and weaknesses presented in the figures are reflective of current analysis made for the Innovation White Paper of the Ministry of Economic Affairs¹⁶. In fact the White Paper makes use of the figures for some of its analysis.

In general the White Paper shows that The Netherlands has a good starting position, and according to two influential reports - Interdepartmental Policy Research on Technology Policy – IBO (2002) and CPB (2002) The Pillars under the Knowledge Economy¹⁷ the general opinion on the Dutch position on innovation as a whole is moderately positive. The innovative ability of business is reasonable, and companies innovate relatively efficiently. It is also recognised that from an international perspective the Netherlands has a high labour productivity per hour worked, but growth in this area is lagging behind and other countries are catching up fast. In addition, the knowledge base is deemed healthy due to public R&D expenditure being relatively high and high quality scientific research. The ICT climate is seen as being healthy, although a cause for concern is its relative decline (as shown in the

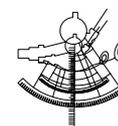
¹⁴ Data is taken on the 30-06-2004. <http://europa.eu.int/comm/eurostat>

¹⁵ Adjusted CBS figure - CBS Press release July 2004. PB04-103

¹⁶ Min Economic Affairs (October 2003) In Action for Innovation, tackling the Lisbon Ambition

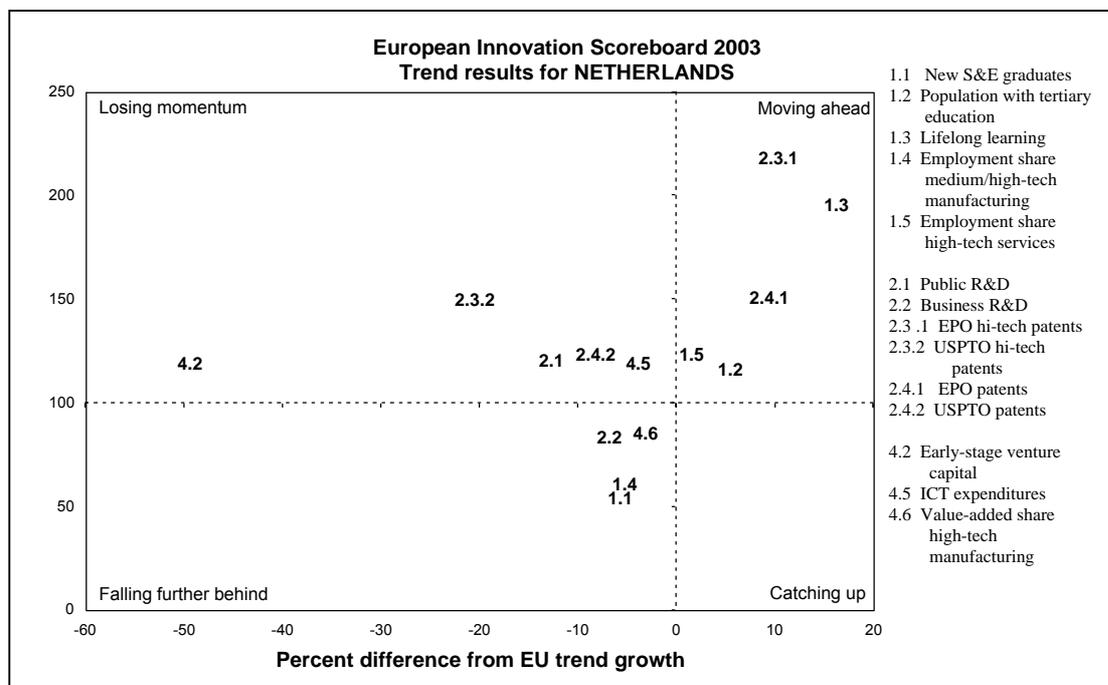
¹⁷ Interdepartmental Policy Research on Technology Policy – IBO, (2002) and CPB (2002), De pijlers onder de kenniseconomie (The Pillars under the Knowledge Economy)

European Trend Chart on Innovation



EIS). In short The Netherlands is losing momentum, a trend that is also evident in recent figures from the Dutch Bureau of Statistics (CBS)¹⁸.

Exhibit 1: European Innovation Scoreboard 2003 – The Netherlands

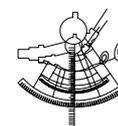


The two studies mentioned above (IBO and CPB) used weighted averages of a large number of ‘hard’ and ‘soft’ indicators that give a picture of the innovation climate. The relative decline of the Netherlands according to the outcomes of these studies is due to the fact that the Netherlands scores rather poorly for a number of indicators; the number of graduates in S&T, the position of medium and high-tech industry and business R&D in particular, the Netherlands is lagging behind even further.

The Innovation White Paper sets out a number of strong and weak areas of the Dutch Innovation system before it continues to present a number of solutions and actions. Specific strong areas for the Netherlands are: high quality scientific research, evident from the impact score of Dutch scientific research (The Netherlands is third in the world, after the USA and Switzerland), or from the fact that seven (of the 13) Dutch universities are among the best 20 universities in the EU. Good performance with patents, it is the third country as far as the number of patent applications and grants in Europe in 2001 are concerned, and the eleventh country for patent applications in the USA in 2002 (although according to the EIS 2003 losing momentum in USPTO patents), although this picture is determined to a large extent by the patent applications of Philips. The activities of knowledge institutions in the area of knowledge exploitation, however, are generally speaking still modest.

There is also a relatively high level of co-financing of public applied research by the business sector, the share rather high at 11.6 percent when compared at an international level. Access to and use of ICT is good in the Netherlands, the amount of ICT expenditure as a percentage of GDP is high, only superseded by Sweden. In addition, the number of internet connections in the Netherlands is the highest of all EU countries. The starting position of the Netherlands with regard to ICT is therefore good. However, the Ministry points out several challenges: maintaining a good ICT infrastructure and content development, ICT in education, using ICT in government services, and enhancing ICT

¹⁸ CBS (2004) Kennis en Economie 2003 (Knowledge and Economy 2003)



research. Lastly the number of knowledge workers is high. At a European level, the Netherlands is in the top three with Sweden and Finland.¹⁹ Almost half of the professional working population in the Netherlands are knowledge-workers, in 2001 this figure was about 3.6 million.

Next to these strengths there are a number of weak points specified, which form the basis upon which current innovation policy is defined. Firstly, although Business R&D expenditure is rising slightly in absolute terms, relatively speaking (measured as a percentage of GDP) there is a decline. R&D intensity in the Dutch business sector in 1999 was 1.14 percent. In 1999 the Netherlands lagged behind the EU average by 0.05 percent, in 2000 this had increased to 0.11 percent, and by 2001 had increased to 0.15 percent. In the period 1999-2001 the gap as compared to the EU average grew by 0.10 percent. There is an increasing orientation of the business sector towards the short term and a move away from fundamental research; consequently collaboration with universities is becoming more important. Incidentally, public R&D intensity is also falling. However, there is a positive development hidden in this trend. R&D intensity among small and medium-sized enterprises has in fact increased.²⁰ This means that the innovation base (the number of enterprises that innovate) is becoming broader. In addition it appears that large Dutch R&D companies are investing more in R&D abroad than in the Netherlands. Nevertheless, this is not at the expense of the R&D base located in the Netherlands. Conversely the Netherlands does not benefit enough from R&D of foreign companies²¹, a sign that perhaps the Netherlands is not attractive enough as a knowledge-based country.

There is also an impending substantial shortage of scientists, technologists and R&D workers (specific groups of knowledge workers). In 2000 the proportion of graduates in science and technical studies in the Netherlands was a third lower than the average in the OECD and EU, and almost 50 percent lower than in countries such as Sweden and Germany. The top position²² of the Netherlands as regards the number of knowledge workers would appear to be favourable, but there are a number of reasons why there is indeed a problem in this area.

- Firstly, Human Resources in Science and Technology is underused - there are 0.9 million people who have a higher or university education, but do not work in an Science & Technology job
- Secondly, the demand for knowledge workers is rising faster than the supply, while the participation of Dutch students in technical studies is low compared to other countries. The number of those with a doctorate (potential for (scientific) researchers), also indicates a worrying development compared to other countries. The number of those with a doctorate per 1000 of the working population in the Netherlands is almost half that of other EU countries, namely 0.34 compared to 0.56 for every 1000 of the working population. Moreover, the proportion of those with a doctorate in the Netherlands is declining by 5 percent a year, while it is rising in other EU countries.²³
- Thirdly, within the group of knowledge workers there are relatively few people who have a scientific or technological background or who are researchers.
- Finally the influx of knowledge workers from other countries to the Netherlands is relatively limited. The Netherlands attracts relatively few foreign students who come to study science or technology subjects and has little migration of knowledge workers due to slow procedures and high administrative charges.

The Dutch business sector obtains relatively little turnover from new or improved products, which make the entrepreneurial and innovative climate weak in the Netherlands. The highly innovative high-tech sector is rather limited, and the Netherlands is average as far as high-tech start-ups are concerned. The number of spin-offs from knowledge institutions lags behind other countries. Further

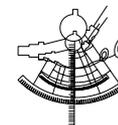
¹⁹ CBS (2004) Kennis en Economie 2003 (Knowledge and Economy 2003)

²⁰ For a summary of the most important R&D players in the Netherlands, see the R&D Hit List of the CPB <http://www.cpb.nl/general/org/afdelingen/ti/research>.

²¹ Ernst & Young (2002), Market share analysis of foreign investment projects.

²² CBS (2004) Kennis en Economie 2003 (Knowledge and Economy 2003)

²³ European Commission (2003), Third European report on Science & Technology Indicators



growth is also a problem area, as the Netherlands has relatively few fast-growing companies. In 2000, some 2 percent of the starters in the Netherlands were high-tech start-ups, although a large proportion of these would appear to have a more applied character and are perhaps found in the service sector. Recent research shows that the Netherlands, with some 100 spin-offs, lags behind other countries each year by some 30 to 40 percent.²⁴ This is confirmed by the Global Entrepreneurship Monitor 2002, which shows that the transfer of knowledge from knowledge institutions through starters is regarded by experts as one of the biggest weaknesses of the Dutch entrepreneurial climate.²⁵ In addition, almost two-thirds of Dutch companies with ten or more employees did not engage in innovative activities in the period from 1998-2000,²⁶ while seven companies (Philips, Akzo, ASML, Shell, OCE, DSM, Unilever) account for 50 percent of Dutch private R&D expenditure, although the number of small and medium-sized enterprises that are innovating is increasing.²⁷

The Innovation White Paper also highlighted the weak position in the use of results of scientific research. Although the quality of scientific research in the Netherlands is of an international standard, the Ministry pointed out that commercialisation could be improved (this phenomenon commonly known as the Dutch paradox). Especially among SMEs there is much scope for innovation. Among the innovative companies employing between 10 and 50 workers, only 21 percent innovate in partnerships (of the companies employing more than 200 workers this is 45.5 percent). As a result, opportunities to share knowledge, but also to share the risks and costs of innovation are simply not being used.

Interaction between knowledge infrastructure and the business sector is also signalled in the White Paper as a weak point in the Dutch NIS. There are clear signs that the interaction between public and private research in the Netherlands could be better across the board. Dutch companies are not successful enough in using public knowledge as a source for innovation, in other words; translating knowledge into new products and processes. This is referred to as the innovation paradox - opportunities to increase the contribution of innovation to economic growth are therefore left untapped. Although co-financing of university research by companies has grown in the Netherlands during the past few years from low to average, the increasing emphasis in the business sector on the short term makes it increasingly difficult to achieve a good interaction with public research, in particular the universities. There has been a gap between public knowledge infrastructure and SMEs for some time now, which is difficult to bridge, while the funding of university research, also in application-orientated disciplines, contains few incentives for collaboration with the business sector. Successful interaction also requires the strengthening of focus and mass in scientific research.

Some facts and figures on the Dutch innovation paradox presented in the White Paper are²⁸:

- 24 percent of innovators (1998-2000) innovated in a partnership. Of these, 20 percent entered partnerships with universities, 25 percent with an applied knowledge institute. Both show a decline from 1998, in addition the Netherlands is lagging behind the EU average.
- Percentage of company-funded R&D in universities is 6.5 percent (5.2 percent in 1999), reflecting the European average.
- Between 1998-2000 universities (highly) contributed to only 2 percent of innovative industry (EU=4 percent), they are an important supplier to 6 percent of industry.
- Licenses have been awarded for only 19 percent of university patents.
- In the Netherlands there seems to be only just over 100 spin-offs annually from knowledge institutions, which is low compared to foreign countries. A few universities however perform well.

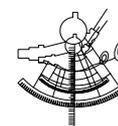
²⁴ See Kreijen, Van Scherrenburg and Van Tilburg (2002), Hightech ondernemerschap in Nederland (High-tech entrepreneurship in the Netherlands)

²⁵ European Commission (2002) Global Entrepreneurship Monitor.

²⁶ CBS (2003), Kennis en economie 2002 (Knowledge and economy 2002), page 99

²⁷ CPB (2002) De pijlers onder de kenniseconomie – Pillars under the knowledge economy

²⁸ CBS 2003 and TSI 2003



The financing of innovation is problematic for the Netherlands, and it does not sufficiently exploit the potential of venture capital for new innovative activity. The potential of venture capital is also insufficiently exploited for growth in innovative activity. At a European level, the Netherlands scores well regarding venture capital, although it doesn't sufficiently make use of this venture capital for (new) innovative activity. For example, the percentage of seed and starting capital in the Netherlands in 2001 was 20 percent, well below the European Union average of 34 percent, and that of the USA at 30 percent.²⁹ In addition, the percentage of seed capital as a proportion of the total venture capital investment in high-tech sectors in the Netherlands is only 2 percent compared to 8 percent in the EU (2001). Potentially successful high-tech companies in particular in the seed phase experience great difficulty in attracting venture capital in the Netherlands.

The following table presents an overview of the above-mentioned strengths and weakness in the Dutch system.

Table 2: National Innovation SWOT overview – the Netherlands³⁰

Strengths	Weaknesses
<ul style="list-style-type: none"> • High percentage of knowledge workers • A good educated population on average • High employment share in high-tech services • High levels of Life-long learning • High quality of scientific research • Good (high-tech) patent performance 	<ul style="list-style-type: none"> • Increasing premature school 'dropout' – i.e. no follow through to higher levels (diplomas) • Negative trend in the level of early-stage venture capital • Lagging behind in business R&D intensity • Low levels of innovative entrepreneurship and activity in general • Financing of innovation • Insufficient exploitation of the potential of venture capital
Opportunities	Threats
<ul style="list-style-type: none"> • Good access to and use of ICT • Relatively high co-financing of public applied research by the business sector • High number of knowledge workers • A good (but according to the data in decline) investment environment • Good opportunities and culture to organise co-operation between public and private organisations 	<ul style="list-style-type: none"> • Low number of S&E Graduates • Growing shortage of knowledge workers, particularly scientists, technologists and R&D workers • Low levels of business R&D • Low levels of value added and employment in high-tech manufacturing • Insufficient use of results of scientific research • Interaction between knowledge infrastructure and the business sector • Costs of patents • Increase in foreign based R&D by national firms

1.2 Innovation governance system

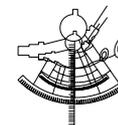
1.2.1 The national innovation system

The Innovation Governance of the Netherlands is a complex system with many actors, funding mechanisms and inter-relations. The diagram presented below shows the structure of the system, its key actors, and funding flows. Preceding the diagram is a list of names of organisations and the associated abbreviations used.

The Diagram shows the four broad levels and the various players in each. Innovation Policy is mainly the responsibility of the Ministry of Economic Affairs (EZ). EZ consists of five departments (Directorate Generals - DGs). Through DG Innovation [PM per 1 September 2004 DG Innovation is merged with DG Enterprise into DG Enterprise and Innovatie] (which is responsible for applied and industry orientated R&D and innovation policy instruments), EZ seeks to strengthen the innovative capacity of

²⁹ European Commission (2003), Third European report on Science and Technology Indicators.

³⁰ This table has been completed with the use of the EIS 2003 scoreboard, Dutch Innovation white paper 2003, and AWT (2004) Time to Reep! - Renewal in innovation policy, Den Haag.



the Dutch economy. The major issues in this respect are knowledge, technology, employment and innovative entrepreneurship. In 2003 the Ministry allocated EUR 521 million in support of innovation and EUR 601 million for entrepreneurship³¹. EZ programmes are, for the majority, implemented by the agencies SENTER and NOVEM. In May 2004 these two organisations merged to form SenterNovem – this fusion is intended to enhance support to industry. In the area of research an important agency is NWO (mainly academic basic research but increasingly involved in applied research).

The Ministry of Science, Culture and Education (OCW) also plays an important role in defining innovation policy, in particular with regards to scientific research and education. Its mission is 'to create a research climate that encourages optimal performance: producing science of high quality for the stimulation of wealth and well-being'. In this capacity the Minister is responsible for a good operation of the research infrastructure, in terms of size, its innovative capacity, its quality and its efficient use of resources. In 2004 the Ministry will allocate EUR 702 million to Science Policy. Implementation of OCW policy is achieved through a more hands-off approach using the various research institutes that fall under its remit. It does, however, make particular use of NWO and for programme implementation SenterNovem.

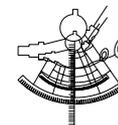
Knowledge and innovation are high on the policy agenda of numerous other ministries³²: The ministry of Transport, Public Works and Water Management is preparing a policy project on knowledge and innovation, the project plan is currently being produced. Under the auspices of the Ministry of Agriculture, further work is being done to integrate Wageningen University and the Agricultural Research Department, the two legal entities making up Wageningen University and Research Centre (WUR). The next few years will see greater scope being created for the knowledge base within the funding provided for the WUR; this will be achieved through a shift from the category of 'research in support of policy' towards the 'knowledge base' category. Funding for the knowledge base category will thus be increased from EUR 17 million to EUR 35 million. The Ministry of Defence is carrying out a reassessment of the supply of knowledge. The focus is on meeting the demand for knowledge by means of scientific R&D (with a ten-year horizon), available financing instruments, and international cooperation. The first phase took place in 2003, the second (final) phase to be completed by the end of 2004. There is interaction between the reassessment and the evaluation of the bridging function of TNO and the GTIs.

In short the Dutch science, technology and innovation governance model (system) can be characterised as follows:

- There has always been a strong 'division of labour' between science on the one hand and technology and innovation on the other, both in terms of policy design, funding and research performers. Consequently there are two different governance cultures in the science and innovation parts of the system. At different levels in the system these two spheres are gradually moving towards each other, and in the Innovation Policy White Paper the Ministry of Economic Affairs and Ministry of Education Culture and Science have collaborated intensely.
- There is quite a decentralised and fragmented science and research community comprising 13 Universities, 18 KNAW Institutes, six NWO Institutes, five Large Technological Institutes (GTIs), four Technological Top Institutes (TTIs), 14 TNO Institutes, and a number of state owned research and advisory centres. On the one hand the academic research system functions quite independently and has its own 'sub-governance system'. On the other hand there is a multitude of applied research centres, which receive funding from certain Ministries and/or have a mission to find contracts in the market. The trend here is to develop more public-private collaborations and use co-funding as a basis for finance.
- There has been a current trend in the way in which the ministries, in particular EZ and OCW, are using intermediaries to execute policy programmes. The recent merging of Senter (historically the front desk of EZ) and Novem (more Scientific based) has seen a move towards collaboration between the various parties to provide better support (and scientific links) to industry.

³¹ Ministry of Economic Affairs (2004) Annual Report covering the 2003 Budget, Den Haag

³² Ministry of Science, Culture and Education (2004) Science Budget 2004, Den Haag



Additionally there has been a move towards the use of specially formed bodies to execute programmes in certain key technology areas. Examples are the Genomics initiative and the ICT Research and Innovation Authority – which are an umbrella for activities coming from the various ministries active in the subject area.

- Despite the complex set of formal linkages and funding routes, it is a system in which organisations and people deal with each other on an informal level quite easily
- There has been the creation of a new high-level advisory council in the system, the Innovation Platform, with high-level representatives from research, industry and the policy arena. It was launched in September 2003.

Advisory bodies

AWT	Advisory Council for Science and Technology Policy
CPB	Netherlands Bureau for Economic Policy Analysis
KNAW	Royal Netherlands Academy for Arts and Sciences

Ministries

OC&W	Education, Culture and Science
LNV	Ministry of Agriculture, Nature Management and Fisheries
VROM	Housing, Spatial Planning and Environment
EZ	Economic Affairs
VWS	Transport, Public Works and Water Management
Defence	Department of Defence
ICES/KIS	Interdepartmental Commission for Economic Structure

Interdepartmental co-ordination

CWTI	Committee for Science, Technology and Information Technology
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Executing Agencies

KNAW	Royal Netherlands Academy for Arts and Sciences
NWO	Netherlands Organisation for Scientific Research (Dutch Research Council)
STW	The Technology Foundation
SenterNovem	Amalgamation of the Implementing agency for innovation and technology (Senter) and the Netherlands agency for energy and the environment (Novem)
Syntens	(No abbreviation) Implementing agency for innovation support to SMEs

Research Institutes

KNAW	Institutes of the Royal Netherlands Academy for Arts and Sciences
NWO	Institutes of the Netherlands Organisation for Scientific Research
GTIs	Large Technological Institutes (Marin maritime research, Geodelft geodetic research, ECN energy research, WL water management, NLR air and space)
WUR	Wageningen University & Research Centre – inclusive institutes of Agricultural Research
TNO	Netherlands Organisation for Applied Scientific Research State owned institutes Royal institutes for Coast and Sea / Health and environment / Fisheries etc
TTIs	Leading Technological Institutes

European Trend Chart on Innovation

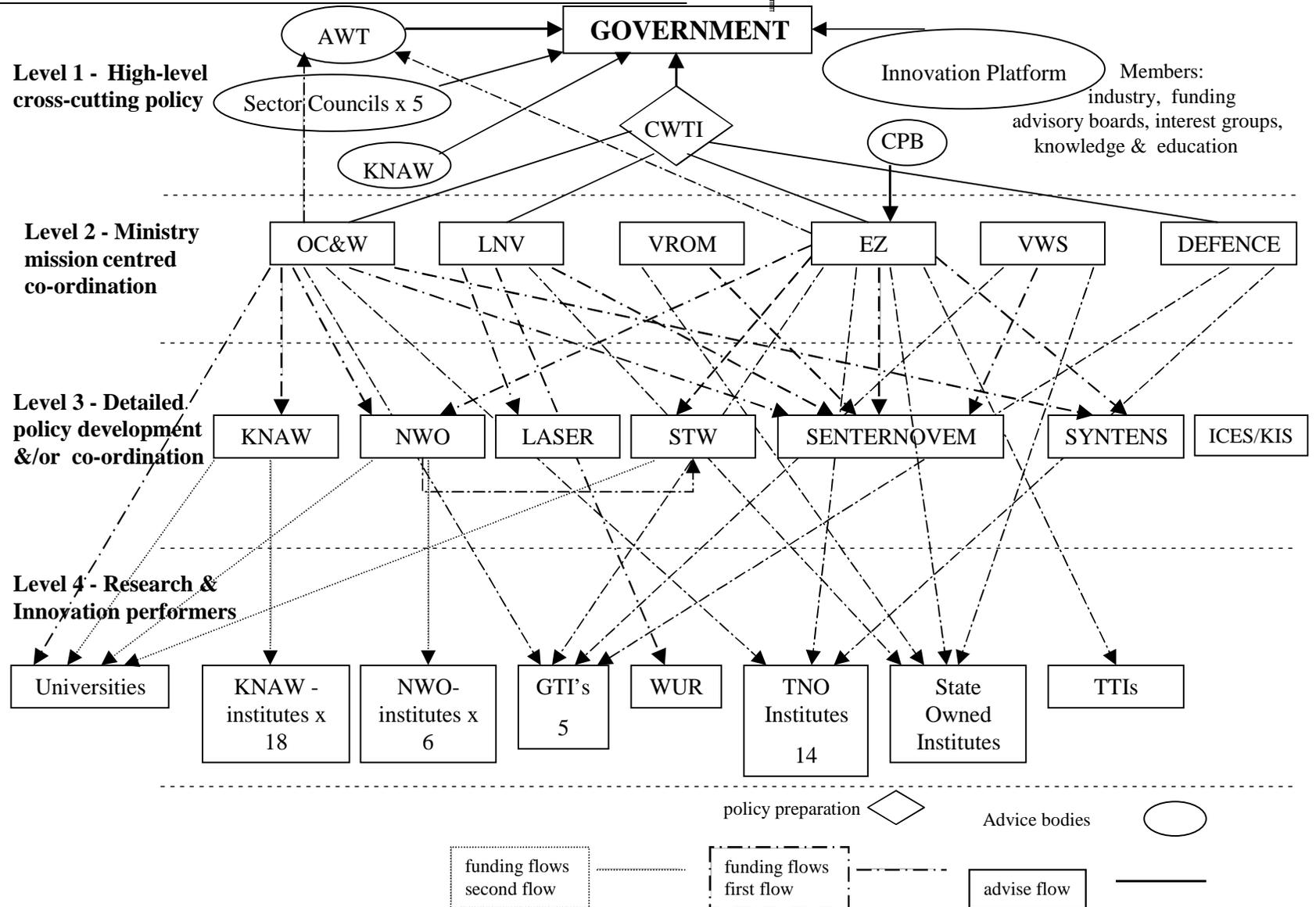
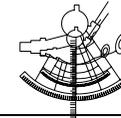
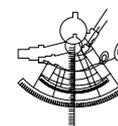


Exhibit 1 Dutch Innovation System



Within the Dutch NIS there are numerous linkages/relationships. The following presents various relationships that provide insight into the way in which the NIS elements (Levels) interact with each other. The following section will go further into detail providing a discussion of innovation policy-making and design between relevant players in the NIS.

Administrative co-ordination

In the area of innovation there is a strong steer from the Ministry of Economic Affairs, with implementation agencies (SenterNovem) mainly having administrative functions. In the area of science and research the Ministry of Education, Culture and Science has delegated responsibility for agenda setting and strategic choices to the funders and the research organisations themselves. Changes are however taking place. A good example is the merger between the implementation agency of the Ministry of Health - ZON, managing the research projects and programmes for the Ministry, with NWO's Council for Medical Research (MW), into ZonMW. This has meant that the Ministry has placed part of its management more at arms lengths. Another way in which co-operation is being supported is through the fusion of Senter and Novem (main execution agencies of the Ministry of Economic Affairs and Ministry of Science respectively) leading to more co-operation between the two with the aim to support the interaction required by the science and industry sectors to support technology application.

Vertical steering

It is important to note that in the case of research and innovation funding the co-operation of the funding recipients is essential to the funding agency's role. The way these relations are expressed via stakeholder representation in the governance of research (OC&W - NWO) and innovation (EZ-SenterNovem) funders differs dramatically.

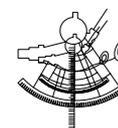
In the Netherlands, the umbrella Research Council NWO has a very small (four people) and entirely academic main board. The same is generally true of its component sub-councils. But these tend to additionally have a social advisory committee, in which industry is heavily represented together with other social actors. Stakeholders are also engaged in many of the lower-level programme boards, so NWO as a whole is unusually open to broader social influences, despite the dominance of researchers in its formal decision-making mechanisms.

In contrast to the arms-length management of R&D and research by the Ministry for Education through NWO, the Ministry for Industry is deeply engaged in policy development and programme definition, using agencies (Primarily SenterNovem) in a rather pure implementation/execution function. These innovation-focused agencies are very directly under the control of the ministries, and do not have independent boards. The exchange of knowledge with the Ministry of Economic Affairs and other clients remains a challenge and a central theme for the organisation. Some members of Senter staff, however, are appointed to act as liaison between the Ministry and the Agency. Their task is to ensure that feedback from the users (mainly companies) is reported back to the Ministry. In a recent report from the Ministry of EZ³³ a suggestion for a policy option for the improvement of innovation governance is a reconsideration of the role of execution agencies.

Public-private-partnerships

The creation of public-private-partnerships has, for some years, been the 'buzz word' that the Government introduced into the innovation arena. New types of actors that were founded on this principle were particularly organisations aimed at stimulating high-tech start-ups. The Twinning organisation was set up in the late 1990s to run a package of schemes to stimulate new ventures in the IT sector (NL_15) The Biopartner Network (NL_24) for similar tasks in the area of Life Sciences, and Dreamstart (NL_32) to function as a non-for-profit organisation to provide information and support to all other type of high-tech starters. The idea was that by placing these organisations outside the

³³ Ministry of Economic Affairs (2002) Working on Innovation Strength – End report of the working group IBI, Den Haag



Government they would have more credibility with their target groups (new entrepreneurs) and private sector actors (mostly venture capitalists), necessary to achieve the objectives.

Although performance criteria were set beforehand, it appeared that external factors³⁴ had such an influence on the performance of these organisations, that the Government had little options but to 'steer' them. Today the Twinning and Dreamstart organisations have been dissolved, and the Government is preparing a completely new high-tech starters policy, which will include some of the Biopartner Network activities. It seems that the experiment with public-private-partnership in this area is to be extended. The implementation of the high-tech start-up schemes will most likely be placed in the hands of an agency.

Negotiation with companies/other key organisations

The influence of stakeholders is strong in the science and research parts of the system, where universities have a relatively large first tier funding, and public research organisations are quite independent. In addition, committees with scientists have a strong say in second tier funding. In the innovation realm the influence of the stakeholders (mainly business) is much more indirect and informal.

In general, as the largest Dutch innovation policy instruments are generic, little stakeholder involvement is necessary to decide on the contents of the support measures. For policy instruments, which are specifically focused on a research or technology area, representatives of industry are often involved through the programme's steering committees or boards, or in the consultation phase (for instance through road mapping exercises) when new programmes are being developed. The development of initiatives for both Genomics and ICT also provide platforms where Government and industry co-operate on a sectoral level.

The employer's federation VNO-NCW³⁵ is the 'official voice' mainly of large industries and is often represented in committees and discussion platforms. The small and medium-sized companies are represented by MKB-Nederland (SME-Netherlands) although they are less active in the discussion platform on innovation and are more concerned with general framework conditions for competitiveness.

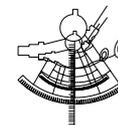
1.2.2 Innovation policy making and delivery structures

Governance in the Netherlands is split between a decentralised style in research (the sphere of the Ministry for Education) and a more hands-on style by the Ministry of Industry. The research and innovation system has grown by accretion to become very complex, with large numbers of organisations involved. While this produces a risk of lock-in, it also means there is a good measure of de facto co-ordination. An interdepartmental body (CWTI) has been set up to prepare and co-ordinate policy decisions from various ministerial departments, while an Innovation Platform has been created to develop a (integrated) vision that will give an impulse to innovation in the Netherlands, from all three spheres. There are strong national traditions of stakeholder consultation and cooperation, which may play important roles in making a rather complex governance structure successful.

The following discussion will present the current institutional set-up for designing and delivering innovation policy, with a focus on co-ordination mechanisms between the main players, and the way in which external policy advice is integrated.

³⁴ first boom and then burst of the e-business market, the collapse of stock-markets and its effects on the venture capital world, insufficient success stories in new technology based firms to attract more investors

³⁵ The Confederation of Netherlands Industry and Employers (VNO-NCW) is the largest employers' organisation in the Netherlands, with 170 (branch) associations, representing more than 115,000 enterprises covering almost all sectors of the economy, including more than 80 percent of all medium-sized companies in the Netherlands and almost all of the larger, corporate institutions.



Co-ordination

There are few influential channels for the co-ordination of policies between different ministries. Proposals from the ministries to the Cabinet are made through an interdepartmental Committee for Science, Technology and Innovation (CWTI), consisting of the highest civil servants from the ministries involved, and the involved Members of the Cabinet. This Council was installed in 2002 as a result of the Lisbon ambition – up until then it was in fact represented by three separate councils. The ministries hope that with this binding of forces innovation will become more prominent on the political agenda. Each Ministry can appoint one delegate in this organisation. A large number of ministries is involved: Agriculture, Health, Foreign Affairs, Economic Affairs, Education, Culture and Science.

After the CWTI the proposals go to the RWTI, the Council for Science, Technology and Innovation at Cabinet level. The RWTI prepares the decisions to be taken by the plenary Cabinet. Core members of the RWTI are the Minister of Education, Culture and Science, the Minister of Economic Affairs, the Minister of Government Reform and Kingdom Relations and the Minister of Finance.

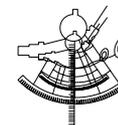
Next to this ministerial co-ordination organ there is the Innovation Platform - a high level advisory organ, aiming at a more integrated policy approach, inaugurated on 5 September 2003. Set up under the chairmanship of the current Prime Minister - Balkenende, it will draw-up plans and develop a vision that will give an impulse to innovation. The cabinet is expecting it to deliver concrete recommendations to form a basis for policy formation and execution. In addition, the expectation is that the Innovation Platform will provide a stimulus for businesses and research institutes to develop their own initiatives to strengthen the innovative ability of the Dutch economy. It has also advised the Government on how to spend EUR 185 million earmarked for knowledge and innovation (knowledge workers, high-tech starters, research, and collaboration between industry and centres of learning). Its activities are in line with the EU's Lisbon strategy to bring about economic renewal.

The Innovation Platform consists of 18 members from Government, industry and knowledge & education institutes. The members participate under their personnel title. They have been selected on the basis of their knowledge and experience and ability to generate creative ideas, formal representation having played no role. The Cabinet shall be represented by the Prime-Minister, the ministries by the ministers of Economic Affairs, and Science, Education and Culture.

Analysis and Advise in design of policy

External analysis and advice is formally organised in several bodies. Two advisory bodies – the **AWT** and the Royal Dutch Academy of Sciences and Arts (**KNAW**) are primarily providing advice to Government. The Ministry of Education Culture and Science (OCW) often consults the KNAW and the Association of Universities (VSNU) to do analyses and develop strategic information. However, these organisations have few resources to develop strategic intelligence. The Ministry of Economic Affairs mainly uses its own staff and certain strategic units to conduct analyses and develop strategic intelligence. For analyses they commission studies to either the Central Planning Office (CPB), or the Central Statistics office (which conducts the Community Innovation Survey) to do further analyses, or alternatively commission studies to external organisations such as universities, research organisations and consultancies.

For a more bottom-up interactive approach the Innovation Platform has set up a number of Consultation Groups. In an attempt to identify practical problems, barriers, irritations and or enablers that are obstacles or opportunities to the core values of the knowledge economy have been taken into account: excellence, ambition and entrepreneurship. Participants in the consultation include: students, teachers, parents, researchers, starting entrepreneurs, venture capitalists, directors of SMEs and large companies. A first round of meetings of Consultation Groups took place in March and April 2004. Every six to twelve months, the members of the Consultation Groups will meet to discuss whether they experience progress and improvements in their daily lives.



1.2.3 Regional innovation systems and policies

Regional innovation policy in the Netherlands consists mainly of financing for Regional Development Companies (ROMs). Currently four ROMs are in operation in the North (NOM), in North Brabant (BOM), in Limburg (LIOF), and one for Gelderland and Overijssel (NV East). The ROMs perform activities relating to development, investment promotion, innovation and participation, aimed at improving the regional economic climate. In 2004 the budget for the ROMs was EUR 7.3 million. Until recently this support was mainly focussed on support in the five lagging regions. The Ministry of Economic Affairs also co-ordinates the Structural Funds allocation, which allow the eligible regions to set up innovation-orientated programmes and projects. In addition a regional network of centres called Syntens (NL_22) was set up in 1998 by the Ministry of Economic Affairs to support SMEs with innovation issues.

The ROMs and Syntens are supposed to co-operate closely. In October 2001 Parliament approved a new line of policy for the ROMs for the period 2001-2004, in which a new system of governance of core activities of the ROMs between EZ and the specific regional governments was hereby approved. The new policy largely required:

- A new steering framework with the ROMs, continuing to be an instrument primarily of the regions, but with the subsidies from EZ based on the ROMs annual working plan, where arrangements are made about products to be delivered and goals are set. The ROMs will be integrated more closely within the implementation of EZ policy;
- That civil servants of EZ are no longer appointed as commissioners of a ROM;
- That the ROMs be given leeway to assume a role in the development of business parks, as the shortage thereof is becoming more of a bottleneck for attracting and expanding business activities;
- That the ROMs must co-operate more closely with Syntens

In the Government's Budget for 2003-2004, the national budget for investment support in the lagging regions was cut in the context of overall budget reductions. An evaluation of the ROMs took place in 2004 – Regional economic policy in the future³⁶, outcomes of which will have an influence on the future of regional innovation support in the Netherlands, in fact the outcomes have been used in the formation of the current Regional Policy White Paper – Peaking in the Delta.³⁷

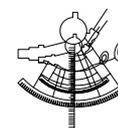
The evaluation of the ROMs reflected their relevance for the Netherlands, although due to the overlapping aims with various other organisations, their operation was critically viewed. According to the evaluation the steering of activities of the ROMs are limited due to the lack of regional focus of innovation policy by the Government. The evaluation also pointed to the overlap in policy mix, with a number of national regional instruments and generic instruments³⁸ focussed on the same themes, then on top of that the policy of the decentralised Government. According to the evaluation the connection between the executed regional economic policy, the generic policy of the government and the decentralised regional policy has a lot of room for improvement – in particular in the areas of innovation and business terrain policy.

Next to the overlap of instruments the evaluation highlights the overlap of institutes, some of which work within the same areas – these include the ROMs, Syntens, regional offices of the Ministry of

³⁶ Ministry Economic Affairs & Ministry Finance – Secretariat (2004) Regionaal economisch beleid in de toekomst - Interdepartementaal Beleidsonderzoek 2003-2004, nr. 5 (Regional economic policy in the future: Inter-departmental policy evaluation 2003-2004 nr 5), Den Haag

³⁷ Ministry Economic Affairs (2004) Pieken in de Delta – Gebiedsgerichte Economische Perspectieve, Den Haag

³⁸ Examples include - Economic pillar of the GBS, Compass North, EU programmes



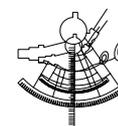
Economic Affairs and the Chamber of Commerce. By streamlining and joining these services, better efficiency and effectiveness could be achieved – lower execution costs and administrative loads.

Co-operation at the regional level has also been critically reviewed. In 1999 the Ministry of Economic Affairs, the Ministry of Transport, the Association of Dutch local Government and the Provinces set up a covenant for co-operation in the regions (Convenant Samenwerking in de Regio), focussed on business terrain, innovation and market functioning. The 2003 evaluation reported an increase in co-operation, but highlighted that it is hindered by the lack of co-operation between departments, IPO, and the local government association.

The Regional White Paper stresses the importance of dealing with regional bottlenecks and making the most of regional opportunities for the growth of the national economy. Regional policy, which has for some time been more focussed on supporting the lagging regions, has in this White Paper been extended to the support of economic growth in all regions through the utilisation of regional strengths. The national economic priorities set out in the White Paper are in fact the 'peaks' which form the basis of future international competitive strength. These include: Internationally competitive main-ports, Economic core areas, Top business terrain, Priority for good quality transport connections, Regionally focussed innovation policies (examples include a brain port for Eindhoven/South-east Brabant as part of the top technology triangle Eindhoven-Leuven-Aken), and City economies and tourism.

In the Regional evaluation seven policy options were presented – the White Paper presents the Cabinet's response to these, reflecting the direction regional policy will (might) take in the future. Some highlights are:

- The Cabinet aims to work with one regional budget to reduce identified bottlenecks that stand in the way of economic development chances in the regions by 2006. This may lead to a streamlining of instruments.
- The Cabinet will continue to support the lagging regions until 2006 through the 'Compass North' programme, after this time regional economic policy will aim at stimulating growth in all regions. It will also continue the investment premium measure until 2006, after which an evaluation of the aims, effectiveness, and its position in the policy competition with other member states will help support the decision of its future.
- The Cabinet will aim to streamline financial instruments as much as possible.
- The Cabinet acknowledges the wish for a streamlining of economic organisations in the regions and will work on a number of options. The Cabinet will further report to the Parliament on this matter.
- The Cabinet acknowledges that current generic government policy - for mobility of labour and businesses - has a less than optimal effect on regional wellbeing. The Cabinet will analyse parts of the generic policy to see what the influence on the allocation of space and production has been.
- The Cabinet acknowledges the need for good policy evaluation. For the structure funds programmes there is already an extensive structure set-up, with a lot of attention for net effects. It underlies the use of the regulation – Performance and Evaluation National-government (RPE), and will take into consideration the suggestions to bring in researchers in the setting up future evaluations.



2. Innovation policy in the Netherlands

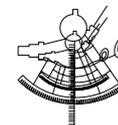
2.1 Innovation policy framework

Table 3 Main policy documents since 2000

Title of document	Date	Organisation responsible	Legal status	Comments (Budget set-aside, new measures, etc.)
Industry White paper	To be published autumn 2004	Ministry Economic Affairs	White Paper	
Peaking in the Delta – Regional Economic Perspectives	July 2004	Ministry of Economic Affairs	White Paper	
Competing with ICT Competences: direction and efficiency in the ICT knowledge chain	May 2004	Ministry of Economic Affairs and Ministry of Science	Action plan	
Action Plan life Sciences - Using opportunities, removing bottlenecks	March 2004	Ministry of Economic Affairs and Ministry of Education, Culture and Science.	Action plan	
Action programme: TechnoPartner	January 2004	Ministry of Economic Affairs	Action plan	A set of (cohesive) measures for technology start-ups
In Action for Entrepreneurship	December 2003	Ministry of Economic Affairs	White Paper	
Δ-plan β/technique: Action plan for the approach to the shortage of βeta's en technicians	December 2003	Ministries of Economic Affairs, Science, and Social Affairs & Employment.	Action plan	
In action for innovation: Tackling the Lisbon Ambition	October 2003	Ministry Economic Affairs	White Paper	
Co-operation & streamlining: Options for effective innovation policy (IBO)	May 2002	Ministry of Economic Affairs	Assessment and Strategy paper	
Action plan 'Competing with ICT Competencies'	2000	Ministry of Economic Affairs and Ministry of Education, Culture and Science.	Action plan	

In political terms the period September 2003 – August 2004 was one of settling down in the political arena after a fairly turbulent period. After the resignation of the newly elected government (3 months in office) at the end of 2002, new elections were held in January 2003 – leading to another shift in the party coalition of parliament. After three months of negotiations, a new government coalition (Balkenende II) was formed, introducing several new Ministers, including a new Minister for Economic Affairs responsible, among others, for innovation policy.

The instatement of the new government led to a very busy period in terms of developing new policy—until this time there had been very little activity due to both the long period of instability and to new ministers taking up their seats. The new Innovation White Paper was developed and published in October 2003. Associated instruments initiated during this period have been designed in parallel with the ideas set out in the White Paper on Innovation.



The new Government, in place since May 2003, announced severe cuts in public spending which took their toll on all policy domains. Nevertheless, at the same time the Government invested in science and technology seriously. A statement by the Government³⁹ announced that education and research, or more generally the 'knowledge economy' would be exempt from budget cuts, and would in fact receive even more funding. It emphasised that knowledge and R&D are the key to the economic recovery of the country. An additional EUR 800 million has been allocated to 'education and knowledge' of which EUR 515 million will be invested in the (higher) education sector. The remainder (EUR 285 million) will be allocated to research and innovation policy. The fiscal measure WBSO (NL 5) is the one innovation policy instrument to receive additional funding of EUR 100 million, bringing total funding for the measure up to well over EUR 400 million.

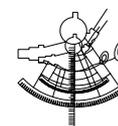
One important decision of the new Government was to launch an Innovation Platform (see previous section) to draw-up plans and develop a vision that will give an impulse to innovation in the Netherlands, aiming at a more integrated policy approach. The Innovation Platform foresees three types of intervention⁴⁰, firstly, to come up with a number of possibilities for a system overhaul – possible ideas that the Innovation Platform should test are; financing of university on the basis of the exploitation of knowledge, towards a more labour-orientated vocational education system and reorganisation of the innovation system to a modern standard of governance. Secondly, the Innovation Platform should invite the various key-players in the system to help define the ten top obstacles to innovation, and in turn take action on these points. Some points already highlighted in the work plan include; pre-seed facilities for starters, up-or-out system for university personnel, development of a voucher system for demand-based SMEs, introduction of a SBIR type measure such as in the USA, lack of standard rules for patents for universities, expatriate rules etc. The final task of the Innovation Platform is to design pilots – in which ideas for re-organisation of the innovation system can be tested. Suggestions include the development of a regional/city approach for the knowledge economy, scouting in universities for exploitable knowledge etc.

The Innovation Platform started its activities in September 2003. Since then, four working groups have been set up, each headed by a member of the Innovation Platform. New working groups will be established when the Innovation Platform requests them to be. In addition to working groups, the Innovation Platform also initiates different kinds of projects. In March and April 2004, for example, the Innovation Platform ran a number of Consultation Groups to identify practical barriers that stand in the way of excellence, ambition and entrepreneurship. As of June 2004, the following working groups (projects) have been running, each delivering various outputs:

- **Dynamics of the Dutch Innovation System** - The working group Dynamics of the Dutch Innovation System will explore possibilities for improving the working of the Innovation system by bringing demand and supply closer together. The working group is headed by Herman Wijffels, Chairman of the Social and Economic Council of the Netherlands (SER). In February 2004, the group presented a proposition to the ministers of EZ and OC&W to start an experiment on the exchange of researchers between public and private research institutes. This is now being discussed in the Cabinet. The group has also published advise on a virtual technical university and on the ICT Research and Innovation Authority, (see section below)
- **Long-term Choices** - The Innovation Platform believes that much of the Dutch innovation strength is left unused, the Innovation Platform therefore developed the 'key-area-approach' to locate strong areas in the Netherlands. The Innovation Platform invites companies, knowledge institutions and (local) governments to present themselves as a key-area and describe proposals and actions that can stimulate innovation and economic growth in their sector.
- **Moving up in higher education** - A continuous flow of students in vocational education moving up to universities is important to produce a broad base of highly educated people. A working group chaired by Frans Leijnse, Chairman of the Association of Universities of Professional

³⁹ Hoofdlijnenakkoord voor het kabinet CDA, VVD, D66 - 16 May 2003.

⁴⁰ Innovatieplatform (Februari 2004) Innovatieplatform – Werkprogramma 1ste Helft 2004, Den Haag.



Education (HBO-raad), will develop a plan to stimulate the dynamics in the Dutch education system.

- **Innovation in Public Governance** – to look at the role of Government as catalyst for innovation in society, with special attention for the management of the innovation agenda in the public sector, Government as a requestor for knowledge (research), and Government as client in the knowledge economy. Up until June 2004 there has been no advice published.

Completed themes/advice:

- **International Knowledge Workers** – this project delivered a proposal to the Cabinet⁴¹, which has been incorporated into the Action plan Beta and Technique (see following section), a number of the platform's suggestions have been made concrete – the 'one lock and one form' approach, and knowledge workers visa – see section 3.1.2 for further information about this topic.

At the beginning of this reporting period (16 September 2004), the Government presented its new Budget for 2004. From a situation where innovation and research was completely absent from the policy agenda (the Balkenende I Government), the current Government has made a U-turn by stating its ambition to become 'one of the best knowledge economies of the world'. For Innovation Policy the following aspects are interesting to note:

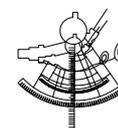
- For the Ministry of Economic Affairs (EZ) the three policy priorities are 1) the knowledge economy and innovation, 2) competition and dynamism and 3) room for entrepreneurship.
- EZ will make better choices for strategic research areas and R&D co-operation with countries with market opportunities. There will be a cut in the budgets (20 percent) for space research.
- There will be more focus on the international dimension of R&D and innovation.
- Next to the EUR 515 million for education and research in the HEI sector and EUR 100 million for extending the WBSO (NL-5), the remainder will be allocated to priority themes such as human resources (knowledge workers), high-tech starters, focus and critical mass of research and collaboration between firms and research organisations.
- The high-tech starters policy will particularly address the lack of private risk capital.
- Other priorities will be transparent and accessible policy instruments, better exploitation of public knowledge, and more synergy between innovation policy and export policy.

Since then the White Paper on Innovation – 'In action for innovation', has been published (October 2003). In short this White Paper on Innovation outlines the steps the current Cabinet will take to promote the strengthening of innovation capacity in Dutch industry. Within a large number of areas the Ministry of Economic Affairs, together with the recently formed Innovation Platform, worked together to think about setting a course to become the most dynamic knowledge economy in Europe. The White Paper on Innovation is part of a broader strategy towards a sustainable knowledge economy, where both education and research play an important role. In addition the White Paper provides supplements the Cabinet's reaction to the background study – Policy foundations, co-operation and streamlining: Options for an effective innovation policy⁴². The White Paper should not be seen as a 'set in stone' policy document, but as a forward-looking agenda for innovation.

Next to the White Paper on Innovation the Ministry of Economic Affairs will deliver an Industry White Paper to Cabinet in the summer of 2004. In the beginning of 2004 a workgroup was set-up to begin with the preparation of the White Paper. The paper will contain the vision from members of the group and Cabinet as to the development in the industrial sector in the Netherlands, and provide policy implications coming from the discussions – including the role of the Government. The paper will

⁴¹ Innovatieplatform (Dec 2003) Grenzeloze Mobiliteit Kennismigranten: Hoe krijgen we het talent naar Nederland toe? (Borderless Mobility for Knowledge Migrants: How do we bring talent to the Netherlands), Den Haag

⁴² Ministry Economic Affairs (2002) The Ministry undertook a systematic study of the effects of the innovation policy and in 2002 published this report as a final synthesis of the interdepartmental policy study – Technology policy.



provide a SWOT analysis of Dutch industry, highlight which factors are necessary for strengthening competition, outline in which way Dutch (EZ) policy can support the actions i.e. innovation, entrepreneurship, regional and export policies, and provide a concrete agenda within in a number of overarching main areas for support of a modern industry policy.

During the period, the importance of Life Sciences was underlined with the publication of the Action Plan life Sciences by the Ministry of Economic Affairs⁴³. The plan provides a coherent approach to the removal of bottlenecks in this innovation area. On the one hand it focuses on general areas such as business climate, infrastructure, and ethical aspects, and on the other on more specific conditions such as finance, starters climate, co-operation between industry and institutes, law and regulation, societal acceptance, and the international environment. The plan builds on a ministry report⁴⁴ of July 2003 in which the most important players and conditions in the innovation system were described, as well as the most important developments and bottlenecks.

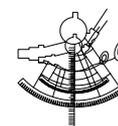
Over the Trend Chart period of July 2000 to August 2004 policy priorities have not shifted. Two subjects that have remained top priority are '*Strengthening research carried out by companies*' and '*Intensified co-operation between research, universities and companies*'. Although over time '*Start-up of technology-based companies*', '*Protection of intellectual and industrial property*', and '*Education & further training and Mobility of knowledge workers*' have gained more attention in policy debates and implementation. Shortages in the labour market for technical staff, scientists and engineers, remains a problem, and a lot of attention is being given to this area, including a recently published action plan for knowledge and technical workers.

Recently the simplification and reduction of regulation has become high on the political agenda, but not as a specific innovation-related issue, but rather to encourage overall business growth. The policy philosophy has evolved over the years and is strongly based on the concept of Dynamic Innovation Systems, and building a policy portfolio around the bottlenecks and challenges presented in the system. Some key aspects of this philosophy are improving the interaction between R&D actors in the system, improving the exploitation of knowledge, and streamlining policy instruments. The approach to this subject has become more systematically embedded in the overall policy approach. The Government Agreement announced that efforts should be targeted to a number of strategic areas such as IT and biotechnology. The IBO exercise has prompted a streamlining of instruments, leading to a reduction in the number of instruments as well as a more systematic categorisation into types of measures. We can now distinguish between:

- Basic/strategic research conducted in organisations such as TNO, the Large Technological Institutes, the Technological Top Institutes (NL 19).
- Instruments with a long-term programmatic character with multi-annual research plans.
- Instruments supporting collaborative RTD projects (often with specific tasks and limited in time).
- Large scale integrated activities and programmes such as a package of measures on the topic of genomics, using several existing instruments to focus on one strategic technology area.
- A fiscal instrument (WBSO (NL 5) to support R&D efforts in individual firms.

⁴³ Ministry Economic Affairs (March 2004) Actieplan Life Sciences – Using opportunities, removing bottlenecks (Kansen grijpen, knelpunten aanpakken), Den Haag.

⁴⁴ Ministry Economic Affairs (July 2003) Life Sciences : A Pillar of the Dutch Knowledge Economy, Facts and Figures, an analysis of the innovation system



2.2 Policy events & policy debates

As described in section 2.1, innovation policy in the Netherlands has received renewed interest since the formation of the new Government (Balkenende II) in the Spring of 2003, which prioritised education and the 'knowledge economy', and which led to the instatement of the Innovation Platform in November of the same year. This renewed interest in the importance of innovation policy has resulted in a lot of activity during the period under review, in particular with studies, advice, evaluations and debate being carried out.

Reflecting the priority areas of the 2004 budget (knowledge economy & innovation, competition & dynamism, and room for entrepreneurship) and the strategic foundations of the new innovation strategy⁴⁵ (strengthening of the innovation climate, dynamics through more innovative businesses, and the optimisation of innovation opportunities) the period under review has seen numerous debates, requests for advice, evaluations etc., and an environment where Dutch innovation policy has been hotly debated. The following highlight some of the most crucial of these.

1. Innovation Paradox

In the Netherlands, as in many European countries, there is a gap between fundamental-strategic research and the application of the results by government, industry and societal organisations. This innovation paradox remains in spite of specific responsibilities of the intermediate organisations for bridging the gap between research and knowledge application. This problem requires a critical look at the functioning of the bridging function in general and especially this function within organisation such as TNO and the GTIs – which have, as part of their strategy, a role to play.

Following the integral assessment of innovation policy (IBO)⁴⁶ which looked at all the instruments and programmes for innovation run by the various ministries, a debate about the complexity and effectiveness of the Dutch innovation system entered the policy arena. The aim of the IBO assessment was to investigate the rationale, effectiveness and coherence of the direct and indirect instruments of firm-orientated innovation policy and formulate recommendations for improvement. One element of the innovation system was particularly criticised: the multitude of public research organisations and the lack of accountability for these institutes.

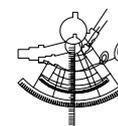
As far back as 2002 the Cabinet established that an evaluation of the role of TNO and the GTIs in relation to the innovation process was desirable. There was also talk of evaluation as to the extent to which the GTIs have implemented (Cabinet defined) measures in their system regarding the clarification of their administrative relations. The importance in the bridging function for TNO and the GTIs between fundamental strategic research on one hand and the practical application of knowledge in industry on the other was an important area in the Cabinets position⁴⁷, and as early as December 2002 the Advisory Council for S&T Policy (AWT) had, as a request from OC&W, made suggestions as to how to approach such an evaluation.

In 2003 the Cabinet, with this as background, asked TNO and the GTIs to undertake a self-evaluation. In the same year the Minister of OC&W established the ad-hoc commission – 'Bridging function TNO and GTIs' to give an independent opinion on the self-evaluation reports. The commission was asked to judge the changes in the context of TNO and the GTIs with regards to their influence and performance in the bridging function. In addition the commission was asked to provide recommendations on stimulating demand/ expression of demand by industry, production, circulation and the use of knowledge from both scientific and applied research. The commission also undertook,

⁴⁵ Ministry of Economic Affairs (October 2003) In Action for Innovation, tackling the Lisbon Ambition

⁴⁶ *Samenwerken en stroomlijnen: Opties voor een effectief innovatiebeleid*, May 2002. See for a discussion M. Lankhuizen, Trend Chart Country Report The Netherlands, Covering the period October 2001- September 2002.

⁴⁷ Set out in the cabinets position regarding the report Interdepartmental Study on Technology Policy and TNOs strategic plan 2003-2006.



as part of the study, its own research focussed on the finance and knowledge flows in the Netherlands knowledge infrastructure, on the way in which the problem is tackled in other countries, and the opinions and needs of the current and future functioning of TNO and the GTIs. The results of the commission were tested various times during the project with the parties under the self-evaluation.

The resulting report 'De kracht van directe verbindingen' (The Strength of Direct Connections) was presented to the Cabinet by the Minister of OC&W in early May 2004⁴⁸. The report gives a number of recommendations focussed on strengthening the role that TNO and the GTIs can play in the development of the innovation strength of the Netherlands. The core of this report is that there needs to be a direct link established between the knowledge demand of both Government and industry and the knowledge supply found within TNO and the GTIs – important is that demand plays the central role. The commission outlines in the report that the Government needs to develop a strategic vision for the role of the institutes, and in addition the concerns surrounding steering of demand need to receive a large impulse from the Government. This impulse, according to the commission, should principally be focussed on the so-called applied knowledge institutes. Furthermore, these institutes should play a more important role in the entire Dutch innovation system, through an increased co-operation with the universities and other knowledge institutes and the requesting parties. The role of the institutes is, according to the commission, of great importance for reinforcing the innovation strength of both business and government.

This theme of co-operation has also been the subject of various public debates and was the central theme of the work conference – 'Innovation networks in the Netherlands', organised by Senter and Min EZ. During the conference 70 decision makers from universities, research institutes, SMEs and Government discussed improvements needed in co-operation, one point was clear during the discussions – to make the necessary step forward a coherent and collective vision and strategy are crucial⁴⁹. The conference discussed various themes including choices for research areas of universities, subsidy policy, international vs. national innovation networks, matching, innovation and co-operation within SMEs and large companies, and university knowledge outputs.

2. Beta and Technical Education

For the development of technology and innovation the Netherlands needs much more science and engineering workers. From the EUR 700 million promised in the coalition agreement for higher-level research and the transfer of knowledge between science and industry, EUR 185 million is to be spent on, among others, the promotion of beta and technical education. This extra investment is not only aimed at higher education, but also at preparatory university and vocational education at high-school level (voorbereidend and middlebaar beroeps onderwijs). The Cabinet wants to see a better connection between trade/profession education and industry, and a stimulation of students continuing along the education path to graduate with high level degrees in their chosen field.

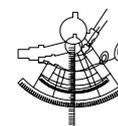
The importance of this is reflected in the choice of 'Moving up in higher education' (Doorstroming beroepskolom) as one of the five project areas of the new Innovation Platform. According to the group an optimally working knowledge economy needs a broad top-level, which can be promoted through the movement of students from lower to higher professional education (VMBO-MBO-HBO). The workgroup published its Plan of Approach in November 2003⁵⁰ and its first progress report in April 2004⁵¹. The core of the work for the group will focus on taking on the challenges of the theme and the realisation of the presented aims. As set out in the progress report their advice will focus on:

⁴⁸ De Kracht van directe verbindingen (may 2004) Ad Hoc Commissie 'Brugfunctie TNO en GTIs', Den Haag, Nederland

⁴⁹ Senter (2003) Innovatienetwerken in Nederland: De weg naar een structurele samenwerking tussen bedrijven, universiteiten, Kenmerk DCM0305180 see www.senter.nl

⁵⁰ Innovation Platform Frans Leijnse (November 2003) Startnotitie 'Vernieuwing beroepsonderwijs' Versie: tweede concept

⁵¹ Innovation Platform - Frans Leijnse, Jan Willem Vos en Jurgen Geelhoed (April 2004) Voortgangsrapportage Werkgroep Dynamisering Beroepskolom



- Renewal in education, focussing on learning from experience and integrating individual competences.
- Strengthening of exchange between the professional world with teachers, management and staff.
- Creation of room for 'scaling-down' in education.
- Improvement of social and communication skills of teachers and students/participants in the education institutes.
- Professionalisation of management in profession-education.

In the period under review the Ministries of SWZ, EZ and OCW, next to an analysis of the shortage of knowledge workers, presented a framework for an integral approach to reconciling the problem. With this plan - Δ -Plan β /Techniek Action plan for an approach to the lack of β 's and technicians December 2003 (Δ -plan β /techniek actieplan voor de aanpak van tekorten aan β 's en technici) a set of actions for tackling the shortage in the coming years is presented. The approach is made up of four coherent main areas: Attractive education, Attractive jobs, Attractive choices, and Attractive places for company establishment. Policy initiatives have been developed in the areas of Attractive choices and Attractive places for companies, including mobility of researchers between private and public institutions, and in the international migration of knowledge workers. Both these initiatives have been developed following advice presented by the Innovation Platform.

An elaboration of the plan will take place between the years 2005 – 2007, in any case over a lengthy period to allow for the anchoring of successful renewal in the policy of Government and institutes. In the short term a number of actions should be set in motion. In 2004 the Government will make available EUR 6 million⁵², and for the following years a maximum total of EUR 60 million will be reserved up until 2007.

In addition the period under review saw the tasks of the Axis Platform for Science and Technology in the Netherlands (NL25)⁵³ transferred to the newly formed Platform Science and Technology. In short the goal of the platform was to interest more young people in choosing educational paths in science or technical studies and stimulate them to pursue a career in technology. Over 70 individual projects have been initiated in the past few years. Among those also broader programmes, such as: Redesign of higher professional education, Redesign of intermediate vocational training, Redesign of vocational training, Integrating technology in primary schools, and development of the Jet-Net activity. Jet-Net is a good example of industry reaction to the stimulation of science in the classroom. In 2002, the five biggest multinational companies with headquarters in the Netherlands joined forces with a number of governmental departments and other organizations to set up a project designed to boost the number of higher education students signing up for chemical and technical courses. Along with Akzo Nobel, the scheme was initiated by DSM, Philips, Shell and Unilever, together with the Dutch Ministries of Education, Culture and Science and Economic Affairs. In February 2004, TNO also became a member and will take part in the project for at least 4 years.

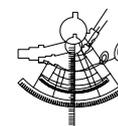
3. More investment and interest in ICT

The period under review has seen a growing interest in the support of ICT research for the Netherlands with the Cabinet setting up an Authority for ICT-Research and Innovation – introduced in the recently published government-wide ICT agenda⁵⁴, and part of both current innovation (Innovation White Paper) and science (OC&W budget 2004) policy. Next to this the Cabinet has endorsed the

⁵² A-Plan β /Techniek Action plan for an approach to the lack of β 's and technicians December 2003

⁵³ Axis was given the task of developing a structural and unorthodox approach over a period of five years (1999-2004). It was founded by representatives of the business community, the education sector and the government.

⁵⁴ Februari 2004 Rijksbrede ICT-agenda (26 643, nr. 47)



action plan – Competing with ICT Competences: Direction and efficiency in the ICT knowledge network⁵⁵, which outlines the policy context in which the Authority shall operate.

The Action Plan Competing with ICT Competences was published in May 2004 and sent to Parliament by the Minister of Economic Affairs and the Minister of Education, Culture and Science. The action plan was accompanied by a decision by the Dutch Cabinet to establish an ICT Research and Innovation Authority. This authority is a central steering and co-ordinating organisation, the task of which is to strengthen and focus research in ICT and to ensure that ICT research is better utilised for the development of concrete new ICT products. The establishment of the ICT Research and Innovation Authority is a core element in the Action Plan Competing with ICT Competences.

The action plan consists of the following four lines of action:

- Strengthening and focusing ICT research. The ICT Research and Innovation Authority will formulate a strategic agenda for ICT research in the Netherlands and will ensure a structural strengthening of strategic concentrations of ICT research at universities and research institutes.
- Speeding up innovation in the field of ICT by increasing the utilisation of ICT research in new ICT products. This involves improving the interaction between public knowledge institutes and business enterprises and the valorisation of the results of ICT research. The ICT Research and Innovation Authority has been assigned a specific task with respect to the valorisation of research results. Furthermore, the TechnoPartner programme will be utilised for the promotion of spin-offs from public knowledge institutes.
- Stimulation of ICT applications in SMEs. This line of action is aimed at a wider use of (new) ICT applications in SMEs. This will be promoted by informative activities (seminars, workshops and individual advices), in which (new) advanced ICT products will be brought to the attention of SMEs by intermediary organisations.
- Strengthening the international position of the Netherlands in the field of ICT research. This action line involves, among other things, the stimulation of Dutch participation in international programmes such as Information Society Technologies (IST) and Eureka.

4. Improvement of investment climate (vestigingsklimaat)

According to the European Investment monitor⁵⁶ the position of the Netherlands as an investment destination has worsened – with the amount of foreign investors decreasing. In addition the Attractiveness Survey highlights that the Netherlands have some trouble in attracting foreign businesses.⁵⁷ This pattern has not gone unnoticed by industry. In June 2004 the six largest multinationals in the Netherlands joined forces to petition the premier (Balkenende) to take action and provide a number of recommendations on which they believe this needs to be based.

These multinationals (Philips, Unilever, Shell, Akzo Nobel, ING and Schiphol) distinguish ten factors that influence the investment climate in the Netherlands, ranging from quality of infrastructure to the fiscal climate. According to the six the knowledge infrastructure is one of these factors in which improvement can be made. The intention according to Rein Willems (Shell)⁵⁸ was to present execution able ideas. He admits that some ideas aren't new – but that the objective was to provide an overview of suggestions for the short term, with propositions aimed at government, society and industry.

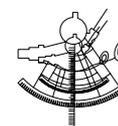
The group presents a large number of potential ideas, with the underlying motto – Kennis, Kunde, Kassa (Knowledge / Skills / Profit). Suggestions range from the opportunity to combine a research career with continuing academic employment, and for financial support from business for beta studies

⁵⁵ Min EZ & Min OC&W (Mei 2004) Actieplan - Concurreren met ICT-Competenties: Regie en rendement in de ICT-kennisketen, Den Haag.

⁵⁶ Ernst & Young (2004) European Investment Monitor

⁵⁷ Ernst & Young (2004) European Attractiveness Survey.

⁵⁸ Volkskrant June 7 2004



in exchange for graduates, to the introduction of knowledge vouchers for businesses, and an increased use of business, alongside TNO and the GTIs, for (Government) research questions. Suggestions were also made in relation to the support of starters - an increase in the budget for the Technopartner measure (NL_43), and the increased use of starters by the Government and business in general. For support of technology stimulation the suggestion was for the removal of the ceiling for the WBSO measure (NL5). There was also a focus on the current system for patent protection and its negative influence on the investment climate – with better protection needed to improve the Dutch image problem. The list goes on. There has until now been no reaction from the Government to the paper, although a number of the issues are being tackled in recent policy actions/documents.

5. Advice requested on Dutch innovation in the reporting period

In the period under review there have been many new policy advice documents. One perhaps worth mentioning is the latest AWT advice – Time to Reap⁵⁹, requested by the Thematic Commission of the Parliament on Technology Policy, with the aim of attaining more insight into the bottlenecks of innovation policy in the entire chain, from knowledge development to innovation. Furthermore, the group wanted insight into the possible roles that Government could play in solving the various problems. The resulting advice was a summary of the most important conclusions contained in previous AWT studies and advice. Included in the synthesis is an overview of the strengths and weaknesses of the current innovation system and policy.

The most important message to come out of the advice is that Dutch businesses need to devote much more energy to innovation if they want to survive in the international playing field, while the Government needs to strengthen its support for these strategies. The advice underlines that the Netherlands needs to accelerate its actions. They highlight an underutilised innovation potential, the Netherlands having excellent research, an educated workforce, a large patent portfolio, high levels of R&D activity, and an attractive climate in which to work, live and do business – basically it is time to reap the benefits, and not allow other countries to get ahead.

Alongside the strong policy points set out in the advice (strong focus of various parties in the innovation system and adequate reaction on bottlenecks) the advice proposes four points where changes need to be made to strengthen the Dutch position in the dynamic international playing field. These are:

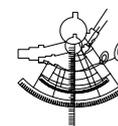
- More attention needed for knowledge utilisation.
- Turn around the decrease in investment (Ensuring a broad, lasting basis through adequate investment) – principally through education and research.
- More focus on strengths in innovation and entrepreneurship policy – Government must focus support for a number of networks of knowledge institutes and businesses, which have a potential to become international centres of excellence.
- More attention must be paid to design and management – not just a focus on technical obstacles, but on non-technical aspects of innovation too.
- A more active Government.

These adjustments, according to the advice, mean that the Government must more actively take up a position. It needs to deliver custom-made solutions and anticipate various needs, develop quick and concrete ideas to remove bottlenecks and help business realise their opportunities, and when they play the role of client or customer they need to provoke innovation in their suppliers.

The Employers Federation (VNO-NCW) has continued to express its concerns about the state of the Dutch innovation system. In February of 2003 it presented a plan for Knowledge and innovation.⁶⁰ In the current reporting period it expanded its recommendations for two of the six areas covered in the

⁵⁹ AWT (2004) Advise 59: Tijd om te oogsten! (Time to Reap!)

⁶⁰ VNO-NCW (2003) Towards a Delta plan for knowledge and innovation: Pillar for the growth-agenda in the Netherlands



plan – specifically aimed at innovation promotion in SMEs.⁶¹ One of the public/external actions of the Employers Federations was to form an alliance with the universities (represented by VSNU), the Academy (KNAW), TNO, and the Research Council (NWO) to voice its concerns. What followed was a joint Manifest in 2001, arguing for larger public R&D investment. In February of 2003, this alliance produced an action plan for a knowledge strategy for 2010.⁶² This plan focuses primarily at strengthening of the knowledge infrastructure and the co-operation of this infrastructure with industry and other societal sectors.

2.3 Key developments in innovation policy measures

In the period September 2003 - August 2004 a number of new measures were introduced. The main action was the amalgamation/streamlining of a number of existing measures into an overall programme to provide support for co-operation in innovation programmes. The new measure Innovation subsidy collaboration projects (Innovatiesubsidie Samenwerkingsprojecten) has the aim of stimulating co-operation between businesses and between businesses and knowledge institutes and will replace Technological development projects (NL_34) Technological Co-operation (NL_37) and E.E.T. (NL_13). In the new measure businesses are able to present proposals four times a year, partners within a projects can come from both the national and international arena. For this purpose 44 countries have been selected. The budget for 2004 for R&D projects under this new measure is circa EUR 100 million for tenders. Next to this EUR four million has been reserved for feasibility studies.

In April 2002 the approach adopted in Twinning - ICT (NL_15) and Biopartner – Life Sciences (NL_24) was extended to develop a new Technostarters scheme (NL_39) to support starters outside the two existing measures. The Technostarter (SIT) scheme aimed to improve the orientation of knowledge institutes towards knowledge transfer and exploitation, by encouraging them to offer technostarters good infrastructure and support, in particular adequate accommodation, accessible equipment, and provision of support and coaching services. However, due to disappointing results the Ministry of Economic Affairs decided to adjust the subsidy scheme. This adjustment was put into a broader perspective to minimise the overlap of different instruments on technology-based start-ups and to strengthen starters. The outcome of this operation is an integral policy on technology-based start-ups published by the Ministry of Economic Affairs in the beginning of 2004 called TechnoPartner⁶³(NL_43), which includes three operational actions and a plan for institutional improvement for technostarters.

A number of measures have seen some changes in this reporting period. As of January 2004 – the Stigon measure (NL_42) was incorporated into the Biopartner (NL_24) specifically in the form of BioPartner First Stage Grant under the name FSG/STIGON. In addition, the tasks of the AXIS foundation have been transferred to the new Platform Technology/Science – although the web-based platform continues to run under the Axis name.

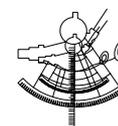
There has also been much debate about innovation subsidies in the Cabinet in the Netherlands in the period under review. With a number of parties petitioning for the continued decrease in the number of innovation subsidies available in the Netherlands, the saved funding to be put into tax deduction schemes. This argument is based on the argument that tax schemes are easier to use than subsidies for business, and that they in fact are cheaper to administer. However, the Minister of Economic Affairs, Minister Brinkhorst, is against this reduction.⁶⁴ Brinkhorst pointed out that three quarters of the specific research subsidies that the Ministry gives out and are executed by Senter are successful –

⁶¹ VNO-NCW (2004) Innovation promotion SMEs, Den Haag

⁶² Manifest party (VNO-NCW, KNAW, NWO, TNO, VSNU) February 2003: Knowledge, Knowledge, Knowledge – Knowledge Strategy 2010 Action Plan

⁶³ Ministry Economic Affairs (January 2004) Actionplan TechnoPartner: From knowledge to prosperity.

⁶⁴ EZ Nieuwsberichten, June 2004 and NRCHandelsblad 23 June 2004

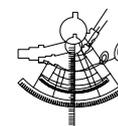


leading to new knowledge and production. Dutch businesses are innovating in both national and international projects that in turn add to economic development. With support from Senter some 14,000 businesses undertook an innovative project in 2003.⁶⁵ According to Brinkhorst, the subsidies are required to stimulate innovative businesses through support of projects based on economic strengths in specific domains, and to support excellence. Brinkhorst, in his various public statements, supports the mix of generic fiscal instruments and more specific subsidy measures, expressing his opinion that this mix works well.

Table 4: New and revised Innovation Policy measures over last 12 months

N°	Title	Action plan category addressed	Degree of novelty	Agency administering
44	Innovation subsidy collaboration projects	III.4 III.2 II.5	This new measure takes the place of the technological co-operation measure (NL_37) E.E.T. (NL_13) Technical Development projects (NL_34)	SenterNovem
43	Technopartner	III.3	Replacing Dreamstart (NL_32) and Technostarters (NL_39). At the end of 2004 Biopartner support (NL_24) will also be placed within the new package of measures	SenterNovem
25	Axis Foundation	I.1	Tasks to be taken over by the platform Science/ Technology, although the platform AXIS still exists	Axis foundation
42	STIGON	III.3	Stigon to be amalgamated with Biopartner (NL_24)	Biopartner platform

⁶⁵ Senter (2004) Jaarverslag, Den Haag.



3. Implementing innovation policy in the Netherlands

3.1 Fostering an innovation culture

In the years that we have been reporting on innovation policy for the Trend Chart, Fostering an Innovation Culture has mainly focused on supporting clustering and supporting further education (lifelong learning). The explicit cluster policies initiated in the late 1990s have slowly been replaced by a more mainstream networking approach in traditional R&D instruments, and a policy concept based on 'dynamic innovation systems'. In general a larger share of R&D instruments are targeted to networks of firms and firms with knowledge institutes instead of individual companies, thus networking has become an integral part of supporting R&D. Co-operation for innovation at a sectoral level is an area in which Dutch Government is paying increasing attention, the clearest example of activity being the emergence of life sciences and ICT initiatives – where government, research and industry have joined together to develop policy and associated activities.

Fostering an innovation culture among non-innovators, or among the general public has for the most not been a major policy priority. However, there has been initiatives to foster the take up of scientific studies by students through the Axis Foundation, and the promotion of Entrepreneurship in schools (Education and Entrepreneurship). Recently the good practice experiences of this measure have been collated and in an attempt to embed entrepreneurship in the classroom and have been made available in an on-line platform.

One of the main problems signalled in the Netherlands is the quantitative shortage of science and technology graduates/workers. In the period under review the Ministries of SWZ, EZ and OCW, next to an analysis of the shortage of knowledge workers, presented a framework for an integral approach to reconciling the problem – 'Δ-Plan β/Technique Action plan for an approach to the lack of bèta's and technicians (December 2003)'. Bottlenecks for mobility of knowledge workers have also been signalled as a problematic area, this also has been met with actions to support international researchers. The importance given to finding solutions for these problems is reflected in the appointing of a dedicated workgroup within the Innovation Platform on this matter, and the setting up of a new independent foundation – Platform Bèta/Techniek, with members from both academia and industry.

With regards to stimulating innovation in businesses the existing SME-account (MKBalans)⁶⁶ instrument, developed by the Ministry of Economic, aims to reduce the information asymmetry between the financier and the entrepreneur and give insight in ways to improve the business policy. The tool provides insight into the business, a comparison with businesses in the same branch/sector, and advice. In the period under review a pilot 'digital advisor' has been designed - Innovatienet⁶⁷, to help entrepreneurs innovate (faster) by providing information about possibilities to renew business - from new ideas, networking, to financial and economic information. The period under review has also seen the publication of an Entrepreneurship White Paper 'In action for entrepreneurs'⁶⁸ where a large number of actions to remove the bottlenecks for businesses are presented.

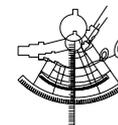
3.1.1. Education and initial and further training.

In the knowledge-driven economy, 'lifelong learning' is critical for innovation. Lifelong learning is a typical multi-stakeholder issue influenced by a large number of different but inter-linked policies. The 'Scholingsimpuls' and the 'Scholingsfaciliteit' were the two government actions in the Netherlands aimed at facilitating lifelong learning, improving the general assimilation of new technologies and remedy the shortage of skills.

⁶⁶ www.mkbalans.nl

⁶⁷ www.innovatienet.nl

⁶⁸ Staatsecretary – Gennip (8 December 2003) In actie voor ondernemers!



The 'Scholingsimpuls' (training impulse, NL 38) was introduced in 2001. The aim of the measure is to support the development of innovative training projects for employees. Additional training is aimed to answer the demand for high-skilled personnel in business. The innovative training projects must match the needs of business and industry more closely than the regular supply. Key words in this subsidy scheme are: assessment of acquired skills, flexible training made 'to measure', training on the job, and formal recognition of learning in informal processes. The target group of the measure are sector organisations. The measure is scheduled to run until 2005. The second measure in the area of lifelong learning was the 'Scholingsfaciliteit' (training facility, NL 41), which ran until the end of 2003. This measure was a tax facility, allowing companies to deduct at least 20 percent of investments in training from their corporate income. The aim was to increase the attractiveness for firms to invest in training of their employees.

One of the main problems signalled in the Netherlands is the quantitative shortage of science and technology graduates/workers. Therefore some additional actions have been implemented that are predominantly aimed at extending the supply of technical human resources.

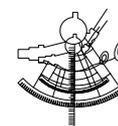
A first action worth mentioning in this respect is the Axis Foundation (NL 25). Axis was set up in 1998 in order to reduce the shortage of technically skilled personnel and to reduce the declining enrolment in technical education. The activities of Axis were aimed at stimulating the interest of young people in choosing educational paths in science or technical studies and thus stimulating them to pursue a career in technology. Axis ceased to exist in 2004 - tasks however have been transferred to the newly formed Platform Science/Technology. One development in the group of programmes that fell under Axis is that of Jet-Net - which focuses on integrating technology into primary schools, a good example in fact of industry reaction to the stimulation of science in the classroom, with the five biggest multinational companies in the Netherlands joining forces with a number of governmental departments⁶⁹ to set up a project designed to boost the number of higher education students signing up for chemical and technical courses. In February 2004, TNO became a member and will take part in the project or at least four years.

A second action that has been undertaken was specific for the area of ICT. Under this action the Government invests in projects that aim to resolve personnel shortages in ICT. In 1999 the ICT Task Force – consisting of captains of industry in the ICT sector and board members from regional training centres, colleges and universities – presented plans to deal with continuous complaints by ICT firms about personnel shortages and education. Nevertheless, due to a downturn in the economy, staff shortage in the ICT sector no longer such an urgent problem. The ICT taskforce was made part of the ICT forum in 2002 – the aims of the forum are now based on ICT research, the problem of ICT workers not part of their current strategy.

The shortage of technically skilled personnel has recently been at the centre of policy discussions in the Cabinet, who want to see a better connection between trade/profession education and industry, and a stimulation of graduates at without high-level degrees to follow through to the diploma stage. The importance of this is reflected in the choice of 'Moving up in higher education' (Doorstroming beroepskolom) as one of the five project areas of the new Innovation Platform. The core of the work for the group will focus on taking on the challenges of the theme and the realisation of the presented aims.

In the period under review the Ministries of SWZ, EZ and OCW, next to an analysis of the shortage of knowledge workers, presented a framework for an integral approach to reconciling the problem. With this plan - Δ-Plan B/Technique Action plan for an approach to the lack of bèta's and technicians December 2003 - a set of actions for tackling the shortage in the coming years is presented. The approach is made up of four coherent main areas: Attractive education, Attractive jobs, Attractive

⁶⁹ Along with Akzo Nobel the scheme was initiated by DSM, Philips, Shell and Unilever, together with the Dutch Ministries of Education, Culture and Science & Economic Affairs.



choices, and Attractive companies. The plan will be elaborated over the coming four years, with an available budget of EUR six million in 2004, with a maximum of EUR 60 million to be reserved up until 2007. The action plan sets a number of aims for both the short and medium term.

Long Term goals: More employees that add to innovation – indicators:

1. Attractive, broad and popular beta and technical education across the educational levels/less (technical and beta) students leaving before they reach the higher levels of the educational trajectory.
2. More attractive carriers for knowledge workers – especially betas, technicians and researchers.

Middle-Long term goals: 15 percent more students coming out of higher level beta and technical studies by 2010 in relation to 2003. More balance between the men and women in education flows and a better international recruitment for betas and technicians by 2007. In short, 15 percent more students by 2007, more women and minority groups, more international students and knowledge workers.

To reach these goals the Cabinet has decided to set up a new independent foundation – Platform Bèta/Techniek, with members from both education and industry. The board of directors for this platform has already been instated.

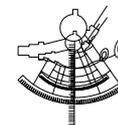
Another activity that is being supported in the Netherlands is the support of entrepreneurship in the classroom. In an attempt to reduce the lack of focus for entrepreneurship within schools the Government set up the programme Entrepreneurship and Education (NL_40). The following step has been to spread the best practices from the subsidy to a larger part of the education field. For this reason there has been attention on making this output accessible. This has seen the development of 'Leren Ondernemen: Learning Entrepreneurship – executed by Senter, which is a website where ideas, projects and initiatives that aim to stimulate entrepreneurship are presented. Some initiatives include the entrepreneurship roadshows organised by the Dutch telecom provider KPN in June 2004 – where 'distinguishing the different types of entrepreneurship', and 'how to stimulate entrepreneurship in young people' were central themes. Another is the Entrepreneurship middle to high vocational training project – where a continuous learning process has been developed for higher-level students that have come from Lower levels.

3.1.2. Mobility of students, research workers and teachers

The priority assigned to this sub-area has been slowly gaining momentum. As part of the streamlining operation of technology policy instruments in the Netherlands in May 2001, the KIM (Knowledge Carriers in SMEs, NL 6) was merged with the Feasibility Studies MKB (NL 12, see under 3.5). The firm-orientated knowledge transfer facility, *Knowledge Transfer Entrepreneurs SMEs* (NL 35) however, still contains elements of mobility, seeking to support innovation projects in SMEs through the (temporary) employment of high-skilled workers.

As it becomes increasingly clear that a good innovation climate depends on the availability of knowledge workers and R&D-personnel, the visibility of mobility has been growing. The Netherlands faces a shortage of such human resources, which means that not only will bottlenecks in education and the labour market have to be solved, but foreign knowledge workers will have to be attracted as well.

The Ministries of OCW, EZ, and Social Affairs and Employment (SZW) have been working together to develop concrete measures. At the end of 2003 they presented a joint policy document '*deltaplan bèta/techniek*'. They highlighted that to attract foreign knowledge workers, (immigration) costs and bureaucratic obstacles will be reduced (a short term goal according to the plan), and that Dutch businesses would have to become more attractive for international researchers, workers, and students (a medium to long term goal).



This shortage has also been the basis for the working group – Knowledge workers (Kennismigranten) within the newly formed Innovation Platform. They delivered a proposal to the Cabinet⁷⁰, which has been incorporated into the Action plan Beta and Technique, furthermore, a number of the platform's suggestions have been made concrete – the 'one bureau, one procedure, and one form' approach, and the knowledge workers visa, agreed upon by Cabinet. A knowledge immigrant is an international employee that earns a minimum of EUR 45 000, businesses and institutes can sign covenants with the Immigration and Naturalisation department (IND) for the entrance of the knowledge worker. Students will receive a resident permit that can be extended on a yearly basis.

3.1.3. Raising the awareness of the larger public and involving those concerned

Important organisations in the Netherlands in this respect are The Netherlands Foundation for Communication on Science and Technology, WeTeN (NL 26) and the Rathenau Institute (NL 27), both initiatives stem from previous periods.

WeTeN is the national centre of expertise for communication on science and technology. It stimulates the co-ordination of national and regional activities in public communication on science and technology. WeTeN organises the National Science Week, which has been held in October every year since 1986, and which involves some 200 institutes, 400 activities, and attracts some 175,000 visitors. WeTeN furthermore provides institutes, science journalists and others with professional information and advice on science communication practice, and stimulates media training for scientists. Lastly, WeTeN provides financial support for initiatives of sufficient quality and widespread public reach that would otherwise not be realised. In addition to its core activities WeTeN has a budget to stimulate mass media programming on science and technology, to increase regional collaboration between secondary schools, universities and research institutes, and to provide a more attractive picture of careers in R&D for secondary school students. In 2003 government policy on communication on science and technology, with WeTeN as one of the key players, will be evaluated, although it has already been decided by the Ministry of Economic Affairs to terminate WeTeN's subsidy after 2004.

The Rathenau Institute contributes to societal debate and political opinion forming on issues connected with developments in science and technology. The institute organises public debates and studies, reports on its findings and makes recommendations to the Dutch Parliament. The budget from the Government (through KNAW) amounted to approximately EUR 2.3 million in 2003.

There have been few changes in this area of science and technology communication since the publication of the White Paper on Science and Technology Communication (Ministry of Education, Culture and Science, 2000) and the evaluation of the Rathenau Institute in 1999. Both WeTeN and the Rathenau Institute continued their operation during the period under review.

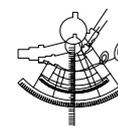
The topic of science and technology communication has received little attention in government publications and/or debates.

3.1.4. Fostering innovative organisational and management practices in enterprises

The main 'measure' in this area is Syntens (NL 22), the innovation network with regional centres, which provides support and advice to SMEs on technology and innovation.

Another measure in this area is *Knowledge Transfer Entrepreneurs SMEs* (NL 35). The aim of the measure is to improve strategy formulation by SMEs. The subsidy covers the external advice for a feasibility study, an innovation strategy plan or hiring a recent graduate to implement an innovation

⁷⁰ Innovatieplatform (Dec 2003) Grenzeloze Mobiliteit Kennismigranten: Hoe krijgen we het talent naar Nederland toe? Den Haag



plan. *Knowledge Transfer Entrepreneurs SMEs* originates from the streamlining operation of May 2001.

There is a considerable amount of priority given to this area, and in the period under review a digital advisor was set up to help entrepreneurs to innovate (faster). The Pilot Innovatienet⁷¹ provides information about all the possibilities to renew business, from new ideas, networking, to financial and economic information. The businesses can ask questions and also provide answers to questions posted on the site by others. The aim of the Innovatienet is to increase innovation in SMEs.

The SME-account (MKBalans)⁷² is an instrument which is developed by the Ministry of Economic Affairs in close cooperation with the representative of the accounting organisations, the Nivra. The aims of the SME-Account are threefold: reduce the information asymmetry between the financiers and the entrepreneur; help the entrepreneurs to develop an annex on their yearly account; and give insight in ways to improve the business-policy. The SME-account has been running since September 2001. It is an on-line instrument which gives businesses a quick insight into the various parts of business operations – it is not focused on financial aspects, but those aspects that are more difficult to define – the so-called immaterial aspects. The tool provides insight into the business, a comparison with businesses in the same branch/sector, and advice.

There has also been attention from the Government - the State-secretary for the Ministry of Economic Affairs has published a policy brief 'In action for entrepreneurs'⁷³ where a large number of actions to remove the bottlenecks for businesses are presented. The brief includes three action plans, with no less than 43 actions that connect to the life cycles of businesses – start, growth and termination.

3.1.5. Public authorities and support to innovation policy makers

The Netherlands holds an annual event that helps support the public debate on Innovation Policy - the 'Innovation Lecture', held by leading authorities in the area of Innovation. Prominent figures from science, technology and innovation are invited to participate. In December 2002, the goal of the Innovation Lecture was to give an additional push to European innovation Policy, particularly in the context of achieving the Lisbon three percent target. In 2004 the Innovation Lecture theme was: Fertile Grounds – which explored the capacities the Netherlands needs to enhance in order to make the Dutch 'Fertile Grounds' a sustainable basis for one of the most dynamic and competitive knowledge economies in Europe.

3.1.6. Promotion of clustering and co-operation for innovation

In recent years the Netherlands has shifted the focus from cluster policy to supporting broader 'dynamic innovation systems'. A 1997 Government White Paper⁷⁴ stressed the importance of cluster policy and announced a series of initiatives. The 2002 evaluation of these cluster policy initiatives concluded that the term 'clusters' was used without clear definition, and as a result all types of policy actions, including existing 'traditional' R&D instruments, were relabelled as cluster policy.⁷⁵ The term cluster policy is in fact not explicitly used in Dutch innovation policy, although Ministry staff undertake initiatives to facilitate networking of firms, brought together to develop ideas and plans for R&D projects.

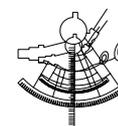
⁷¹ www.innovatienet.nl

⁷² www.mkbalans.nl

⁷³ Staatsecretary – Gennip (8 December 2003) In actie voor ondernemers!

⁷⁴ Ministerie van Economische Zaken, Kansen door Synergie, De overheid en op innovatie gerichte clustervorming in de marktsector, Den Haag, 1997

⁷⁵ Evaluatie van het Clusterbeleid: Rapport aan het Ministerie van Economische Zaken, Technopolis BV, 2002.



There are no separate budget reservations made for cluster development initiatives, In this case EZ acts as a broker in clustering. This is undertaken by providing strategic information on clusters and sectors and bringing stakeholders together in various platforms and projects. In general a larger share of R&D instruments are targeted to networks of firms and firms with knowledge institutes instead of individual companies. Traditional R&D programmes such as Technological Co-operation (NL 37) and E.E.T. (NL 13) required that firms work with other firms or research centres to be eligible for funding, and thus networking has become an integral part of supporting R&D. Good practice on R&D collaboration will be disseminated to a wider audience. In this reporting period there has been a streamlining of these types of co-operative subsidies – the new Innovation subsidy collaboration projects (NL_44) Innovatiesubsidie Samenwerkingsprojecten will replace, among others, Technological Development Projects (NL_34), Technological Co-operation (NL 37) and E.E.T. (NL_13).

Co-operation in innovation at a sectoral level has been a specific area in which the Dutch Government has been paying a lot of attention. The clearest example of activity being the emergence of life sciences as a new territory for government intervention, the Genomics Initiative becoming one of the largest technology specific actions – where Government, Research and industry have joined together to develop policy and associated activities.⁷⁶ In this reporting period the field of ICT has also been targeted in a similar fashion and resulted in the newly formed ICT Research and Innovation Authority.⁷⁷

3.2 Establishing a framework conducive to innovation

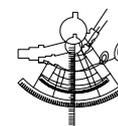
In the Dutch case this policy line primarily involves the removal of barriers to competition. EZ encourages free market forces in two ways. Firstly, through competition policy, designed to create maximum scope for competition between companies, and secondly, by keeping superfluous and unnecessary regulations to a minimum. Reducing the administrative burden for companies, increasing competition, and improving legislation in favour of competitive business were important policy goals of the former Government, and have been given increased attention by the new Government.

Reducing the administrative burden on businesses has received much political attention in recent years. In its outline agreement of 16 May 2003, entitled 'Join in, more work, fewer rules', the second Balkenende Cabinet established that reducing the administrative burden takes absolute priority. The Cabinet also decided to place coordination and control of the administrative burden policy principally in the hands of the Ministry of Finance. Coordination takes place in close consultation with the Ministry of Economic Affairs. Ceilings for administrative burdens are being created for all departments as a fixed component of the budget and accountability system. It was additionally identified as a priority area in the EZ Budget for 2004, where the abolition of unnecessary rules and regulations, and the elimination of unnecessary barriers for starters and high-growth companies are priorities in the wider policy area - 'Scope for entrepreneurship, less bureaucracy'.

In the period between July 2001 and August 2004 increased attention has also been given to the protection of intellectual property. The development of a Dutch system will be influenced by the as yet undecided European patent system. It appears, however, through research undertaken by the EZ, that the burdens of maintaining patents in the Netherlands are high in comparison to most of the other European countries. Currently the possibilities to reduce these burdens are being researched, so that the Netherlands remains in line with European standards. With regards to developing a university patent system there has been a lot of past activity in the Netherlands that has not really led to a strong policy. In the period under review there has been talk of the development of an active patent policy for universities. The Ministry of Economic Affairs, together with the Ministry of Science, the

⁷⁶ <http://www.genomics.nl/homepage/>

⁷⁷ <http://www.ictforum.nl/regieorgaan2.aspx>



Association of Dutch Universities and the universities themselves, is working on a patent and knowledge exploitation policy for the universities. Part of this work is the setting-up of a support network of specialists in this area. The intended policy experiment 'university patent applications' is part of the wider Technopartner programme, in addition the institutional pillar of the Technopartner programme, under the responsibility of the Ministry of Science, aims to eliminate uncertainty among Universities about the valorisation task, with a separate budget for valorisation to be allocated in the funding.

Innovation financing is also being supported through the Technopartner programme. In two of the three operational areas attention is being given to venture capital. Firstly, the TechnoPartner seed facility, which focuses on mobilising the lower end of the Dutch venture capital market. The seed facility endeavours to have a number of so-called Small Business Investment Companies (SBIC's) established by private parties, to focus on financing starters and small companies. Secondly, the Knowledge Exploitation Subsidy Arrangement (SKE), in which knowledge institutes can apply for subsidies for a number of 'modules', one being a Pre-seed module. This module is aimed at providing pre-high-tech start-ups with capital through a pre-seed fund managed and issued by a consortium. The SKE is to provide the fund with a one-off financial impulse. Other innovation financing continues through the Venture Capital measure (Formerly Aunt Agatha) and SME Guarantee Loans (BBMKB)

Concerning taxation, the WBSO (NL 5) is still the single most important instrument in the Netherlands. The new Government has announced that it will increase the budget for this measure by EUR 100 million in the coming four years.

3.2.1 Competition.

The programme 'Competition, Deregulation and Legislative Quality' (MDW), managed by EZ and the Justice Department, was launched in 1994.⁷⁸ Following the MDW, the government has launched an interdepartmental commission for structure and regulation of markets. Under supervision of the High Level Interdepartmental Commission projects are executed. These projects are aimed at improving the functioning of markets and creating more room for businesses and consumers. The Commission will strengthen the co-operation and co-ordination between ministries working on structuring of markets and economic regulation. In the projects, bottlenecks are identified and tackled in co-operation with ministries, the business sector, consumers and other parties involved.

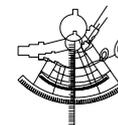
Projects currently running include:

- Transparency: improving transparency for consumers on the following markets: healthcare, pensions, taxis and energy.
- Opening hours: improving opening hours and availability of services at post offices, local governments and the medical sector such as general practitioners and pharmacies.
- Impediments for gas winning and wind energy: reducing the application time for licences and bundling and streamlining legal procedures.
- Demand-side financing: improving quality of (semi-) public services by enabling the demand side (civilians and businesses) to influence supply.
- Broadband: formulating guidelines for investment in broadband infrastructure by local governments
- Productivity in healthcare: identifying opportunities for increasing productivity in healthcare.

In October 2001, the Cabinet – as part of this wider programme – presented an Action Plan to Parliament, the main aim being to reduce administrative burden across the board in 2002.⁷⁹ The formulated actions would produce a reduction of the administrative burden in 2002, representing

⁷⁸ See previous reports in this series.

⁷⁹ In the Trend Chart report for the Netherlands (April 2001) it was announced that a task force was asked to come up with recommendations to reduce the administrative burden to firms from overlap in activities of regulatory bodies and from additional regulation. The Action Plan is the follow-up to the work of the task force.



some EUR 404 million, plus a number of other possible entries presently unable to be quantified. Main elements of the action plan were the implementation of propositions concerning the harmonisation of the wage concept (EUR 182 million), the implementation of the first portion of Electronic Statute Labour and the Basic Register of Firms (EUR 68 million) and the implementation of the Housing Law (EUR 45 million). The Cabinet emphasised that it could not be expected that all items of the action plan 2002 would have a direct discernible effect on entrepreneurs, but did set the objective to reduce the administrative burden of firms in 2002 by 25 percent, compared to 1994. In 2004 the desired figure has been set for 15 percent reduction by 2007. According to the latest available figures a 6.5 percent reduction had been achieved.⁸⁰ On the one hand the possibilities for further reduction are limited (e.g. with respect to European legislation), and on the other it would take time before substantial results materialise. Nevertheless, the Advisory Committee Administrative Burden (Actal) was optimistic about the future: a reduction of 25 percent compared to 1994 would be attainable in the future.

Reducing the administrative burden on businesses has received much political attention in recent years. In its outline agreement of 16 May 2003, entitled 'Join in, more work, fewer rules', the second Balkenende Cabinet established that reducing the administrative burden takes absolute priority. Existing and new regulations are being critically evaluated for usefulness and necessity. The administrative financial burden must be reduced by one quarter during the current Cabinet period compared to 31 December 2002. In specific terms, this means that the administrative burden will be structurally reduced by approximately EUR three billion by the beginning of 2007. The new Government has announced that in reducing regulations new actions will be launched as a follow-up to the MDW.

The Cabinet also decided to place coordination and control of the administrative burden policy principally in the hands of the Ministry of Finance. Coordination takes place in close consultation with the Ministry of Economic Affairs. Ceilings for administrative burdens are being created for all departments as a fixed component of the budget and accountability system. The Minister of Finance monitors these ceilings. Within the Ministry of Finance, an Interdepartmental Administrative Burden Project Board (IPAL) has also been set up. It enables all departments to be more intensively involved than before in the administrative burden policy and the Cabinet-wide nature of the operation is clearly underlined.⁸¹

3.2.2 Protection of intellectual and industrial property

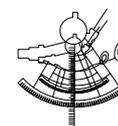
Protection of intellectual property is recognised as an important policy area in the Netherlands, although no formal policy has yet to be implemented. The period under review in this report was characterised by increased policy activity in this area, and most importantly, identified as a priority area in the last two budget rounds by EZ, in particular with respect to the removal of the Dutch innovation paradox. In 2004 the strengthening of patent policy is highlighted.

In December 2001, EZ published a strategic policy investigation concerning the role of intellectual property in the Dutch knowledge-based economy,⁸² putting the issue of IP rather high on the agenda of policymakers. The investigation gives the impetus for the direction in which the patent system ought to be developed (modernised) by exploring the question of optimum balance between providing incentives for knowledge development - via the protection of knowledge, and reducing obstacles in dissemination and 'free' use of knowledge. Follow-up actions to the investigation in 2002 consisted, to a large extent of conducting a research programme focussed on a number of (practical) dilemmas identified by the strategic policy investigation, and discussions with (international) co-deciders.

⁸⁰ *De begroting 2002 (Budget 2002)*, The Hague: Ministry of Economic Affairs

⁸¹ Dutch Advisory Board on Administrative Burden (2003) Work Programme 2004

⁸² Ministry of Economic Affairs, *Intellectual Property and Innovation: concerning the role of intellectual property in the Dutch knowledge-based economy*, The Hague: March 2002



The development of a Dutch system will be influenced by the as yet undecided European patent system. It appears, however, through research undertaken by the EZ, that the burden of maintaining patents in the Netherlands are high in comparison to most of the other European countries. Currently the possibilities to reduce these burdens are being researched, so that the Netherlands remains in line with European standards.

With regards to developing a university patent system there has been a lot of activity in the Netherlands. The development however has been far from smooth, advice from the AWT in 2001 was highly criticised, the Platform 'Patent Policy in Universities' then took a long time to develop recommendations pertaining to the conditional framework – which in turn were met with a lot of criticism from universities, and financial cutbacks tempered the universities' ability and inclination to take up the issue of knowledge protection. Gradually, however, one can observe that some universities are setting up specific support structures for IP.

In the period under review there has been attention for the development of an active patent policy for universities. The Ministry of Economic Affairs, together with the Ministry of Science, the Association of Dutch Universities and the universities themselves, is working on a patent and knowledge exploitation policy for the universities. Part of this work is the setting-up of a support network of specialists in this area. The intended policy experiment 'university patent applications' has been made part of the subsidy knowledge exploitation (SKE), which is part of the wider Technopartner programme. In addition, the TechnoPartner programme has an institutional part, which, under the responsibility of the Ministry of Science, aims to eliminate uncertainty among universities about the valorisation task, a separate budget for valorisation is to be allocated in the funding, the objective to designate a specific part of the funding as the valorisation component, in order to give the universities a guideline in determining their policy with regard to this aspect.

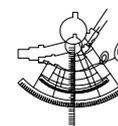
The role of intellectual property in the Dutch knowledge-based economy is becoming increasingly important. In this respect the number of patent applications reflects - to a certain extent - the innovative capacity in the Netherlands. Of all member states in the European Patent Convention (EPC), the Netherlands, behind Germany (39,4 percent) and France (12,8 percent), filed the most patent applications at the European Patent Organisation in 2002, with 9,8 percent (5054 applications) the Netherlands left the United Kingdom (8,8 percent) and Switzerland (7,3 percent) behind them⁸³. To stimulate the use of this knowledge in the economy the Dutch Government has taken several actions. These actions are; supporting research co-operation between universities and industry, support of a university patent policy, and stimulating university start-ups. Furthermore, the Ministry of Economic Affairs has investigated the obstacles SMEs face when using the Dutch and European patent system. Costs and especially (high) annual patent fees seem to be the main obstacles.

3.2.3 Administrative simplification

Under the MDW programme (see 3.2.1 above for details) the reduction of the administrative burden received a lot of attention. Administrative burden has also been identified as a priority area in the EZ Budget for 2004, where the abolition of unnecessary rules and regulations, and the elimination of unnecessary barriers for starters and high-growth companies are priorities in the wider policy area - 'Scope for entrepreneurship, less bureaucracy'. Following the now defunct MDW programme, the government has launched an interdepartmental commission for structure and regulation of markets. Under supervision of the High Level Interdepartmental Commission projects are executed. These projects are aimed at improving the functioning of markets and creating more room for businesses and consumers.

Furthermore, there has been more activity in this area with the setting up of the programme 'ICT and reduction of administration burden'. The Government realised that it is possible to make considerable cost reductions via the smart use of ICT, and that it requires the development of a government-wide

⁸³ Min EZ (2003) Progress report on product and capital market functioning in the Netherlands 2003



ICT infrastructure. To reduce the risk that each government organisation would try to find its own electronic solution, with its own standards, its own authentication procedures the Government and trade and industry have decided to find a joint solution to this problem. The task of the ICTAL programme, which is the organisational responsibility of the Ministry of Economic Affairs, is to develop a Government-wide ICT infrastructure and to initiate the implementation of the instruments for such. The programme was launched in 2003 and will end in 2006.

The aim is also that ICT should make a significant contribution to pushing down administrative costs and burdens for both citizens and businesses - according to the Ministers from Industry and Internal Affairs e-government is an essential instrument for a better functioning and innovative government⁸⁴. The Government is therefore working hard on the implementation of three (technical) components⁸⁵: In the front office, it is working on a national one-stop-shop for businesses - a single point of entry on the Internet where businesses can access information, forms and services provided by various public agencies. Secondly, in the back office a government transaction gateway – a service aimed at facilitating transactions between businesses and Government by providing authentication services and by distributing data among several government agencies. Also in the back office a general business register is being developed.

3.2.4 Amelioration of legal and regulatory environments

Under the now defunct MDW programme (see 3.2.1 above for details) the quality of legislation was one component. Amelioration of legal and regulatory environments is also indicated as a priority area in the EZ Budget of 2004 (see 3.2.3 above). The Government has in fact launched an interdepartmental commission for structure and regulation of markets. Under supervision of the High Level Interdepartmental Commission projects are executed. These projects are aimed at improving the functioning of markets and creating more room for businesses and consumers. See section 3.2.1 for details.

3.2.5 Innovation financing

For the Ministry of Economic Affairs innovation is essential to stay competitive, and therefore it aims to create the most innovative climate possible. The Ministry therefore concentrates its efforts on the support of knowledge development through businesses and through co-operation between knowledge institutes and business. It pays special attention to stimulating innovative entrepreneurship in a number of important technology areas – such as ICT and Life Sciences.

The Ministry has given special attention to starters and fast growth businesses, and to the removal of bottlenecks for their development and growth. Instruments such as platforms/networks have thus been developed – Dreamstart (NL_32). Biopartner (NL 24) and STIGON (NL 42) can also be mentioned in this respect. Yet these are first and foremost aimed at high-tech start-ups (see section 3.3.3) and at particular technology areas, i.e. ICT and Life Sciences. In addition to these, more general support to starters was facilitated through the Technostarters measure (NL_39).

In the current reporting period these above-mentioned measures have been amalgamated into the new overarching support scheme TechnoPartner (NL_43) - an integral policy on technology-based start-ups published by the Ministry of Economic Affairs in the beginning of 2004⁸⁶, which includes three operational actions and a plan for institutional improvement for technostarters. One of the three operational pillars - The TechnoPartner seed facility - focuses on mobilising the lower end of the Dutch venture capital market. The seed facility endeavours to have a number of so-called Small Business Investment Companies (SBIC's) established by private parties. These private parties may be, among others, venture capitalists, informal investors, large companies and regional development

⁸⁴ Min EZ, news – Notite electronic overhead

⁸⁵ Min EZ (2003) Progress report on product and capital market functioning in the Netherlands 2003

⁸⁶ Ministry Economic Affairs (January 2004) Actionplan TechnoPartner: From knowledge to prosperity.



companies. An SBIC is a private enterprise that focuses on financing starters and small companies. The Technopartner programme also has a pillar - Knowledge Exploitation Subsidy Arrangement (SKE), in the context of the SKE, knowledge institutes can apply for subsidies for a number of 'modules', one being a Pre-seed module. This module is aimed at providing pre-high-tech start-ups with pre-seed capital. For this purpose, a pre-seed fund managed by the consortium will issue soft loans to pre-high-tech start-ups. The consortium also makes the decisions about the allocation of the loans. The SKE can provide the fund with a one-off financial impulse.

Another measures aimed at improving the climate for high-tech start-ups is the 'Aunt Agatha' scheme (NL 23) – now called the 'venture capital measure', which is a fiscal facility for stimulating business angels and informal investors to invest in new companies. There is one general scheme with two support facilities. Firstly, a support where business angels provide loans directly to a new company, and secondly, where business angles provide capital to venture capital funds which invest at least 70 percent of their capital in start-up companies. A further measure is the SME credit guarantee scheme (BBMKB NL_3), the objective of which is to provide security to banks that offers loans to SMEs with limited shortages of capital.

3.2.6 Taxation

The WBSO (NL 5) is the largest instrument for stimulating R&D in firms in the Netherlands. A study by Technopolis (2001) indicated that the WBSO makes up over 50 percent of the budget for firm-orientated innovation policy in the Netherlands.⁸⁷ The integral assessment of innovation policy (IBO) recommends that support for R&D by individual firms can be primarily achieved through the WBSO. The measure entails that companies performing research and development can deduct the related wage costs of R&D personnel from their wage tax.⁸⁸

The latest evaluation of the WBSO was published in June 2002.⁸⁹ The evaluation found the following effects of the WBSO.

First order effects (impact on R&D expenditure):

- EUR 1 spent on WBSO gives EUR 1.02 in R&D effort in the participating firm.
- Total R&D spending rises with the total of the WBSO tax credit.
- The outcome of a user survey indicates that size does matter (some aspects mentioned were risk taking, lower thresholds, time to market, side effects: planning and administration) – Small firms benefit more from the scheme.

Second order effects (impact on innovation performance):

- The evaluation found a significant effect for firms with less than 50 employees (about 75 percent of the participating firms had less than 50 employees).
- If tax credit rises with 1 percent, effect on sales of new products as a percent of total sales for an average firm is 0.19 percent points.
- WBSO is important for reaching goals of innovation, like introduction of new products, lowering cost of innovation, acquisition of fundamental and implementation of technological knowledge, higher quality products and innovation process, raising speed of innovation process.

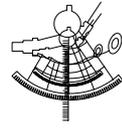
The evaluation concluded that the WBSO is an effective scheme. The priority given to this policy area increased in the period under review as the tax facility is now seen as the main instrument to boost R&D investment in individual firms. After various measures were taken to further strengthen the

⁸⁷ Technopolis, *An international review of methods to measure relative effectiveness of technology policy instruments*, Amsterdam, 2001

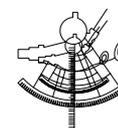
⁸⁸ Self employed persons performing R&D can benefit from WBSO through a deduction on their own income tax

⁸⁹ The WBSO was previously evaluated in 1996 and 1998.

European Trend Chart on Innovation



effectiveness of the scheme (reducing the allocated budget by EUR 50 million through a better definition of R&D) the new Government has announced that it will increase the budget for this measure by EUR 100 million in the coming four years.



3.3 Gearing research to innovation

Gearing research to innovation receives a lot of attention in the Netherlands. Actions cover more or less all sub-areas described below. In terms of strategic decisions Dutch policy is developing long-term strategic approaches to research and its application, particularly in the growth sectors of ICT and the Life Sciences. In these areas overarching platforms (initiatives) have been set-up to integrate activities, programmes and existing instruments to focus on one strategic technology area. The Dutch Government is striving to find structural solutions to strategic issues by strengthening the knowledge infrastructure via the ICES/KIS⁹⁰ investment programme (NL 29). The third investment impulse in knowledge increases the opportunity for identification and stimulation of scientific research in innovative research areas, and formation of high-quality networks in areas that have the ability to react flexibly to social knowledge requirements. Parliament has approved five knowledge themes for the third round: system innovation, ICT, high-quality spatial use, sustainability, microsystems and nanotechnology, and health, food, genetic and biotechnological breakthroughs (including genomics).

The Netherlands has a multitude of measures in which the performance of research within industry is supported, the tax incentive for in-house R&D (WBSO) continues. In addition R&D is encouraged through a number of measures, which aim to improve the co-operation between businesses, and between businesses and knowledge institutes. In this reporting period the streamlining of a number of existing measures took place, they have been amalgamated into the new measure - Innovation Subsidy Collaboration Projects' (NL_44), in which both research/development and feasibility studies are subsidised.

Support for high-tech start-ups in Dutch innovation policy has received increasing attention lately, the new Government (2003) declaring stimulating innovative entrepreneurship (i.e. techno-starters and high-growth companies) an ongoing priority (EZ Budget 2003 and 2004). A lot of activity has taken place in this area in the Netherlands over the last years, culminating in the recent amalgamation of existing schemes into one over-arching programme to support starters – Technopartner. The programme is built on one institutional pillar – to improve the environment in which knowledge institutes (especially Universities) and high-tech start-ups operate, and three operational pillars:

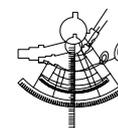
1. TechnoPartner Seed facility
2. TechnoPartner Knowledge Exploitation Subsidy Arrangement (SKE)
3. TechnoPartner Platform

Since the early 1980s the collaboration between research, universities and companies has remained an important item on the policy agenda. Several instruments were developed accordingly, especially by EZ: The Leading Technological Institutes (NL 19) and the R&D subsidy schemes, which promote collaboration (and which have now been amalgamated into one new measure – Innovation Subsidy Collaboration projects (NL_44), instruments with a long term programmatic character with multi-annual research plans, and large scale integrated activities and programmes such as a package of measures on the topic of genomics, using several existing instruments to focus on one strategic technology area.

The topic of co-operation has continued to receive interest in the period under review. At the beginning of 2003 Senter – the execution agency of the Ministry of Economic Affairs – published a report⁹¹ in which it presented recommendations and conclusions that came out of a conference 'Innovation networks in the Netherlands', in which decision makers from universities, research institutes, small and large businesses and government came together to discuss how effective

⁹⁰ The third round of funding has been put at arms length from the Ministries and is now called the Bsik measure.

⁹¹ Senter (Februari 2003) Innovatienetwerken in Nederland: De weg naar een structurele samenwerking tussen bedrijven, universiteiten en onderzoeksinstituten



national (and international) co-operation can be stimulated. Conclusions presented in the report centre around choices of research areas by universities, subsidy policy, international vs. international networking, matching innovation and co-operation with SMEs and with large companies, and finally universities. Co-operation has also been taken up by the workgroup of the newly installed Innovation Platform – the Dutch Innovation System - which will explore possibilities for improving the working of the innovation system by bringing demand and supply closer together.

There continues to be interest for strengthening the ability of companies to absorb technology and knowledge. Next to existing measures there has been more interest in how to reduce the bottlenecks for companies to absorb technology. The Minister of OC&W and the Minister of EZ asked the AWT to advise on how to improve the absorption and utilisation by the business sector of the results of (fundamental) scientific research done at public knowledge institutes. The advice⁹² focuses on the mechanisms applied by businesses to absorb and utilise the research results, the improvements that can be made, and the ways in which the Government can facilitate and stimulate businesses in this respect. The Council established four lines of recommendations including increasing the knowledge level in businesses, reinforcing the creation of networks, increasing staff mobility, and giving greater attention for the conversion to applications.

3.3.1 Strategic vision of research and development

In March 2002, the Cabinet committed EUR 805 million to a third investment impulse into the knowledge infrastructure (ICES/KIS-3, see NL 29). Similar to previous impulses (in 1994 and 1998) the third impulse aims to reinforce the position of the Netherlands as an innovative and knowledge-intensive economy.⁹³ The Government is striving to find structural solutions to these strategic issues by strengthening the knowledge infrastructure via the ICES/KIS investment programme (NL 29). This third investment impulse in knowledge increases the opportunity for identification and stimulation of scientific research in innovative research areas, and formation of high-quality networks in areas that have the ability to react flexibly to social knowledge requirements. Parliament has approved five knowledge themes: system innovation, ICT, high-quality spatial use, sustainability, microsystems and nanotechnology, and health, food, genetic and biotechnological breakthroughs (including genomics).

Innovation policy in the Netherlands is largely generic. Nevertheless, there is a specific emphasis on specific technologies that have large social and economic potential, i.e. ICT and Life Sciences. In October 2001, the Ministries of EZ and OC&W announced the establishment of an ICT Forum. The Forum became operational in April 2002. In addition, a White Paper - The Dutch Digital Delta (1999) stated that the application of ICT is essential for the welfare and well being of the Netherlands,⁹⁴ and the Cabinet announced the ambition to make the Netherlands one of the ten leading countries in the area of ICT. 'The Dutch Digital Delta' indicates that, in order to realise this ambition, the Netherlands needs to develop an excellent ICT basis, knowledge and Innovation making up one of the pillars of this required ICT basis. The action plan 'Competing with ICT Competencies' (CIC, 2000) implements and crystallises this pillar of Knowledge and Innovation, strengthening of ICT competencies and innovative applications being a central to the action plan. The task of the ICT Forum in this broader context was to formulate visions and ambitions for the direction of research and innovation in ICT.

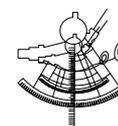
The period under review has seen more attention for the support of ICT research for the Netherlands with the Cabinet setting up an initiative for ICT-Research - the ICT Research and Innovation Authority, which was introduced in the recently published government-wide ICT agenda⁹⁵, and part of both

⁹² AWT (November 2003) Knowledge networking: The absorption and utilisation of knowledge by the business sector – Advise number 56, Den Haag.

⁹³ See previous reports in this series, e.g. Boekholt, P. and Lankhuizen, M. Monitoring, updating and disseminating developments in innovation and technology diffusion in the Member States - The TREND CHART: The Netherlands, Covering period: May 2001 – September 2001, September 2001

⁹⁴ Cabinet of Ministers, *The Dutch Digital Delta: The Netherlands oNLine*, The Hague, 1999

⁹⁵ Februari 2004 Rijksbrede ICT-agenda (26 643, nr. 47)



current innovation (Innovation White Paper) and science (OC&W budget 2004) policy. Next to this the Cabinet has endorsed the action plan – Competing with ICT Competences: Direction and efficiency in the ICT knowledge network⁹⁶, which outlines the policy context in which the initiative shall operate (see section 2.2) The initiative has been set up to help deal with the bottlenecks in ICT research, and among others, to provide unity in the strategic steering of research in the entire network, the initiative to have an equal say over current ICT research and innovation programmes.

A second focal area in research funding is Life Sciences – specifically genomics. The Government has allocated EUR 190 million for additional research in genomics and set up a platform (initiative) to manage this fund. As this consists mainly of basic and strategic research we have not included this as an innovation policy measure in the overview. In the current reporting period the area of Life Sciences has received more attention with the publication of the Action Plan Life Sciences, which was submitted to the House of Representatives in March this year. In this Plan the Government proposes a cohesive approach designed to utilise the opportunities for life sciences as effectively as possible and tackle the problem areas, for example by promoting entrepreneurship in the life sciences; by simplifying legislation and regulations; by improving Government communication; by working on a stronger knowledge base and by fostering good international networks.

As other technologies may become (more) important in the future, other technology areas are being explored. In June 2002, the first five quick scans were completed in the following areas: micro-system technology, new materials, partition technology, medical technology and robotics.

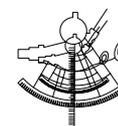
3.3.2 Strengthening research carried out by companies

Strengthening research carried out by companies has been the key pillar of innovation policy for decades. The Lisbon three percent target has put this issue even more prominently on the political agenda. The main concern is the relatively small number of companies accounting for a large share of private R&D, and the relative small share of SMEs conducting R&D. Increasing private R&D in the Netherlands is encouraged through a number of measures (not all of which are still running):

- Tax and financial incentives (see NL 5 – those which have been terminated are NL 10, NL 16, and NL 28).
- Subsidy schemes (see NL 1, NL 7, NL 13 (merged into NL 37, which have in the current period been again merged into the new measure innovation subsidy collaboration projects (NL_44) and NL 19).
- Its extensive system of Research and Technology Organisations, including special arrangements for SMEs.
- A network of Dutch offices for science and technology located in Dutch embassies abroad, through which foreign knowledge can be disclosed (TWAs - NL 30).

The firm-orientated technology policy instruments are being continually streamlined, in the first half of 2001 the number of schemes was reduced, although at the same time four new instruments were launched. Plans to continue streamlining have been followed through in this period. The various instruments for co-operation have been rationalised into one instrument for R&D collaboration – Innovation subsidy collaboration projects (NL_44) – which in fact replaces four measures, namely Technological co-operation (NL_37), Technical Development Projects (NL_34), Economy, Ecology Technology (NL_13), and Energy-saving through innovation. EZ continues to work towards a further optimisation of the instruments for innovation policy as a follow-up to the recommendations of the Interdepartmental Policy Study (section 2.2).

⁹⁶ Min EZ & Min OC&W (Mei 2004) Actieplan - Concurrenieren met ICT-Competenties: Regie en rendement in de ICT-kennisketen, Den Haag.



3.3.3 Start-up of technology-based companies

With the publication of the EZ White Paper 'Scope for Industrial Innovation: Industrial Policy Agenda', in short the 'Industry Letter', improving the framework conditions for high-tech start-ups has become an important item on the policy agenda⁹⁷, the issue previously receiving little attention. Following the publication of the Industry Letter, EZ launched a number of schemes aimed at increasing the number of technology-based companies. Two important schemes in this area were Twinning (NL 15) and Biopartner (NL 24). In Twinning and Biopartner the Dutch Government adopted an integral approach for stimulating start-ups in ICT and Life Sciences, respectively. The schemes aimed at improving the climate for entrepreneurship through provision of venture capital, housing, and coaching. In the case of Biopartner, the scheme also tries to bring about a more favourable mindset toward entrepreneurship in universities.

Dreamstart, which launched its pilots in March 2002 (NL 32) was a measure that aimed to increase the number of technology-based companies in areas other than ICT and Life Sciences. Dreamstart is a foundation that served to increase the transparency and accessibility of measures existing for start-up companies. It also encouraged universities, institutes of higher education and research institutes, and market organisations such as firms and financial organisations to build networks in order to set up incubators in various technology areas. In this respect, Dreamstart was in harmony with the Technostarter scheme (NL 39).

A fourth scheme in the area of start-up of technology-based firms was STIGON (NL 42). This scheme was launched in 1998 and aimed to stimulate spin-offs from pharmacology.

Another bottleneck for the start-up of technology-based companies, particularly imminent in life sciences and pharmacology, is the fact that universities in the Netherlands have only just begun to develop policies concerning commercialisation of their knowledge. As a result, there is little experience with technology transfer. An evaluation of the STIGON scheme indicates that both researchers and universities lack clear models for arranging the transfer of knowledge, intellectual property and possible commercial revenues. This is detrimental in such a way that institutes, researchers, as well as future participants of the spin-offs (venture capital, possible CEOs) obtain a less than fair compensation.⁹⁸ Policies of universities in this area are still in the development stage (see also section 3.2.2).

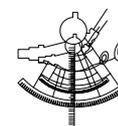
In April 2002, the approach adopted in Twinning and Biopartner was extended and a new Technostarters scheme was developed - aimed at starters outside the realms of ICT and Life sciences (which already were being serviced under the twinning and Biopartner measures). This new scheme Infrastructure Technostarters (NL 39), which aimed to improve the orientation of knowledge institutes toward knowledge transfer and exploitation, by encouraging them to offer Technostarters good infrastructure and support, in particular adequate accommodation, accessible equipment, and provision of support and coaching services.⁹⁹ However, the first round of programming, that took place between 19 April and 19 July 2002, resulted in only ten proposals for incubators from knowledge institutes. Universities largely refrained from submitting proposals because of the matching requirement, and in response call for an easing thereof. At the end of 2002 the Ministry of Economic Affairs therefore decided to adjust the subsidy scheme Infrastructure Technostarters.

This adjustment was put in a broader perspective: to minimise the overlap of different instruments on technology based start-ups and to strengthen the policy on these start-ups, the Ministry of Economic Affairs started an operation to streamline the support framework. The outcome of this operation is an

⁹⁷ Ministry of Economic Affairs, *Ruimte voor Industriële Vernieuwing: agenda voor het industrie- en dienstenbeleid*, June 1999.

⁹⁸ Technopolis, *Stimuleringsprogramma Innovatief Geneesmiddelenonderzoek en Ondernemerschap in Nederland: tussentijdse evaluatie*, Amsterdam: 2002

⁹⁹ The setting up of incubators is also incorporated in the Biopartner programme.



integral policy on technology-based start-ups published by the Ministry of Economic Affairs in the beginning of 2004 called TechnoPartner¹⁰⁰ (NL_43), which is characterised by an integral approach: from providing information, network formation, coaching, financing, to facility-sharing. The new structure has a generic character, and is not biased to specific sectors. Nevertheless, special attention to some sectors can be paid if necessary. With this structure, the numerous instruments and schemes are brought back to one initiative consisting of a cohesive package of measures:

- The TechnoPartner seed facility - focused on mobilising the lower end of the Dutch venture capital market.
- The TechnoPartner Subsidy Scheme for Knowledge Exploitation (SKE) - which also includes a pre-seed and a patent facility.
- A TechnoPartner platform - to stimulate entrepreneurship in general in the Netherlands.

The new approach also reflects the importance of institutional innovations in stimulating new businesses in educational and knowledge institutes, as the Ministry of Economic Affairs will be conducting the TechnoPartner programme in cooperation with the ministry of Education, Culture and Science OCW.

Although the Netherlands may be in the scientific leading group in this area, until now this has not been translated into a comparable position in the area of starters. The Ministry of Economic Affairs continues to support the life sciences, specifically through the new Action Plan – Life Sciences published in 2004. One of the lines of action of the plan for the period 2004-07 is the stimulation of entrepreneurship in Life Sciences. The BioPartner platform will continue to offer various instruments until the end of 2004, when they will be merged into the TechnoPartner measure. (see NL_43) Currently the package consists of:

- BioPartner Network - geared toward facilitating and stimulating enterprise in the life sciences industry.
- BioPartner First Stage Grant - provides subsidies for researchers at public universities or research institutes who want to convert an idea into a feasible business plan – the previous STIGON measure (NL_42) has been merged with this part of BioPartner.
- BioPartner Facilities Support - has funds available which are intended for the acquisition of specialist equipment for joint use by public universities or research institutes and starters.
- BioPartner Centres - offer housing for new life science companies.
- BioPartner Start-up Ventures - provide risk capital to starting companies in life sciences.

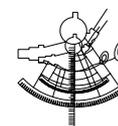
Other measures aimed at improving the climate for high-tech start-ups is the ‘Aunt Agatha’ scheme (renamed Durfkapitaal (venture capital) in 2001 - NL 23), which is a fiscal facility for stimulating business angels and informal investors to invest in new companies.

Another scheme to promote start-ups was the Subsidy Scheme Entrepreneurship and Education. The aim of the measure was to stimulate entrepreneurship through education. With the scheme EZ hoped to increase the number of start-up entrepreneurs and to develop an entrepreneurial spirit among future employees. In May 2002 this scheme was terminated. However, the best practices arising from the scheme are being showcased in a project called Leren Ondernemen (Learning Entrepreneurship). This is in fact a web portal with a collection of ideas, projects and initiatives to stimulate entrepreneurship. The project is inspired by the Entrepreneurship and Education Committee.

Given the changing economic climate surrounding start-ups and support to them by venture capital, public funding schemes that match private risk capital appear to be having increasing problems finding matches in the private sector, particularly in second phase financing - when start-ups start to grow and need funding for expansion (even though market perspectives are still uncertain). The Government is therefore re-considering whether public matching can be extended to second phase financing.¹⁰¹ In this respect an interest has been shown in the possibilities of developing a scheme in

¹⁰⁰ Ministry Economic Affairs (January 2004) Actionplan TechnoPartner: van knowledge to prosperity.

¹⁰¹ Onderzoek Nederland, 23 May 2003



the Netherlands based on the American Small Business Innovative Research Programme (SBIR).¹⁰²

3.3.4 Intensified co-operation between research, universities and companies

Since the early 1980s the collaboration between research, universities and companies has remained an important item on the policy agenda. Several instruments were developed accordingly, especially by EZ:

- The Leading Technological Institutes (NL 19)
- R&D subsidy schemes which promote collaboration, such as BTS (NL 1), SMO (NL 14), EET (NL 13), IOP (NL 18) and Technological Co-operation (NL 37)

Besides instruments that encourage co-operation directly, there are a number of initiatives that induce research institutes and universities to direct research efforts more towards the needs of business. One important instrument is the Innovation-orientated Research Programmes, IOP (see NL 18). The IOP instrument is an umbrella-scheme of subsidies to universities and non-profit research institutes for research programmes in pre-determined technological areas that meet the long-term needs of business.

Second, as described above, are the semi-public organisations such as TNO, the GTIs and DLO – which increasingly have to acquire a major share of their funding through external contracts. Moreover, funding of TNO by EZ is contingent upon co-financing by firms. The second initiative in this respect then is the Technology Foundation STW (NL 31). EZ and the Research Council NWO jointly contribute to the Technology Foundation STW. The aim of the contribution is to promote high-quality technical-scientific research projects and its application by business in particular. Finally, the projects that are funded in the context of ICES/KIS (NL 29) also involve private-public co-operation.

The approach to this subject has become more systematically embedded in the overall policy approach. The Government Agreement announced that efforts should be targeted to a number of strategic areas such as IT and biotechnology. The IBO exercise has prompted a streamlining of instruments, leading to a reduction of the number of instruments as well as a more systematic categorisation into types of measures. We can now distinguish between:

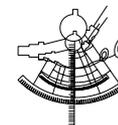
- Basic/strategic research conducted in organisations such as TNO, the Large Technological Institutes, the Technological Top Institutes (NL 19).
- Instruments with a long term programmatic character with multi-annual research plans.
- Instruments supporting collaborative RTD projects (often with specific tasks and limited in time).
- Large scale integrated activities and programmes such as a package of measures on the topic of genomics, using several existing instruments to focus on one strategic technology area.
- A fiscal instrument (WBSO (NL 5) to support R&D efforts in individual firms.

It is argued that stimulating national and international co-operation between companies as well as between companies and knowledge institutes has a positive effect on private R&D in the Netherlands. Therefore, a new generic instrument has been developed to improve such co-operation. In an effort to reduce the fragmentation and non-transparency of the existing mix of instruments, the new instrument (Innovation subsidy Collaboration Projects – NL_44) will replace four existing instruments in 2004.¹⁰³ In addition, and due to the fact that Dutch innovation policy tended to neglect SMEs, the new instrument will pay special attention to SMEs and to their co-operation with knowledge institutes.

Circa 13 percent of the total budget for innovation of EUR 800 million for 2004 is reserved for this new 'project-based co-operation instrument'. In 2004 the budget of this new scheme is circa EUR 100

¹⁰² Onderzoek Nederland, 7 May 2004

¹⁰³ The existing instruments that are being replaced are: 'Technological Co-operation' (TS-NL37), the programme 'Economy, Ecology & Technology' (EET-NL13), the programme 'Energy saving Through Innovation' (EDI) and the measure for 'Technological Development Projects' (TOP-NL34).



million for four tenders, feasibility studies will receive a budget of EUR four million. There are four criteria: technological innovation; sustainability; technological co-operation; and economic perspective. The scheme makes a distinction between research and/or development projects and feasibility studies. For R&D projects, the maximum subsidy is EUR 2 million. For research projects, the subsidy percentage is 50 percent, and for development projects 25 percent. When an SME co-operates with a knowledge institute or an international company from a EU country, ten percent additional subsidy can be attributed. For feasibility studies, 50 percent of the costs can be subsidised with a maximum of EUR 50,000 per project.

The topic of co-operation has continued to receive interest in the period under review. At the beginning of 2003, Senter – the execution agency of the Ministry of Economic Affairs – published a report¹⁰⁴ in which it summarises the recommendations and conclusions that came out of a conference 'Innovation networks in the Netherlands' in March 2002. A conference in which decision makers from universities, research institutes, small and large businesses and Government came together to discuss how effective national (and international) co-operation could be stimulated. Conclusions presented in the report centre around choices of research areas by universities, subsidy policy, international vs. international networking, matching innovation and co-operation with SMEs and with large companies, and finally universities.

This theme has also been taken up by the workgroup of the newly installed Innovation Platform – the Dutch Innovation System - which will explore possibilities for improving the working of the innovation system by bringing demand and supply closer together. In February 2004, the group presented a proposition to the ministers of EZ and OC&W to start an experiment on the exchange of researchers between public and private research institutes, which is now being discussed in the Cabinet.

3.3.5 Strengthening of the ability of companies, particularly SMEs, to absorb technologies and know-how

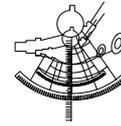
The set of instruments previously existing in this area was drastically streamlined in 2001. The Feasibility Studies SMEs (NL 12) and KIM Knowledge carriers in SMEs (NL 6) were merged into a new firm-orientated knowledge transfer facility, Knowledge Transfer Entrepreneurs SMEs - SKO (NL 35). In addition, the subsidy scheme Knowledge Transfer Branche Organisations SMEs - SKB (NL 36) was launched. Another important measure in this area, the innovation network Syntens (NL 22) also continued its activities in the period under review.

In the reporting period a number of other measures have taken SME support into consideration. In the action plan 'competing with ICT Competences: Direction and Efficiency in the ICT Knowledge Network, the third action line is in fact 'Extending to SMEs' – the focus is on the use of ICT in promoting new innovative products and services. The WBSO increase was also made with SMEs in mind.

In addition there has been more interest in how to reduce the bottlenecks for companies to absorb technology. Pursuant to a motion passed by the Lower House of the Dutch Parliament, the Minister of OC&W and the Minister of EZ asked the AWT to advise on how to improve the absorption and utilisation by the business sector of the results of (fundamental) scientific research done at public knowledge institutes. The advice¹⁰⁵ focuses on the mechanisms applied by businesses to absorb and utilise the research results, the improvements that can be made, and the ways in which the Government can facilitate and stimulate businesses in this respect.

¹⁰⁴ Senter (Februari 2003) Innovatienetwerken in Nederland: De weg naar een structurele samenwerking tussen bedrijven, universiteiten en onderzoeksinstituten

¹⁰⁵ AWT (November 2003) Knowledge networking: The absorption and utilisation of knowledge by the business sector – Advise number 56, Den Haag.



The main message of this advice is that knowledge absorption and utilisation depends on people, and that this simple principle should have a clear position in (innovation) policies. Although there is certainly no question of a 'white sheet', an intensification of policy is necessary with regard to the 'human factor' and personal interaction. Furthermore, the AWT advocates greater stability once policy lines and instruments have been adopted. Recent years have seen a (too) rapid succession of regulations and instruments. Finally, the AWT warns against too strong a focus on research cooperation between knowledge institutes and businesses. Such a direct cooperative relationship is certainly not relevant for all categories of innovative businesses, and would cut out a large group of small and medium-sized enterprises.

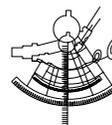
The Council has established four lines of recommendations to promote knowledge absorption by the business sector:

- Increase the knowledge level in businesses.
- Reinforce the creation of networks.
- Increase staff mobility.
- Greater attention for the conversion to applications.

Additionally the VNO-NCW has published an extension of a previous publication (Towards a delta plan for knowledge and innovation; pillar of the growth agenda for the Netherlands) in which two of the six action lines are dealt with in detail. These two are presented in the document 'Innovation promotion SMEs'¹⁰⁶, together with a plan for an integrated approach for this promotion. The five recommendations include: Promote the bundling of innovation questions from individual SMEs, Stimulate innovative network forming in the regions, Increase the financial possibilities for innovation, Promote innovation through Government projects to SMEs, and A re-introduction of the KIM measure – in an improved form.

¹⁰⁶ VNO-NCW (2004) Innvatiebevordering MKB, Den Haag.

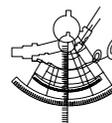
European Trend Chart on Innovation



4. List of TREND CHART measures

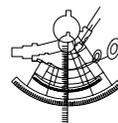
Ref	Title	Evaluation	Status	Archived	Start	End	Creation	Last update
NL 1	BTS Besluit Subsidies Bedrijfsgerichte Technologische Samenwerkingsprojecten» - Business-oriented Technological Co-operation Projects	The results of the evaluation may be summarised as follows: Relative R&D employment of BTS users in 1998 is hardly different from relative R&D employment of non-users. Relative R&D expenditure also does not vary a great deal between the two groups	Draft submitted	0	1997	open ended		14/07/2004
NL 2	TOK Besluit Technische Ontwikkelingskredieten 1997 Technical Development Credit 1997	The TOK has been evaluated in 2000. With respect to the administration of the measure, the evaluation has produced the following results. The interval for processing the applications is realistic and generally does not cause any problems for companies.	Draft submitted	0	1954(extended)	May 2001		14/07/2004
NL 3	SMEs Credit Guarantee Decree (BBMKB Besluit Borgstelling MKB Kredieten)	The last evaluation of the measure took place in 2000. Main findings are: The process supports the aims of the measures, and that the execution by the bank is strongly imbedded in the company management, meaning that they take the measure seriously. Alt	Draft submitted	0	1994	open		03/08/2004
NL 4	PMTs Participation Companies for New Technology-based Firms	There are no evaluations. The results of the companies are published in annual reports.	Draft submitted	0	01-10-1996	open		21/07/2004
NL 5	WBSO/WVA - Tax reduction R&D (Afdrachtvermindering Speur en Ontwikkelingswerk - S&O)	The 2002 evaluation found the following effects of the WBSO. First order effects: 1 euro spent on WBSO gives 1.02 euro in R&D effort. total R&D spending rises with total of the WBSO tax credit. Outcome of survey - size does matter (larger companies can take	Draft submitted	0	1.01.1994	OPEN		20/07/2004

European Trend Chart on Innovation



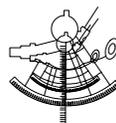
NL 6	KIM Subsidierегeling Kennisdragers in het MKB - Knowledge Carriers in SMEs	<p>- On the whole, KIM appears to be an effective instrument (see under indicators).</p> <p>- The cost of administering the measure are relatively high.</p> <p>- In order to check or even reduce costs, cutbacks on project support by Syntens are recommended by the exte</p>	Draft submitted	0	05-05-1994	01-01-2000 after which extension is possible.	14/07/2004
NL 7	Business-oriented International Technology programs (BIT)	The evaluation was positive and justified a continuation of support for co-operation.	Draft submitted	0	1.08.1997	May 2001	14/07/2004
NL 8	Reference Projects Environmental Technology; Subsidierегeling Referentieprojecten Milieutechnologie (SRM)	Although a number of projects were cancelled, the results of the approved projects are on average positive. The value of contracts, that have already been signed, exceeds the subsidy amount by far, while most projects have yet to be completed. A large p	Draft submitted	0	01-09-1996	OPEN	14/07/2004
NL 9	MKB Initiatief Nederland - SME Initiative	<p>The structure is adequate with a decision making steering committee and monitoring committee;</p> <p>At the financial level it was found that co-funding from the regions was lacking to a large extent</p> <p>There were many rejections due to a lack of qualitatively go</p>	Draft submitted	0	1996	open ended	03/08/2004
NL 10	KREDO Besluit Kredieten Elektronische Diensten Ontwikkeling - Credit facility development of electronic services	KREDO has had a positive impact on the development of new electronic services. Various results from the evaluation indicate that, due to the KREDO scheme, more projects could be carried out - either at a larger scale or at a faster rate. However, it also	Draft submitted	0	28-11-1997	end 2000	14/07/2004

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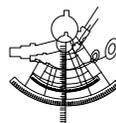
NL 11	Technology and Society (T&S)	The organisation of the subsidy scheme has been established. As a result of the abstract, non-quantifiable, objectives it is difficult to get a clear view on the content. The effects are more in raising awareness, the creation of networks and the policy i	Draft submitted	0	06-09-1998	OPEN		05/08/2004
NL 12	Subsidieregeling Haalbaarheidsprojecten MKB Feasibility Projects SMEs	Due to the scheme, many SMEs are familiar with the feasibility study as an innovation instrument. The instrument "forces" SMEs to think in a more structured manner in the process of innovation. Nearly 40% of the participants belongs to the direct target	Draft submitted	0	1.01.1996	May 2001		14/07/2004
NL 13	EET Besluit subsidies Economie Ecologie en Technologie - Economy Ecology and Technology	The programme is expected to make a substantial contribution to growth of the economy, reducing environmental problems and improve the knowledge position of the Netherlands. - assuming that 10% of the projects will be successful, the effect on the eco	Draft submitted	0	18.01.1997	OPEN		05/10/2004
NL 14	SMO Besluit Subsidies Maritiem Onderzoek - Subsidy Scheme Maritime Research	Evaluation in progress	Draft submitted	0	29-11-1997	May 2001		14/07/2004
NL 15	Twinning Centres	Twinning was evaluated in 2000. Twinning has contributed successfully to the dynamics in the ICT market. The government has set the stage for market parties to take over the initiative. A repositioning of Twinning, so as to act as a "market mover" throu	Draft submitted	0	1998	OPEN		16/07/2004

European Trend Chart on Innovation



NL 16	Industriefaciliteit - Industry facility	Evaluation took place in 1996: until then only limited use was made by medium-sized and bigger companies. According to the independent evaluators there was no need for extra risk-bearing capital due to the booming Dutch economy. In their opinion this need	Draft submitted	0	1993	01.01.2000		16/07/2004
NL 17	SBT Subsidieregeling Branchecentra voor Technologie 1998 - Sectoral Centres for Technology	The scheme has been evaluated in 1998 by independent evaluators. Up to the evaluation 19 sectoral centres have been founded and 14 technology-knowledge projects have been developed. Especially organising training activities for companies was an importa	Draft submitted	0	01.01.1998	2003		16/07/2004
NL 18	IOP Innovation oriented Research programmes (Subsidieregeling Innovatiegerichte Onderzoekprogramma)	The programme outputs are summarised as follows: - IOP projects: most IOP projects are dissertation projects. These projects produce a large number of reports and articles. The quality is generally regarded as good, although there are examples of failure	Draft submitted	0	01.01.1997	OPEN (see remarks below)		09/08/2004
NL 19	Leading Technological Institutes	Interim evaluation undertaken in 2001, during which the various institutes were assessed on their own merits. Overall conclusion is that all LTI are a success and that continuation is recommended. Each LTI is a public-private partnership and is organise	Draft submitted	0	1998	open		09/08/2004
NL 20	BVE 2000 (Beroepsonderwijs en Volwasseneneducatie 2000) - Training and further education 2000		Draft submitted	0	01.01.1999	01.01.2000		09/08/2004
NL 21	KeBB knowledge transfer between vocational training and companies (Kennissuitwisseling beroepsonderwijs bedrijfsleven)	In 2004 an overview of projects and a comparison from previous years has lead to a number of points and recommendations for the future. Some details of the programme are: technical and economic sector have made the most use of the measure. There is a trend	Draft submitted	0	1999	unlimited		09/08/2004

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NL 22	Syntens (formerly Innovation Centres)	The study served to develop a set of indicators. There has been no assessment of performance because: - the Ministry did not set targets for the years 1998-1999 to measure performance against - there are no existing indicators to compare the baseline in	Webpublished	0	1998	OPEN		09/07/2002
NL 23	Venture Capital Scheme (Durf Capitaal Regeling)- previously called Aunt Agatha scheme (Tante Agaath)	No evaluation has taken place - one is expected in 2004.	Draft submitted	0	1996	No End Planned	Date	04/08/2004
NL 24	BioPartner	2003 was a successful year, although the growth in numbers of starters was less than previous years. The goal of 15 starters per year was easily reached, the number of starters in the life sciences still increasing per year. The additional challenge for 2	Draft submitted	0	2000	2005		09/08/2004
NL 25	AXIS Foundation	An evaluation is planned for 2002. No results are available.	Webpublished	0	1998	2003		10/06/2002
NL 26	Science and Technics Netherlands Foundation, WeTeN	The evaluation committee concluded that in view of the limited interest of the public on the one hand, and the growing importance of science and technology on the other, there is a need for an independent institute for science and technology communicatio	Webpublished	0	1996	open		21/06/2002
NL 27	Rathenau Institute	The Institute has been evaluated in 1999. The evaluation committee concludes that the activities of the Rathenau Institute contribute to social debates and political decision-making, concerning scientific and technological developments, to a limited exte	Webpublished	0	1994	open		22/08/2002

European Trend Chart on Innovation



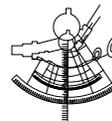
NL 28	Credit facility environmental product development (MPO)	There has been no evaluation but the measure (which was ended on 1 January 2001) is being replaced by the TOP measure - which will in fact replace three measures: the TOK (technical development credits), the electronic services development credit (KREDO)	Draft submitted	0	1996	End 2000		16/07/2004
NL 29	ICES/KIS	At the project level, the objectives of ICES/KIS have been met At the impulse level, the instrument has also proven its significance for targeted renewal of the knowledge infrastructure. The 2003 ICES/KIS 3 impulse has no available evaluation results ava	Draft submitted	0	1998	No End Planned	Date	10/08/2004
NL 30	Technical-scientific attachés (TWA)	An evaluation was undertaken in 2002. The network scored well in use and impact. Areas for development were to develop a better communication strategy towards the target groups, and a explicit mission and job description for the network. A post in the	Webpublished	0	1953	none		05/12/2003
NL 31	Technology Foundation STW	The organisation was evaluated in 2001. The evaluation concludes that the Technology Foundation STW is a reasonably efficient, widely known, and among project leaders highly esteemed and important organisation for stimulating application-oriented technical	Webpublished	0	1981	open		22/08/2002
NL 32	Dreamstart, platform for technostarters		Draft submitted	0	May 2001	open		16/07/2004
NL 34	Besluit Technische Ontwikkelingsprojecten (TOP) - Technical Development Projects	It is too early for an evaluation. The measure has only recently been launched.	Draft submitted	0	05-05-2001	open ended		16/07/2004
NL 35	Knowledge Transfer Entrepreneurs SMEs (SKO)	2003 evaluation results show the following. SKO has reached both technology following and technology generating SMEs. Large percent of participants made aware of the importance of studies, innovation and associated aspects - such as financing. Most parti	Draft submitted	0	05-03-2001	open		03/08/2004

European Trend Chart on Innovation

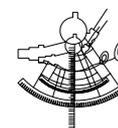


NL 36	Knowledge transfer Organisations SMEs Branche	In the 2003 evaluation of the two measures SKO and SKB - the SKB was deemed to be in a too early phase for evaluation. However the evaluation does look at the 29 projects that were awarded in 2001 and 2002 for SKB. 5 projects were analysed for effective	Draft submitted	0	05-03-2001	open ended		10/08/2004
NL 37	Technological Co-operation	It is too early for an evaluation. The measure has been recently launched.	Draft submitted	0	May 2001	open ended		16/07/2004
NL 38	Training impulse (Scholingsimpulse)	No information available. The measure will be evaluated in 2004, results expected in October	Draft submitted	0	07-25-01	2005		10/08/2004
NL 39	Subsidy Scheme Infrastructure Technostarters	Too early, the measure has only just been implemented. Measure is to be discontinued - experiences under the measure have been used in the setting up of the Knowledge Exploitation scheme within the new Technopartner programme.	Draft submitted	0	April 19, 2002	January 1, 2004		21/07/2004
NL 40	Subsidy scheme Entrepreneurship and Education	No information available	Draft submitted	0	10-22-2000	01-01-2003		16/07/2004
NL 41	Scholingsfaciliteit - Training Facility	All available evidence suggests that the impact of the training facility is limited. The main reason is unfamiliarity with the facility. Even when applied in an organisation, it does not mean that the person responsible for training within the organisatio	Draft submitted	0	1998	open		16/07/2004
NL 42	STIGON	* STIGON has contributed to the transfer of innovative research in pharmacology in Dutch universities to the start up of new companies. There are currently 12 projects (out of 18 approved) that have (practically) led to the start up of an independent comp	Draft submitted	0	2000	2004		16/07/2004
NL 43	TechnoPartner	The programme has just started and although there was no specific ex-ante evaluation, lessons were learnt from high-tech start-up policies implemented in the past (Twinning, BioPartner and Dreamstart, among others). The TechnPartner programme deals with i	Draft submitted	0	2004	No End Date Planned	07/07/2004	03/08/2004

European Trend Chart on Innovation

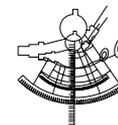


NL 44	Innovation subsidy co-operation projects	only started in 2004	Draft submitted	0	2004	No End Date Planned	14/07/2004	03/08/2004
NL 45	Innovation Subsidy for Collaborative Projects (Innovatiesubsidie Samenwerkingsprojecten)		Draft submitted	0			02/08/2004	02/08/2004
NL 46	SILO - Incentive for Innovative Learning Environments for Vocational Training/Adult Education 2001-2004	There has been an evaluation of projects that have been awarded in 2001, 2002 and the first half of 2003. This is more focussed on the use of the measure than on the process, effectivity and effectiveness.	Draft submitted	0	2001	2005	10/08/2004	10/08/2004

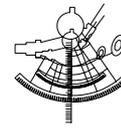


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