NWO Annual Report 2005

Including Indicators of Accountability

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Netherlands Organisation for Scientific Research

Colophon

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More information

This Annual Report 2005 contains the NWO Governing Board's formal administrative account for the year 2005; the account is based on the indicators of accountability and the annual accounts. The Annual Report is particularly intended for NWO's clients and administrative relations in the world of science. Besides this formal Annual Report 2005 NWO brings out two annual publications for other audiences:

- For the wide circle of professional relations in science and society NWO publishes, in a print-run of around 12,000, a yearly special called *Synthese* of its magazine *Hypothese*. This contains highlights from the scientific work in progress at the divisions, foundations, institutes and taskforces of NWO. This publication includes a CD-ROM containing as its main feature a unique, easily searchable database with information about research projects that were either approved, in progress or completed during 2005. In addition it contains NWO's Social Annual Report 2005 plus a number of other NWO publications, namely the issues of Hypothese which appeared in 2005 and the NWO Strategy Paper 2007–2010 *Wetenschap gewaardeerd! (Science valued!)* which appeared in May 2006.
- To inform the general public about scientific developments NWO publishes the easily accessible book *Verwondering. Wetenschap in Nederland 2006* (Boom Publishers), which is sold at bookstores (publication date: middle of October 2006). In this book special findings from NWO-funded research are presented and explained with the help of interviews with scientists, illustrations and short articles; researchers tell about their passion for science.
  More information at verwondering@uitgeverijboom.nl.

Preface

The year 2005 was a crucial year for NWO: 2005 was the last year of the strategic period *Themes plus Talent* and also the year in which the NWO strategy 2007–2010 was prepared. A year of progress and results, but equally of reflection.

As national research organisation NWO is responsible for further enhancing the high quality of Dutch research and boosting innovation. And as intermediary between science and society NWO is moreover equipped to carefully balance the interests of science and society and align them with each other. NWO regards its efforts as a contribution to making the Dutch knowledge society a front runner in Europe. During the past years this ambition was given shape through the NWO strategy 2002–2005 *Themes plus Talent*. This NWO annual report is a record of the progress of its work in 2005, made with the help of accountability indicators and the annual accounts. We are proud of what we have achieved.
The talent policy in which the Innovational Research Incentives Scheme played a major part is clearly coming to fruition. Young researchers are able to use this scheme to further their careers; many laureates were promoted in recent years and attained tenure. Within the framework of the themes NWO developed a richly diverse portfolio of programmes, in which scientific and societal questions often meet. Unfortunately, the increase for this thematic approach, requested in 2001, was not realised, which caused the intended impulse to be more limited than was anticipated. In the field of internationalisation NWO has achieved fine results. In a large number of programmes and networks parts of NWO are cooperating with research organisations elsewhere in Europe. In that way NWO contributes to the focus and critical mass of science which is (also) needed at a European level to cope with competition from the United States and the emerging economies. NWO's investment policy, aimed at developing and exploiting new research facilities, was in 2005 given a fantastic new branch: the National Programme for Investments in Large-Scale Research Facilities (also known as the BIG-facilities programme), initiated by the Innovation Platform. Such investments enable the Netherlands to strengthen its position as an attractive country for science. Finally, NWO's activities in the field of communication and knowledge transmission attracted the interest of many, and the more than 1900 media reports on NWO and NWO-sponsored research demonstrate that NWO played a vital role in giving science a visible presence in Dutch society.
In short: 2005 was a year to be proud of.

But, as already said, 2005 was also a year for reflection. NWO, together with its many knowledge partners, took a profound look at its role, its possibilities and its ambitions for the period up to 2010, and in this it expressly opted for a process of 'from the outside looking in'. To get a clear view of its position, possibilities and ambitions NWO in 2005 focused its attention quite emphatically on the world outside. To gather input intensive communication took place in which we have consulted our knowledge partners in many different ways, inspired by the thought that for NWO cooperation with these organisations and individuals is a necessary condition for doing its job well. The basis for NWO's work is the collaboration with (individual) researchers, universities and other public knowledge institutions. Acting as intermediary in addition means intensive contact with government departments, the business world and other social partners. All these parties have consequently been asked to give their views in a series of bilateral talks on governance and through questionnaires, interviews, workshops and presentations. This round of consultations formed the basis for the strategic paper 2007–2010 *Science Valued!* which was presented on 22 May 2006 at a well-attended meeting in the Grote Kerk at The Hague. The response to this strategy from among others politicians was very promising. Starting in 2006 NWO will energetically put this strategy into action, in the assumption that the political decision-makers will transform their positive response into the required extra financial commitment of 433 million euro.

Peter Nijkamp
Chair, NWO Governing Board

Key figures (consolidated)

Statement of assets and liabilities (x €1000)	2005	2004
OCW government contribution	305.969	303.597
OCW subsidies	80.944	55.225
Third-party subsidies and contributions	93.873	79.450
Other assets	9.393	13.383
Total for assets	490.179	451.655
Subsidies to third parties	302.801	288.232
Exploitation of NWO institutes	168.992	156.339
Administrative costs	37.087	33.315
Other liabilities	3.214	2.782
Total for liabilities	512.094	480.668
Result of operational management	-21.915	-29.013
Financial assets	7.544	6.153
Result	-14.371	-22.860
Mutations in designated funds	20.566	20.198
Mutations in general reserve	-34.937	-43.058

Funded employees as per 31 December (FTE)	2005	2004
NWO Institutes	1.352	1.350
Universities	4.326	3.759
Other research institutes	445	427
NWO Office	398	406
Total	6.522	5.942

Publications	2005	2004
Publications in refereed journals	5.650	5.993
Publications in other scientific journals	2.386	1.861
Book contributions	795	744
Monographs	240	179
Dissertations	461	479
Patents	50	51
Other professional products	1.149	1.132

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1 NWO mission and positioning

NWO's task is to promote quality and innovation in Dutch science. In 2005 NWO put this mission into practice on the basis of the strategy *Themes plus Talent*. 2005 was also a year of transition towards the strategy *Science Valued!* Together with its many knowledge partners in science and society NWO in 2005 considered its role, its possibilities and its ambitions for the period 2007–2010.
This chapter contains a description of the NWO mission, NWO's position in science and society, and the cooperative ventures that resulted from this in 2005.

1.1 NWO mission

In order for the Netherlands to remain an international competitor, a powerful knowledge system with strong universities and knowledge institutions is needed. As second-flow-of-funds financier falling under the Ministry of Education, Culture and Science (OCW) NWO is one of the organisations of which a major contribution to the strengthening of the Dutch knowledge system is expected. NWO's position as guardian of scientific quality, as organisation that uses its programming in collaboration with the researchers in the field to give direction to scientific research, and as intermediary between science and society, offers an excellent point of departure in this respect. Through meticulous selection NWO is able to safeguard and enhance the high standard of Dutch science. And by being alert to new possibilities NWO is able to stimulate innovation that benefits the knowledge society as a whole.

1.2 Developing the *Science Valued!* strategy

During 2005 NWO's role as guardian of scientific standards and as intermediary between science and society was given concrete shape in several different ways: on the one hand as the outcome of the strategy *Themes plus Talent* (which will be treated in this Annual Report) and on the other hand in developing the strategy 2007–2010. The strategic paper 2007–2010 *Science Valued!* which was presented on 22 May 2006 in the Grote Kerk at The Hague, was devised in close collaboration with all of NWO's stakeholders in science, government, the business world and other areas of society.
In 2005, at the request of NWO, plenary meetings, bilateral consultations and a survey were held in which the stakeholders presented their views on developments in science and society and on the way these developments can steer NWO's strategy for the coming period. Thanks to all this input the new strategy has become a balanced and ambitious plan, which NWO is happy to carry out with enthusiasm and energy. NWO will involve its partners in the implementation phase as well. The execution will of course be reported on in future annual reports.

1.3 Guardian of quality in science

NWO makes the quality of the funded research and the innovation of the research agenda central to the execution of its tasks. The aim here is to perform at world-class level. Since 2002 NWO has been active to achieve this aim by means of a policy that has the following spearheads: development of talent and open competition, theme-based research, reinforcement of internationalisation, improvement of infrastructure and intensification of communication and knowledge transfer.

- It is of great importance to invest in the intellectual capital of young scientists. NWO therefore stimulates young talent to choose a career in science, it gives young scientists the opportunity to reach full growth, and it supports proven **talent**. For this NWO has a number of personal subsidy instruments, such as the Innovational Research Incentives Scheme and the Rubicon programme. Individual talent is also supported through the open competition, which in addition aims to stimulate new developments that may grow into the themes of the future.
- There is a need for research that provides answers to ever more complex social questions. This often concerns multidisciplinary research in which various scientific disciplines, government and/or businesses at home or abroad cooperate closely. NWO gives shape to this research in nine **themes**.

- By **international cooperation** knowledge and research are combined. NWO focuses particularly on cooperation in Europe.
- A modern **research infrastructure** is a major precondition for top-level research. NWO therefore increasingly invests, in various ways, in (international) research facilities.
- **Communication and transfer of knowledge** about the findings produced by NWO-funded research stimulate the use of science in policy or practice.

These spearheads from *Themes plus Talent* continue to call for (increased) attention in the new strategy.

1.4 Intermediary between science and society

NWO attaches great importance to partnerships with social parties. In 2005 this collaboration took the shape of, among other things, a number of already existing cooperative ventures with several ministries apart from OCW, and there was also the start of a number of programmes co-financed from the NWO Stimulation Fund.

Collaboration with the Ministry of Economic Affairs

Together with the Ministry of Economic Affairs (EZ) NWO is a client of the Technology Foundation STW. NWO also increasingly cooperates with SenterNovem, EZ's executive organisation. This collaboration is resulting pre-eminently in research projects in which knowledge transmission has been incorporated from the start.
In 2005 the Ministries of OCW and EZ along with SenterNovem and NWO developed the Smart Mix programme. The Smart Mix is aimed at question-driven research programmes performed by consortia consisting of knowledge institutions, social organisations and companies. The object is twofold: creating social and economic value (valorisation) in the broad sense of the term and strengthening focus and mass in excellent research. The first call for applications follows in the course of 2006.
Apart from the Smart Mix NWO also cooperated in 2005 with EZ/SenterNovem in the STEVIN programme and the National Programme for Investments in Large-Scale Research Facilities (see chapter 5; also known as the BIG-facilities programme). SenterNovem and NWO jointly take care of the monitoring of the BSIK programme. NWO and EZ have also decided to jointly fund an IOP in the field of Photonic Devices.

Collaboration with the Ministry of Health, Welfare and Sport

Since 2001 the Netherlands Organisation for Health Research and Development (ZonMw) is a combination of ZON, funded by the Ministry of Health, Welfare and Sport (VWS), and the NWO Medical Sciences Division. In 2005 this collaboration resulted in the making of joint work arrangements that will give a more concrete shape to the joint clientship of VWS and NWO. In doing so both organisations are implementing one of the recommendations from ZonMw's evaluation report. The joint clientship is being further effected by the joint funding of the Risk Behaviour and Dependency programme and by the initiative to create academic workplaces.

Collaboration with the Ministry of Foreign Affairs

The Netherlands Foundation for the Advancement of Tropical Research (WOTRO) is co-funded by the Ministry of Foreign Affairs. The key aim of WOTRO is to expand the research capacity in developing countries. By concentrating on the research themes Poverty and Hunger, International Relationships, Global Health, and Sustainable Environment WOTRO aims to contribute to the United Nations' Millennium Development Goals.

Collaboration with various ministries

Temporary taskforces

In close interaction between various ministries and NWO three national taskforces have been set up that apply themselves to the national coordination of specific fields. These bodies are particularly responsible for producing interaction between science, companies and other consumers of knowledge.
The taskforce Advanced Chemical Technology for Sustainability (ACTS) is aimed at developing chemistry and chemical technology in relation to sustainability. ACTS is a cooperative of EZ, the Ministry of Housing, Spatial Planning and the Environment (VROM), chemical companies and NWO. Of great consequence to the development of ACTS and Dutch chemistry in general was the election of Dutch chemistry as key area by the Innovation Platform in 2005.
The central task of the Netherlands Genomics Initiative (NGI) is to build an internationally leading infrastructure that stimulates high-class research and initiates new economic activities in genomics; all of this firmly embedded in society. In 2005 an external committee performed the mid-term evaluation of NGI. The findings have been presented to the minister of OCW. The recommendations and conclusions of this evaluation will be incorporated in NGI's new strategic plan.
The object of the National ICT Research and Innovation Authority (ICTRegie) is to strengthen the Dutch ICT knowledge infrastructure and to bring supply into line with demand. This taskforce was officially launched and its strategic plan presented in October 2005.

Casimir programme

With funds from the Deltapunt Bèta/Technology as delegated taskmaster on behalf of the ministries of OCW and EZ, NWO carries out the Casimir programme. This aims to encourage researchers' mobility and create a greater volume of exchanges of researchers between companies and public knowledge institutions. 151 applications were submitted in the first round of this programme in 2005; 23 were approved.

Contested Democracy programme

Together with the ministries of General Affairs (AZ), Interior and Kingdom Relations (BiZa), Justice, OCW, VROM, Agriculture, Nature and Food Quality (LNV) and other social organisations NWO has developed the Contested Democracy programme. The programme studies the performance and vulnerability of democracy.

Other joint initiatives

Means from the Stimulation Fund were put at the disposal of a joint venture of the FOM Institute for Plasma Physics and Carl Zeiss. This collaboration's objective is to develop a second generation of highly UV-reflecting multilayer structures, which are particularly important in micro-electronics. Within the framework of public-private cooperation means from this fund have also been reserved for a nano-laboratory in a transmission electron microscope; a joint venture with FEI-company.

1.5 Provenance and distribution of 2005 budget

The budget that NWO in 2005 was able to spend on top-quality research stemmed to an important extent from the ministry of OCW and in addition from various other sponsors. Table 1 provides a survey of the sources of NWO means.
The growth of these OCW subsidies in 2005 compared to 2004 (from M€ 55.2 to M€ 80.9) is mainly due to contributions intended for the Rubicon programme (M€ 4), the MTIs (M€ 11.7), the taskforce NGI (M€ 9.1) and BSIK (M€ 6.8).

Table 1: Budget indicators

	Government				Other	Total
	OCW		Other departments	Total from government		
	Basic revenues	Other				
Revenues 2004 (k€)	305.969	80.944	56.732	443.645	46.534	490.179
Share of total revenues %	63%	16%	12%	90%	10%	100%
Revenues 2004 (k€)	303.597	55.225	53.760	412.582	39.073	451.655
Share of total revenues %	67%	12%	12%	91%	9%	100%

Table 1: Explanation

This table exhibits the provenance of NWO's revenues.

- **Basic revenues**: The basic revenues (government contribution) are the regular revenues that NWO receives every year from the ministry of OCW.
- **Other:** The other (earmarked) contributions that NWO receives from the ministry of OCW.
- **Other departments:** The earmarked revenues which NWO receives from ministries other than that of OCW, and which thus contribute to NWO's role as preferred partner. These means stem from the ministries of Justice, Foreign Affairs, Agriculture, Housing, Transport, Health, Economic Affairs and Social Affairs.
- **Total from government:** The sum of all revenues received from the ministry of OCW and the other departments.
- **Other:** Revenues received from organisations other than the government, thereby contributing to NWO's role as preferred partner.
- **Total:** Total revenues received from the government and other organisations.

The table below shows how the budget in 2005 and 2004 was divided between the various spearheads of NWO policy.

Table 2: Division of budget between strategic goals

Allocation strategy paper	Administrative account	
(in M€)	2005	2004
Themes	76	74
Talent	66	58
New developments (a.o. free competition)	154	155
Investments/Infrastructure	27	26
Internationalisation	12	9
Other	30	29
Total subsidies	366	350
Institutes	104	94
Administrative costs	37	33
Other	5	4
Total NWO	512	481

Table 2: Explanation

The division into categories accords with the agreements made within the framework of the indicator covenant with OCW. The figures are consolidated.

- New developments are stimulated by, among other things, the 'free' competition, where researchers can submit proposals for non-thematic research. Selection takes places on the basis of the proposals' quality.
- The Governing Board has set aside a modest sum for further promoting the internationalisation of scientific research.

- The Governing Board's intention to maintain and if possible increase the contribution to the institutes was translated into an expansion of the means for replacements and repairs and a one-off compensation for indexation that OCW failed to pay over the past years.
- The means allocated to the institutes do not comprise those means which the institutes acquire from the other strategic goals.

1.6 Annual Report 2005: accountability indicators and annual accounts

This Annual Report records the results of investments through NWO in 2005 Chapters 2–9 contain data about the results for which particularly the accountability indicators are used that NWO and OCW agreed on in 2002. The following subjects are discussed:

- Talent
- Themes
- Internationalisation
- Infrastructure
- Communication and knowledge transmission
- Granting subsidies: selection, input, output
- Financial policy
- Governance

2 Talent and open competition

An absolute requirement for strong, innovative research, as envisioned by NWO since its foundation, is the presence of a sufficiently large number of researchers who are given the chance to fully live out their passion for science. To strengthen this foundation NWO in the past years has heavily invested in people by means of a number of targeted subsidy instruments. These involve talent programmes such as the NWO Spinoza Award, the Innovational Research Incentives Scheme, Talent (now part of Rubicon), Mosaic and Aspasia.

2.1 NWO Spinoza Award

In 2005 NWO awarded the NWO Spinoza prizes for the eleventh time to researchers from Dutch universities who belong to the top of the league in their field of expertise. The NWO Spinoza Award is the highest Dutch award in the sciences. In 2005 it went to:

Prof. R. (René) Bernards, molecular biologist at the Netherlands Cancer Institute - Antoni van Leeuwenhoek Hospital and Utrecht University.
He has developed three innovative genetic technologies to study the process of cell division and discovered a pattern of gene expression that predicts breast cancer metastases.
Prof. P. (Peter) Hagoort, cognitive neuroscientist at the F.C. Donders Centre for Cognitive Neuroimaging and the Radboud University Nijmegen.
He has demonstrated that brains in which the language-processing area is damaged can still understand language via other routes. Moreover within five years he has led the F.C Donders Centre to worldwide fame.
Prof. D. (Detlef) Lohse, physicist at the University of Twente.
He has provided the globally-recognised clarification of sonoluminescence, the phenomenon in which a micro-bubble can emit light under the influence of sound.
Prof. A. (Lex) Schrijver, mathematician at the National Research Institute for Mathematics and Computer Science and the Universiteit van Amsterdam.
He has written two standard works on combinatorialism and algorithmics, and during the writing of these he bridged gaps in the theory with new propositions and proofs.

2.2 Innovational Research Incentives Scheme

The Innovational Research Incentives Scheme is geared towards different stages of a scientific career. Table 3 shows the numbers of received applications and grants, and the awarding percentages of the three parts of the Innovational Research Incentives Scheme in 2005.
The gross awarding percentage is a measure of an application's chance of success. The overall number of applications in 2005 was higher than in 2004; in 2004 the total gross awarding percentage of 26.2% was considerably higher than in 2005. In the Vici programme the burden on researchers is being reduced on account of the system of preliminary applications. This causes the net awarding percentage of fully worked-up applications to rise to a level of around 40%, which is an acceptable level considering the efforts Vici researchers need to make to draft a full application.

Table 3: Innovational Research Incentives Scheme indicators, applications and grants

	Number of preliminary applications			Number of applications			Number of awarded applications			Gross awarding percentage			Net awarding percentage		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Veni	0	0	0	479	332	811	101	78	179	21,1	23,5	22,1	21,1	23,5	22,1
Vidi	0	0	0	202	105	307	52	27	79	25,7	25,7	25,7	25,7	25,7	25,7
Vici	114	31	145	55	13	68	23	4	27	20,2	12,9	18,6	41,8	30,8	39,7
Total 2005	114	31	145	736	450	1186	176	109	285	22,1	23,3	22,6	23,9	24,2	24,0
Total 2004	111	25	136	469	201	670	134	61	195	25,4	28,2	26,2	28,6	30,3	29,1

Table 3: Explanation

- **Gross awarding percentage:** The number of accepted applications divided by the number of applications initially submitted to NWO. By 'initially submitted to NWO' is meant:
  - where preliminary applications are involved: the number of received preliminary applications;
  - where no preliminary applications are involved: the number of received (fully worked-up) applications.
- **Net awarding percentage:** The number of accepted applications divided by the number of (fully worked-up) applications submitted to NWO.

As part of the Innovational Research Incentives Scheme special attention is also given to the position of female researchers. NWO guarantees that the awarding percentages for female candidates, on average and over the course of more than one year, are at least as high as those of male candidates. In 2005 the awarding percentages for women in Veni and Vidi were higher than or equal to those for men. In the Vici programme the awarding percentage for women was regrettably lower than the male percentage. In 2004 the awarding percentage for women was better in Vidi and Vici. The awarding percentage for women in the Innovational Research Incentives Scheme was slightly higher than the percentage for men over the period 2002–2005 (women 23.5%, men 22%).

Up to and including 2005 the Innovational Research Incentives Scheme has enabled 470 Veni, 315 Vidi and 108 Vici researchers to carry out their innovative and pioneering research work. These figures are in line with the agreed numbers of 115 Veni, 75 Vidi and 25 Vici awards per year.

A major aim of the Innovational Research Incentives Scheme is to offer researchers the prospect of a career in science. In figures 1-3 opposite the career development of the three groups of laureates is visualised. Notably the Vidi laureates show a marked progress from postdoc positions to the positions of lecturer (UD), senior lecturer (UHD) or professor (HGL). A total of around 24% of laureates demonstrate progress in their careers during the first half term of their projects.

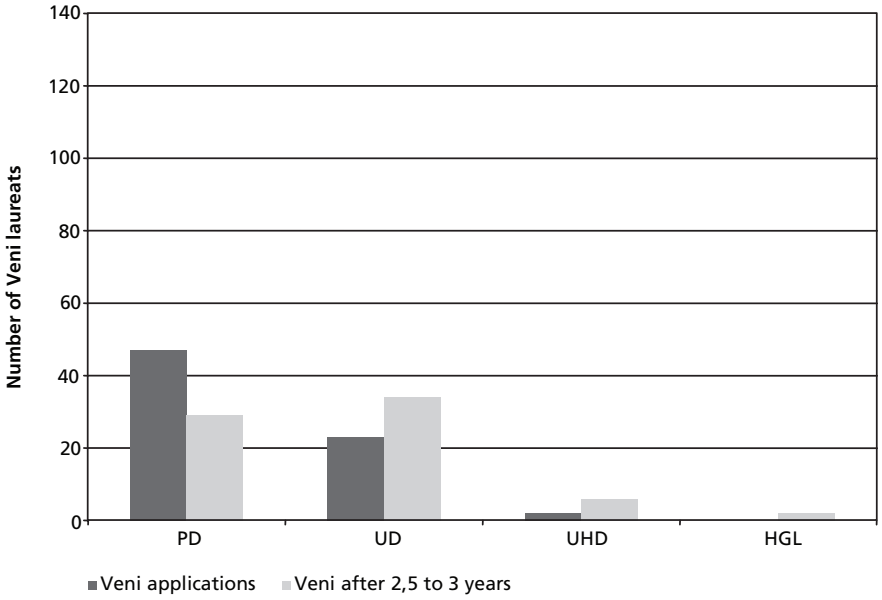

Figure 1: Career development of Veni laureates

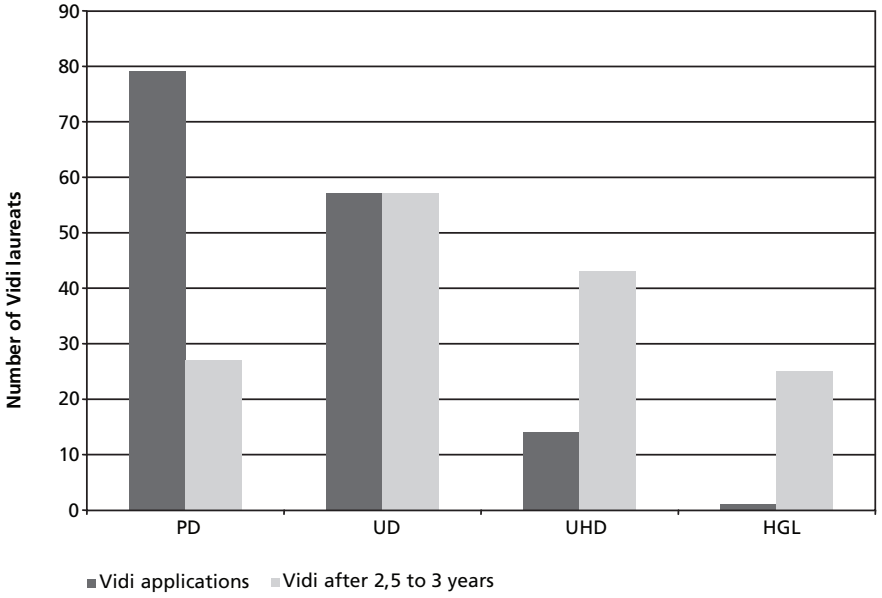

Figure 2: Career development of Vidi laureates

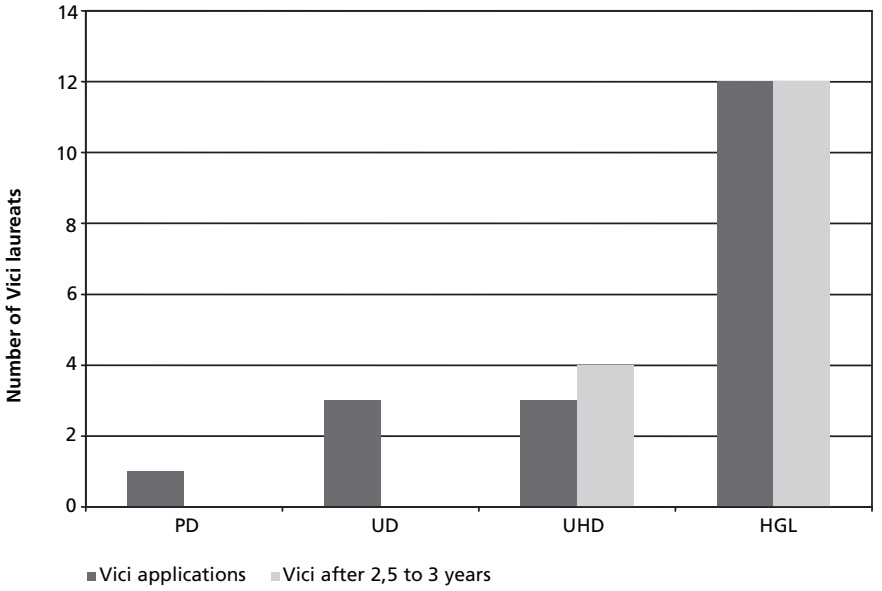

Figure 3: Career development of Vici laureates

Table 4 shows the follow-up careers of laureates. It demonstrates that the number of promotions of female researchers lags behind the number of promotions of their male colleagues. NWO hopes that incorporating the Aspasia premium into the Innovational Research Incentives Scheme from 2005 will give an extra stimulus to the career prospects of women laureates. The results of this move will become visible during the course of 2006.

Table 4: Innovational Research Incentives Scheme indicators, follow-up career

	Share PD/UD/UHD/HGL at time of application (%)								Share PD/UD/UHD/HGL 2 to 3 years after award (%)							
	PD		UD		UHD		HGL		PD		UD		UHD		HGL	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Veni	63	69	33	31	4	0	0	0	37	48	48	48	11	4	4	0
Vidi	51	57	38	36	10	7	1	0	16	26	38	35	28	29	18	10
Vici	5	0	15	0	20	25	60	75	0	0	0	0	15	0	85	100
Total 2005	49	59	34	31	10	5	7	5	20	34	37	39	24	17	19	9

Table 4: Explanation
PD: Postdoc
UD: Lecturer
UHD: Senior Lecturer
HGL: Professor
This table is to be read as follows:
- Of the total number of male/female laureates in Veni, Vidi, Vici x% are PD, UD, UHD or HGL.
- Of the total number of male/female laureates in Veni, Vidi, Vici x% are PD, UD, UHD or HGL after 2.5–3 years.
- The data relate to the 2000 and 2001 rounds (old style) and the 2002 round (new style). The data of the Veni and Vici subsidies have not been displayed before.

2.3 From Talent to Rubicon programme

The final round of NWO's Talent programme closed on 15 September 2005. The number of submitted and approved applications in 2005 was comparable to that in 2004 (2004: 115 applications, 47 grants).

Table 5: Talent grants

	Number of preliminary applications			Number of applications			Number of awarded applications			Gross awarding percentage			Net awarding percentage		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Talent-grants	0	0	0	68	57	125	22	21	43	32,4	36,8	34,4	32,4	36,8	34,4

Table 5: Explanation
- **Gross awarding percentage:** The number of accepted applications divided by the number of applications initially submitted to NWO. By 'initially submitted to NWO' is meant:
  - where preliminary applications are involved: the number of received preliminary applications;
  - where no preliminary applications are involved: the number of received (fully worked-up) applications.
- **Net awarding percentage:** The number of accepted applications divided by the number of (fully worked-up) applications submitted to NWO.

The gross awarding percentage is an expression of the total application pressure. The net awarding percentage indicates the burden on researchers and is in line with the intention, formulated in the 2002–2005 strategic paper, to aim for an average net awarding percentage of 30%.

The Rubicon programme has succeeded the Talent programme for those researchers who have recently taken their PhD. The Rubicon programme derives from a Rubicon amendment of Visser c.s approved by the Lower House of Parliament in December 2004:

> "This amendment aims to provide extra means for encouraging highly promising young researchers and scientists. There has been shown to be a gap between the moment of graduation, the possible start of a scientific career and the moment researchers become eligible for grants from NWO's Innovational Research Incentives Scheme. The means made available through this amendment are provided to young scientists on a personal basis. The means are expressly intended for young talent by creating for them a pre-Veni subsidy via NWO. The available sum must be linked to the young scientist and his or her proposal."

Like Talent Rubicon stimulates the scientific mobility of researchers who have recently obtained their doctorate. In Rubicon, however, the duration of a stay abroad has been doubled from 1 to 2 years. In this way NWO expects to offer young talented researchers the means to bridge the gap between the doctorate and the Innovational Research Incentives Scheme's Veni programme. In 2006 NWO will award the first Rubicon grants.

2.4 Special target groups

Mosaic

The Mosaic programme aims to create an influx of graduaters and graduates from ethnic minority groups (as defined in the Law Together) into the scientific world. Here NWO's attention is consequently directed to those without research experience: the just graduated academics. The first round of the programme was in 2004. It was continued in 2005 owing to the huge interest in the programme, the high quality of the candidates, the place of the programme in NWO's policy for the cultivation of talent, and the vast attention to minority groups generated by the programme. By 10 January 2005 142 pre-applications for Mosaic had been received. After a first selection 45 applicants were invited to work up their proposal. Of these 22 were eventually approved. In addition some of the applications rated 'excellent' were approved by universities.

Aspasia

The Aspasia programme aims for an increase in the number of female senior lecturers. After discussions with the ministry of OCW NWO in 2004 decided to put Aspasia grants at the disposal of University Boards who promote female Vidi and Vici laureates. This model was first applied in 2005. In the course of 2005 many laureates were nominated for promotion. The Boards still have until August 2006 to promote female laureates and receive the Aspasia grants.

MEERVOUD and FOm/v

Alongside these general NWO stimulation programmes for the promotion and advancement of female researchers various NWO divisions have developed their own activities. Through the MEERVOUD programme the divisions ALW, CW and EW encourage the career progression of female researchers from postdoc to UD. Seven such cases occurred in 2005 as part of this programme.
The FOm/v programme attempts to preserve women physicists for science. In 2005 the second FOm/v symposium was held attended by around 80 women physicists.

2.5 Free, high-risk research: open competition

The free research offers top scientists the chance to elaborate their own non-theme-bound ideas. In doing so it acts as the cradle of future opportunities for innovation and technological developments. Aside from the talent programmes, where in particular young talented researchers are being stimulated to embark on scientific careers, the free competition is open to all researchers.
As a result of the heavy emphasis on programmatic research, focus and critical mass the free, mostly curiosity-driven types of research are coming increasingly under pressure. In the interest of future developments NWO therefore wants to create sufficient space for this type of research. Of the available basic budget of 306 million euro NWO in 2005 spent around 70 million euro on free, non-subject-bound research. That is about 40% of the regular budget that the NWO Division Boards have at their disposal.
Only an average of 1 in 5 submitted applications can be funded in the free competition. This means that much research that satisfies the severest quality requirements must remain unsubsidised. This is an undesirable situation in view of the burden on researchers, but mostly because it prevents new scientific developments from taking place. In the coming strategy period NWO will therefore make an extra effort to provide more means to free and high-risk research.

3 Themes

A position in the international vanguard of science is of great importance to a knowledge economy like the Netherlands. For that reason NWO heavily invests in innovation of the research agenda. To accomplish this it is vital to join forces at a national level. At present NWO distinguishes nine NWO themes that accentuate significant, innovative or strategic developments in science – developments that on account of their speed, scope and required scale transcend the limited possibilities of the basic funding of individual research institutions.

3.1 Investments in themes and grants

NWO invests a substantial part of its means in the development of nine themes. Table 6 gives a view of what has been invested in each individual theme and the number of subsidy instruments devised within each theme. The budget invested in 2005 (M€ 76) is higher than in 2004 when a total of M€ 74 was invested in the themes, but considerably lower than the intended level. The reason for this is the non-arrival of the requested increases for this spearhead of NWO policy.

Table 6: NWO theme indicators, spending and output

NWO themes	Number of running theme programmes	Spendings per theme 2005 (k€)	Target budget 2005 (k€)	Percentage of NWO spendings 2005
Shifts in Governance	3	2.210	6.800	0,4
Cognition and Behaviour	2	2.598	9.100	0,5
Cultural Heritage	9	3.842	4.500	0,7
Digitalisation and Information Technology	15	7.738	6.800	1,5
Ethical and Social Aspects of Research and Innovation	2	2.709	4.500	0,5
Fundamentals of Life Processes	14	28.871	31.800	5,6
Nano-Sciences	11	4.041	20.400	0,8
Emerging Technologies	16	8.776	11.300	1,7
System Earth	21	15.673	13.600	3,1
Total 2005	93	76.458	108.800	14,9
Total 2004	89	74.170	108.800	15,4

Table 6: Explanation
This table makes visible the extent to which the NWO themes, as set out in the NWO strategy paper 2002-2005, are being realised.

- **Number of running theme programmes:** The number of running theme programmes indicates the extent to which the themes are gaining substantive content. The number is based on the list drawn up by NWO's Council of Directors.
- **Spendings per theme 2005:** The sum spent in 2005 on research in the field of the themes.
- **Target budget 2005** – The target sum that NWO wants to spend in 2005 according to the strategy paper.
- **Percentage of NWO spendings 2005:** The part of total NWO spendings in 2005 spent on themes. This figure indicates the relative importance of the themes within the whole of NWO funding.

Depending on available means researchers are offered the option of submitting applications for the various subsidy instruments within the themes. Table 7 provides an overview of the number of submitted applications and their awarding chances. The number of applications has doubled compared to 2004. This is mainly due to the fact that in 2005 figures of ZonMw were also included.

Table 7: NWO themes applications and grants

	Number of preliminary applications			Number of applications			Number of awarded applications			Gross awarding percentage			Net awarding percentage		
NWO themes	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Shifts in Governance	0	0	0	4	0	4	3	0	3	75		75	75		75
Cognition and Behaviour	12	9	21	23	9	32	8	3	11	35	33	34	35	33	34
Cultural Heritage	38	15	53	40	12	52	16	3	19	24	14	21	40	25	37
Digitalisation and Information Technology	66	16	82	115	12	127	38	5	43	25	25	25	33	42	34
Ethical and Social Aspects of Research and Innovation	59	16	75	26	10	36	12	7	19	19	39	24	46	70	53
Fundamentals of Life Processes	0	0	0	164	43	207	20	4	24	12	9	12	12	9	12
Nano-Sciences	0	0	0	2	0	2	2	0	2	100		100	100		100
Emerging Technologies	4	0	4	3	0	3	2	0	2	50		50	67		67
System Earth	78	9	87	139	16	155	78	12	90	41	57	43	56	75	58
Total 2005	257	65	322	516	102	618	179	34	213	27	26	27	35	33	34
Total 2004	425	51	476	323	46	369	147	18	165	23	22	23	46	39	45

Table 7: Explanation

Table 7 provides an overview of the number of submitted applications and their awarding chances. The gross awarding percentage is an expression of the total application pressure. The net awarding percentage indicates the burden on researchers and is in line with the intention, formulated in the 2002–2005 strategic paper, to aim for an average net awarding percentage of 30%.

- **Gross awarding percentage:** The number of accepted applications divided by the number of applications initially submitted to NWO. By 'initially submitted to NWO' is meant:
  - where preliminary applications are involved: the number of received preliminary applications;
  - where no preliminary applications are involved: the number of received (fully worked-up) applications.
- **Net awarding percentage:** The number of accepted applications divided by the number of (fully worked-up) applications submitted to NWO.

The NWO themes are diverse in nature and progress differently in the long term. For example, the means for an NWO theme like Cognition and Behaviour are concentrated in two research programmes, whereas for System Earth a differentiated approach via 21 programmes was chosen.

This is one of the reasons why the results and developments over 2005 vary. Only newly launched programmes are describes below; the already running programmes are briefly mentioned. For more detailed information about newly approved, currently running and completed projects, see tje NWO website.

3.2 Shifts in Governance

The government is blamed for crowded and delayed trains. In response it tries to regain some control over the partially privatised Dutch Railways (NS). When one considers the recent conflict about drivers' schedules, however, it becomes clear that governmental powers in this area are extremely limited. How social processes, in the widest sense of the word, can be governed and controlled, is a subject of research in which various disciplines are involved. The social sciences play an important part, but also the physical, medical, earth and life sciences. Research concentrates on questions like: How do shifts in governance affect the supervision of the concentration of power in the various sectors? How do they affect the efficiency, effectiveness and legitimacy of the existing mechanisms of control? Which new forms of governance and control can already be identified? Which solutions are needed? Which answers are desirable and possible?

Programmes within the theme Shifts in Governance in 2005

- SaRO: Revitalisation of Legal Research (MaGW), term 1997–2006
- Shifts in Governance: Problems of Legitimacy and Accountability (GW, MaGW, WOTRO), term 2002–2006
- SociaL cohesiON (MaGW, GW), term 1999–2005

3.3 Cognition and Behaviour

By nature we all exhibit intelligent behaviour. With great ease we recognise the people around us, walk, read a newspaper, drive a car, while at the same time counting change, listening to the radio, speaking on the phone etc. The question is how we manage to do all this. Research within the theme Cognition and Behaviour first and foremost focuses on clarifying fundamental laws of information and information processing and on resolving the question how knowledge is acquired and used in personal, social, cultural and electronic contexts. Promising additional perspectives are behaviour and evolution, language acquisition, animal behaviour, knowledge accessibility and disorders in cognitive processes. Multidisciplinary cooperation and the use of new techniques produces still more important new insights. Within the theme there is collaboration among scientists from such fields as the neurosciences, linguistics, psychology/pedagogy, artificial intelligence, economics, sociology, political science and ethology.

Programmes within the theme Cognition and Behaviour in 2005

- Cognition and Behaviour (ALW, EW, GW, MaGW, STW, ZonMw), term 2001–2006
- Evolution & Behaviour (MaGW, ALW), term 2002–2009

3.4 Cultural Heritage

Within the context of the Cultural Heritage theme research is being conducted into the function, perception and forms of expression of culture: archaeology, history, religion, art, language and literature, music, theatre and new media. All these cultural expressions are of great importance socially. For instance, research is being done into religion at the beginning of the 21st century, a period that

shows various modern expressions of religion but also the rise of fundamentalist religious currents and groups. The central question is whether religion has become a thing of the past or whether it has a future. Another research project examines the enormous changes in art and culture as a result of such tendencies as globalisation, technologisation and commercialisation. A third example is the research into the damage affecting some Golden Age paintings. Restorers from the Mauritshuis discovered some strange damage to the Rembrandt painting 'The anatomical lesson of Dr. Nicolaes Tulp'. Certain of the components existing in the painting were found to swell up to such an extent that the top layer of paint in the affected areas is being pushed away. This has resulted in small indentations and bulges.

Programmes within the theme Cultural Heritage in 2005

- BBO: Preserving and Developing the Archaeological Archive (GW), term 2000–2006
- De Mayerne (GW, EW, CW), term 2001–2008
- Endangered Languages (GW, WOTRO), term 2002–2009
- Flemish-Dutch Committee for Dutch Language and Culture (GW), term 2003–2007
- Malta's Harvest (GW, MaGW), term 2002–200
- TANAP: Towards a New Age of Partnership (GW, WOTRO), term 1999–2006
- The Future of the Religious Past (GW, MaGW, WOTRO), term 2002–2009
- Transformations in Art and Culture (GW, MaGW), term 2002–2009
- Urbanization and Urban Culture. Development and Urbanism in the Netherlands (GW, MaGW), term 2004–2011

3.5 Digitalisation and Information Technology

We live in a society that depends on information. The ability to gather information and knowledge from large numbers of data and to use these is a critical precondition for success in welfare and well-being. Within the theme Digitalisation and Information Technology there is consequently room for both foundational research into for instance the methods and techniques for building inherently safe software systems, and for strategic research that is brought about by intensive interaction between social parties and informatics researchers.
The foundational research is mainly funded out of the open competition of Physical Sciences (EW). In late 2005 EW sponsored about 140 PhD students, postdocs and programmers involved in, for example, developing search techniques in complex distributed databases, creating reliable software for processing transactions in which several parties with sometimes conflicting interest are involved, and designing algorithms for quantum computing. There is a gladdening growth in the number of multi-disciplinary research projects, for instance informatics research into visualisation techniques inspired by and in close collaboration with medical scientist.
The strategic research is being conducted in six large research programmes in such varying fields as embedded systems, language and speech technology, software engineering and providing access to the digitalised cultural heritage. In these programmes research is driven by social demand. Many different parties, ranging from ministries and companies to museums and archives, are investing in joint research projects, programme committees and user committees. Of the eight NWO divisions, six are co-sponsors of one or more of these programmes.
In 2005 EW and STW took the lead in producing 'Met vaste hand' (With a steady hand), the national ICT research agenda 2005-2010 (NOAG-ict). The first copy was presented to ICTRegie, the national task-force for ICT research and innovation. In the NOAG-ict the ICT research world reveals its ambitions for the coming years. They have identified nine promising research themes, among which the Data explosion, the Digital experience and the Networked world. NOAG-ict builds on the results achieved within the theme Digitalisation and Information Technology, particularly so far as multidisciplinary cooperation and the adjustment with infrastructural investments by NCF are concerned. Over the coming years the research agenda will be an important guideline, both for the academic groups and for NWO, in giving concrete content to their own strategies in the field of ICT research.
In the course of 2005 a new programme started within this theme: STARE, which aims to stimulate groundbreaking research at the intersection of informatics and astronomy. The programme offers opportunities for research with an added value for both disciplines. The first subsidies are expected to be awarded in the course of 2006.

Programmes within the theme Digitalisation and Information Technology in 2005

- Accessibility and Knowledge Extraction in the Netherlands (ToKeN2000) (EW, MaGW, ZonMw), term 2001–2007
- Continuous Access to Cultural Heritage (CATCH) (EW, GW) , term 2004–2010
- Freeband Knowledge Impulse (STW), term 2002–2009
- GlobAL Computer ScieNCE (GLANCE) (EW) term 2004–2010
- ICT in Health Care (ZonMw), term 1996–2005
- Interactive Multimodal Information Extraction (IMIX) (GW, EW), term 2003–2008
- Joint Academic and Commercial Quality Research & Development (JACQUARD) (EW, STW), term 2002–2008
- Network of Networks (MaGW), term 2002–2008
- Programme for Research on Embedded Systems & Software (STW, EW), term 1998–2008
- ReinFOrcing CompUter Science (FOCUS) (EW, CWI) term 2004–2009
- Sentinels (STW, MaGW), term 2003–2011
- Society and the Electronic Superhighway (MES) (MaGW), term 2000–2006
- STAR E-Science (STARE) (EW), term 2005–2009
- STEVIN (EW, GW) term 2004–2009
- Visual Interactive Effective Worlds (VIEW) (EW) term 2004–2010

3.6 Ethical and Social Aspects of Research and Innovation

The findings of genomics research increasingly confront us with fundamental questions. Who determines what is desirable and what is undesirable in genetic research? What considerations are used in this process? And who decides which possible applications may find their way into clinical practice? Scientific or technological developments that give rise to ethical and social debate occur in many different areas. Nanotechnology leads to discussions about risks and safety, about the reality of expectations and promises, and about the controllability of applications of nanotechnology. Digitalisation and informatisation are causing data collections to be connected with each other on a large scale. This provokes questions about the desired extent of information exchange and the protection of the private sphere of life.
By calling attention to and thinking about such questions, advice is prepared for:

- scientists, so that they can start to think as early as possible about the possible consequences of their research;
- citizens, to enable them to reach their own argued conclusions about what they want to see happening (or not);
- policy makers and those who prepare policies, as knowledge input in the decision-making process.

Programmes within the theme Ethical and Social Aspects of Research and Innovation in 2005

- Ethics, Research and Government (GW, MaGW, STW, ZonMw), term 2002–2009
- Societal Component of Genomics Research (GW, NROG), term 2001–2008

3.7 Fundamentals of Life Processes

Cell division is a basis process of all living organisms. Thanks to processes which we do not yet quite understand, during cell division the chromosome is split up and becomes part of both new cells. A faulty chromosome division in human cells can have serious consequences, such as Down's syndrome or the growth of cancer cells. Biophysical research is used to try to gain an understanding of the forces that are exerted on the chromosome in the dividing cell and which set the chromosome in movement. Such an insight can become the basis for developing new drugs, for instance a drug that stops cancer cell division but leaves healthy cells unharmed.
Recent scientific breakthroughs have spectacularly broadened our knowledge of life's basis and opened up new vistas for research into complex biological processes. The DNA sequence of man's hereditary material (the genome) has recently been clarified. This offers never-before-seen

opportunities for functional research aimed at understanding the processes that are at the basis of the functioning of living systems. It is being investigated, for instance, how the DNA's information is translated into functional molecules and how these molecules form a living cell. There is also research into the communication and interaction of cells and how they form organs and ultimately whole organisms. Another line of research focuses on the relation between the functioning of genes and gene products and environmental factors, for instance in ageing.
In the past years many successes have been achieved by separately approaching the different levels of aggregation. These successes have deepened our insight into life processes. The challenge that the life sciences now face is to integrate that knowledge and insight to form descriptions at system level by connecting (the knowledge of) the underlying aggregation levels. In 2005 the proposal was therefore made to continue the theme under the name System Biology.

Within this theme the programme Material Properties of Biological Assemblies was launched in 2005. Its aim is to study elementary cellular/biological materials like membranes and the cytoskeleton and other biopolymeres, and in particular compositions of these materials. Attention is focused both on the physical properties of these materials and on developing new materials and technologies inspired by these biological materials. Within this programme 9 projects are being carried out.

Programmes within the theme Fundamentals of Life Processes in 2005

- Biomolecular Physics (N), term 2003–2010
- Computational Life Sciences (EW, ALW, NCF, ZonMw), term 2003–2009
- EUROCORES Eurodyna: Dynamic Nuclear Architecture and Chromatin Function (ALW), term 2004–2009
- EUROCORES EuroSCOPE: Science of Protein Production for Functional and Structural Analysis (ALW, CW), term 2003–2008
- From Molecule to Cell (ALW, CW, EW, N), term 2002–2008
- Genomics (ALW, ZonMw, CW, NGI), term 2002–2007
- Horizon Programme (NGI, ZonMw), term 2003–2006
- Infectious Diseases and Vaccines (ZonMw, WOTRO), term 2002–2008
- Mass Spectrometric Imaging and Structural Analysis of Biomacromolecules (N), term 2001–2008
- Material Properties of Biological Assemblies (N), term 2005–2009
- Nucleic Acids Chemistry (CW), term 2003–2008
- Physical Biology (ALW, N), term 2001–2008
- Physics for Medical Technology (N), term 2000–2009
- RIDE: Diseases in the Elderly (ZonMw), term 1999–2008

3.8 Nanosciences

The continuous measuring of glucosis in diabetics by means of sensors built into the body is just one of the spectacular applications that are becoming possibilities thanks to the nanosciences, the study of the smallest things around. One nanometer is one billionth of a meter and the scale of the nano-sciences is that of individual atoms and molecules. In this way lots of instruments can be produced using minimal energy, material and space.

Programmes within the theme Nanosciences in 2005

- EUROCORES Self Organised Nanostructures (CW, EW, N), term 2003–2007
- Materials Specific Theory for Interface and Nano-physics (N), term 2004–2014
- NanoImpuls (STW), term 2003–2007
- NanoNed (STW), term 2005–2009
- Nanostructured Opto-electric Materials (N), term 1999–2005
- Nanotechnology and Nanoelectronics (N), term 1998–2005
- Photon Physics in Optical Materials (N), term 1999–2006
- Process on a Chip (ACTS), term 2003–2008
- Single Molecule Detection and Nano-optics (N), term 1999–2004
- Softlink: Technology Related Soft Condensed Matter Research (CW, N), term 1998–2005
- Solid State Quantum Information Processing (N), term 2004–-2013

3.9 Emerging Technologies

Sewing together small blood vessels with a diameter of 1–2 millimeters demands great accuracy, competence, concentration, and lots of time. Stitching is extra difficult in cases where a bypass has to be created while the heart keeps beating. To develop new methods and techniques for this is a special challenge. At the intersection of different scientific disciplines and technologies many more new technologies are born. Medical science and engineering constitute such an intersection. As examples of disciplines where new scientific concepts may lead to further technological breakthroughs may be mentioned, among many others, quantum technology, photonics, biomimetics, sensor technology, miniaturisation and self-learning systems, systems for data analysis, modelling and simulation.

In 2005 within this theme the programme Extreme UV Multilayer Optics started. This is an intensive collaboration between the FOM Institute for Plasma Physics and Carl Zeiss, the company. The aim of this Industrial Partnership Programme is to develop and apply physics and related process technology to create periodic multilayer structures that have atomically sharp, flat interfaces, are chemically stable and radiation-proof, and have been checked dimensionally on a scale as far down as the subnanometer.

Programmes within the theme Emerging Technologies in 2005

- Combinatorial Chemistry (CW), term 2001–2008
- Evolution of the Microstructure of Materials (N), term 1999–2008
- Extreme UV Multilayer Optics (N), term 2005–2009
- Dispersed Multiphase Flow (EW, N, STW), term 2000–2007
- Laser Wakefield Accelerators (N), term 2001–2007
- Microphotonic Light Sources (N), term 2004–2008
- Physics for Technology (EW, N), term 1997–2011
- Physics of Granular Matter (N), term 2004–2011
- Physics of Thin Film Materials (N), term 1996–2005
- Separation Technology (CW, STW), term 2004–2009
- Scientific Instrumentation (N), term 1998–2005
- Statistical Physics and Micromechanisms of Deformation, Damage and Fracture (N), term 2001–-2005
- STIGON (ZonMw), term 1999–2005
- The Physics of Fluids and Sound Propagation (N), term 2003–2008
- Tissue Engineering (ZonMw, STW), term 2004–2009
- Turbulence and its Role in Energy Conversion Processes (N), term 2002–2009

3.10 System Earth

Water is threatening the Netherlands from two sides: from the sea because of the rising sea level and from the land on account of the growing variation in the amount of water transported by the rivers. Climate scientists make climate scenarios in order that policy makers may ground their decisions, for example regarding land use, on realistic expectations for the future. According to the present scenarios, for example, the expectation is that global warming will not only cause a rise in sea level but also in the amount of rainfall in the Netherlands, notably in the form of heavy showers. Little is still known, however, about the precise role of clouds in climate systems. The most important attention fields of the theme System Earth are energy and emissions, the climate system, fresh water and coastal zone management, (the use of) natural resources, biodiversity and land use. Besides research leading to climate scenarios research within this theme finds applications in the development of alternative and renewable sources of energy and low-emission production processes, in creating the ability to predict earthquakes and volcano eruptions or the ability to better assess in advance the effects of policy measures.

Programmes within the theme System Earth in 2005

- ASPECT: Advanced Sustainable Processes by Engaging Catalytic Technologies (ACTS), term 2004–2011
- Bio and Geosphere Linked (ALW), term 2004–2012
- B-Basic (ACTS), term 2004–2009
- Biodiversity in Relation to Global Change (ALW), term 2002–2007
- Center for voor Biogeology (ALW), term 2004–2012
- Chemistry in Support of Sustainability (CW), term 2002–2008
- Climate Variability (Clivarnet) (ALW, EW), term 2004–2008
- Energy Research (MaGW, SenterNovem), term 1998–2007/2008
- EUROCORES Euroclimate (ALW), term 2004–2010
- EUROCORES EuroDiversity (WOTRO, ALW), term 2004–2011
- EUROCORES Euromargins (ALW), term 2002–2007
- IBOS: Integration Biosynthesis and Organic Synthesis (ACTS, CW), term 2003–2010
- Joint Solar Programme (N), term 2005–2010
- LOICZ: Land-Ocean Interactions in de Coastal Zone (ALW, MaGW), term 2002–2007
- M&E: Environment and Economy (MaGW), term 1997–2006
- Manipulation of Meso-scale Structures in Hot Magnetised Plasmas (N), term 2004–2008
- Molecular Atmospheric Processes (N), term 2001–2006
- Sustainable Technology (CW), term 2003–2007
- Sustainable Hydrogen (CW, ACTS, N, WOTRO), term 2003–2008
- VAM: Vulnerability, Adaptation and Mitigation (MaGW, ALW), term 2004–2009
- Water (ALW, WOTRO), term 2004–2009

4 Internationalisation

NWO works to promote innovation and excellence in scientific research and makes sure that the knowledge gained in this process is disseminated and used. This is a trans-border policy for science by its very nature has no borders. NWO desires to excel in cooperation and competition; for this a clever synergy of powers and means is vital. The internationalisation policy is aimed at increased cooperation within Europe. One of the spearheads is the development of the European Research Area (ERA). In its turn ERA contributes to the development of the knowledge economy. Apart from this NWO cooperates and maintains contacts with Russia, Asia, Africa and America.

4.1 What are NWO's efforts in the field of internationalisation?

NWO explores and coordinates the international research opportunities. For this purpose NWO participates actively in international networks and programmes and promotes international knowledge exchange and mobility. In addition NWO ensures that national and international top facilities are accessible to both Dutch and foreign researchers. The instruments that NWO employs for the benefit of researchers vary from providing information about international subsidies and helping researchers to submit research proposals to international (framework)programmes, to personal subsidies and access to international research facilities.
Cooperation *and* competition are important to promoting excellence in research and achieving groundbreaking results. That is for NWO an important reason to encourage international cooperation. In collaborative ventures the best researchers and research groups can work to create innovation and quality. But there is also another reason. In many cases high-quality research demands critical mass as far as top researchers, numbers of participants/patients, facilities and last but not least budget are concerned. That's why NWO aims for focus and critical mass in research.
The activities that NWO undertakes in the sphere of international cooperation lead to fruitful relationships, concrete research programmes and projects, (access to) infrastructural facilities, opportunities for mobility, and involvement of knowledge institutions and companies. Cooperation is worldwide, but at this moment the greater part takes place in Europe. NWO subsidies are increasingly open to researchers abroad.

4.2 Cooperation within Europe

NWO participates in the development and deployment of various European collaboration and subsidy instruments: instruments of the European Commission (ERA-net and Technology Platforms), of ESF (EUROCORES) and of the EuroHORCs (EURYI).

4.2.1 Participation in ERA-net

ERA-net is the policy instrument of the European Commission intended for the coordination of national research programmes in Europe. ERA-nets are primarily networks in which possibilities are explored; they may give rise to joint programmes. In 2005 NWO participated in 22 ERA-nets:

- ACE-net: Applied Catalysis ERA-NET
- ASTRONET: Coordinating Strategic Planning for European Astronomy
- BiodivERsA: An ERA-Net in Biodiversity Research
- COMPERA: ERA-NET on National and Regional Programme and initiatives dedicated to the creation and support of Competence Research Centres
- COMPLEXITY-NET: Developing ERA-NET on Complexity
- CO-REACH: European Research Cooperation with China
- ECORD-net: European Consortium of Ocean Research Drilling
- ERA-AGE: European Research Area in Ageing Research
- ERA-Chemistry: Implementation of Joint Bottom-up European Programmes in Chemistry
- ERA-IB: Towards an ERA in Industrial Biotechnology (ERA-IB)
- ERA-PG: European Research Area Plant Genomics

- E-RARE: ERA-Net for Research Programmes on Rare Diseases
- ERA-SAGE: Ethical Legal and Societal Aspects of Genomics Research in the EU, Canada and the US
- ERASysBio: Systems Sciences
- EuroPOLAR: The European Polar Consortium: Strategic Coordination and Networking of European Polar RTD Programmes
- EURYI: European Young Investigators Award
- HERA: Humanities in the European Research Area
- MarinERA: Coordination of National and Regional Activities in Marine RTD Activities in Europe
- NanoSci-ERA: Nanoscience in the ERA
- NORFACE: New Opportunities for Research Funding Co-operation in Europe – A Strategy for Social Sciences
- PRIOMEDCHILD: Coordination of Research on Priority Medicines for Children
- SNOWMAN: Sustainable Management of Soil and Groundwater under the Pressure of Soil Pollution and Soil Contamination

4.2.2 Participation in Technology Platforms

In Technology Platforms knowledge institutions and companies cooperate, for example to improve the competitiveness of European industry. In 2005 NWO took part in the Technology Platform Sustainable chemistry.

4.2.3 Participation in ESF-EUROCORES

In the strategy *Themes plus Talent* 2002–2005 NWO stated as its objective that in 2005 it would participate in 10 EUROCORES. With participations in 14 EUROCORES this target has been amply achieved.

Table 8: NWO participation in EUROCORES

EUROCORES	2005	2004
Number of EUROCORES newly launched	4	5
Number of EUROCORES launched by NWO	4	4
Number of EUROCORES in which NWO participates	14	11
Percentage EUROCORES with NWO participation	82%	92%
Part contributed by the Netherlands to the total EUROCORES budget	18%	16%

Table 8: Explanation

- **Number of EUROCORES newly launched in year under review:** The launching date of the call is regarded as the starting date.
- **Number of EUROCORES launched by NWO:** The total number of programmes in EUROCORES proposed by NWO. This figure indicates the level of NWO's (in)activity within the ESF framework.
- **Part contributed by the Netherlands to the total EUROCORES budget:** This percentage shows the extent to which the Netherlands participates budgetarily in these international programmes. The figure is that of NWO's estimated budget compared to the total budget of the EUROCORES programmes.

In 2005 NWO took part in the following 14 EUROCORES:

- CNCC: Conciousness in a Natural and Cultural Context
- ECRP: European Collaborative Research Programmes in the Social Sciences
- ECT: Pan-European Clinical Trials
- EuroCLIMATE: Climate Variability & (past, present & future) Carbon Cycle
- EuroDEEP: Ecosystem Functioning and Biodiversity in the Deep Sea
- EuroDIVERSITY: Challenges of Biodiversity Science
- EuroDYNA: Dynamic Nuclear Architecture and Chromatin Function
- EuroMARC: Challenges of Marine Coring Research
- EUROMARGINS: Processes at the Passive Continental Margins
- EuroSCOPE: Science of Protein Production for Functional and Structural Analysis
- EuroSTELLS: Development of a Stem Cell Tool Box (Non-human)

- OMLL: Origin of Man, Language and Languages
- S3T: Smart Structural Systems Technologies
- SONS: Self-Organised Nanostructures

In September 2005 the ESF selected five new EUROCORES themes. At the start of 2006 NWO confirmed her participation in two of these:
- Inventing Europe: Inventing Europe: Technology and the Making of Europe, 1850 to the Present
- TECT: The Evolution of Cooperation and Trading

4.2.4 Participation in EuroHORCs and EURYI

In 2005 and 2006 NWO chairman Peter Nijkamp is chairman of the joint European research funding organisations, united in the European Heads of Research Councils (EuroHORCs).
The EuroHORCs, founded in 1992 as an informal association of the chairmen of the national research funding organisations, have grown into a platform for the development and execution of joint transnational research activities and funding possibilities. The EuroHORCs are furthermore an important interlocutor of the European Commission in the drafting of the seventh framework programme.
EuroHORCs' concrete instruments at this moment are the European Young Investigators (EURYI) and the mobility instrument Money Follows Researcher.

The EURYI programme stimulates highly talented researchers to carry out their research at European research institutions. These are researchers who can be considered potential world leaders in their area of knowledge. 2005 was another successful year for the Dutch submissions.

Table 9: NWO participation in EURYI

EURYI	2005	2004
Number of Dutch EURYI awards	3	4
Dutch share in total number of EURYI awards	12%	16%

Table 9: Explanation
- **Dutch share in total number of EURYI awards:** This shows how successful the Netherlands is in this programme.

Three out of a total number of 25 grants in this programme (about 12%) went to Dutch researchers. This means that the Netherlands through NWO has become a 'net recipient': we invest less in EURYI than we receive through grants.
The laureates received 1.2 million euro to be spent, over a five-year period, on research. They are:
- Dr. E. (Edwin) Cuppen, Hubrecht Laboratory (KNAW), Functional Genomics: Genetic variations in laboratory rats
- Dr. C.C. (Casper) Hoogenraad, Erasmus MC, Neurosciences: How basic cell mechanisms contribute to plasticity and learning
- Dr. R.B. (Bas) Ter Haar Romeny, UL, Theology: Christian minorities in the Middle East and in diaspora

4.3 International cooperation outside Europe

NWO is also active outside Europe. There is collaboration with the USA (for example with the National Science Foundation, Fullbright Award), Russia and several Asian countries such as China, Taiwan and Korea. NWO is exploring possibilities for cooperation with a number of fast emerging economies, such as India.
Through the WOTRO foundation NWO supports research in and about the tropics in the broadest possible scientific context. A major part in this is played by capacity building. The NACCAP programme is a good example of this.

4.4 NWO funding instruments aimed at internationalisation

Besides the instruments provided in the context of the EC, ESF and EuroHORCs NWO employs a number of 'own' funding instruments aimed at international cooperation. Visitors and travel grants allow Dutch researchers to visit foreign research institutions or make it possible to invite foreign researchers to visit the Netherlands. Together with the ministry of OCW NWO also carries out a programme of collaboration with the Russian Federation. The number of applications for the Russia programme in 2005 was twice the number for 2004. Since the budget for this programme remained the same the awarding percentage was more than halved. The application pressure continued on the same level in the case of visitors/travel grants and other instruments.

Table 10: NWO funding instruments mainly aimed at internationalisation

	Number of preliminary applications			Number of applications			Number of awarded applications			Gross awarding percentage			Net awarding percentage		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Cooperation with Russia	0	0	0	72	4	76	22	2	24	30,6	50,0	31,6	30,6	50,0	31,6
Visitors and Travel Grants	0	0	0	219	117	336	200	102	302	91,3	87,2	89,9	91,3	87,2	89,9
Other programmes	0	0	0	76	24	100	46	12	58	60,5	50,0	58,0	60,5	50,0	58,0
Total 2005	0	0	0	367	145	512	268	116	384	73,0	80,0	75,0	73,0	80,0	75,0

Table 10: Explanation

This table shows how international collaborative programmes are being used. The gross awarding percentage is an expression of the total application pressure. The net awarding percentage indicates the burden on researchers and is in line with the explicit intention, formulated in the 2002–2005 strategic paper, to aim for an average net awarding percentage of 30%.

5 Infrastructure

Top research not only requires the best people but also the most advanced research facilities. In many branches of science progress even depends on access to high-quality apparatus. Because having an optimal research infrastructure is not only a precondition for top-level science but also an important stimulus to innovation, NWO invests in up-to-date facilities.

5.1 National Programme for Investments in Large-scale Research Facilities

The Innovation Platform in 2005 endorsed the widely felt need for investments in research infrastructure. In the publication *Knowledge ambitions and research infrastructure. Investing in large-scale knowledge infrastructure* concrete and action-oriented recommendations were made to bring into being a strategic policy aimed at large-scale research facilities. The Dutch government in the autumn of 2005 initiated the implementation of this advice by making available a one-time budget of 100 million euro for large-scale research facilities. NWO, supported by SenterNovem, was responsible for assessing these applications.

Table 11: Applications and grants in National Programme for Investments in Large-Scale Research Facilities

	Number of applications			Number of awarded applications			Gross awarding percentage			Net awarding percentage		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
National Programme	41	1	42	5	0	5	12%		12%	12%		12%

Table 11: Explanation
This table provides insight into the application pressure and the awarding chances of NWO investment subsidies.

- **Gross awarding percentage:** The number of accepted applications divided by the number of applications initially submitted to NWO. By 'initially submitted to NWO' is meant:
  - where preliminary applications are involved: the number of received preliminary applications;
  - where no preliminary applications are involved: the number of received (fully worked-up) applications.
- **Net awarding percentage:** The number of accepted applications divided by the number of (fully worked-up) applications submitted to NWO.

NWO advised the minister of OCW to grant 5 out of the 42 submitted applications, namely:

- Digital Databank for Newspapers, Koninklijke Bibliotheek (National library of the Netherlands) – domain: alpha/gamma
- BIG GRID, the Dutch e-Science Grid; National Consortium – domain: beta & life sciences, touching on alpha/gamma
- An Advanced Multi-Disciplinary Facility for Measurement and Experimentation in the Social Sciences CentERdata, Universiteit van Tilburg – domain: alfa/gamma
- Nijmegen Centre for Advanced Spectroscopy; Radboud Universiteit – domain: beta & life sciences
- New Frontiers in Imaging the Brain: A Proposal for a National Brain Imaging Resource; Radboud Universiteit; Universiteit Utrecht en Universiteit Leiden – domain: alpha /gamma & life sciences

In the meantime NWO has also set up a commission that will direct its attention to the development of the Road Maps for large-scale research infrastructure in the Netherlands. Part of the importance of this is that it will enable the Netherlands to contribute markedly on a European level through the European Strategy Forum for Research Infrastructures (ESFRI).

5.2 Investments NWO-large and NWO-medium

In 2005 there were no grants in the NWO-large programme, but a new selection round was launched in which 14 applications were submitted. NWO will decide on these in the first half of 2006. Funds were allocated in the NWO-medium programme. Information about the numbers of applications and grants can be found in table 12a.

Table 12a: Applications and grants NWO-large and NWO-medium

	Number of preliminary applications			Number of applications			Number of awarded applications			Gross awarding percentage			Net awarding percentage		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
NWO Large									0						
NWO Medium	7	2	9	61	12	73	22	3	25	36	25	34	36	25	34

Table 12a: Explanation
This table gives insight into the application pressure and awarding chances of NWO investment subsidies. NWO-large concerns investments larger than 900,000 euro, NWO-medium concerns investments between 110,000 and 900,000 euro.

- **Gross awarding percentage:** The number of accepted applications divided by the number of applications initially submitted to NWO. By 'initially submitted to NWO' is meant:
  - where preliminary applications are involved: the number of received preliminary applications;
  - where no preliminary applications are involved: the number of received (fully worked-up) applications.
- **Net awarding percentage:** The number of accepted applications divided by the number of (fully worked-up) applications submitted to NWO.

Table 12b shows the means spent on investments by NWO in 2005.

Table 12b: Means spent on NWO-large and NWO-medium grants

	NWO Large	NWO Medium	Other investments
Means spent in year of report (K€)	9.052	14.600	15.208

Table 12b: Explanation
The NWO-large figure applies to grants awarded in previous years.

5.3 International research facilities

Large-scale research facilities are often of an international character, with users from many countries. Thanks partly to NWO support several of such large-scale facilities are available in the Netherlands, such as the radio telescope and Joint Institute for Very Long Baseline Interferometry in Europe (JIVE) at Dwingeloo, the high-magnet field laboratory in Nijmegen, the Free Electron Laser Facility at Nieuwegein, and the Bijvoet Centre for NMR research in Utrecht.
For the humanities and social sciences KNAW and NWO have founded the DANS institute. DANS (Data Archiving and Networked Services), launched in 2005, is the national organisation responsible for storage and permanent accessibility of research date in the humanities and social sciences. To this end DANS cooperates with researchers and promotes cooperation among them.

Besides national facilities NWO also encourages the use of facilities abroad. Together with Flanders NWO has developed the DUBBLE beamline at the European synchrotron radiation facility ESRF at Grenoble.
Access of Dutch researchers to neutron sources is achieved through a contract with ISIS, which is part of the Rutherford Appleton Laboratory in the UK. This allows Dutch researchers to use the world's most powerful source of pulsed neutrons. In astronomical research NWO has made agreements with several large foreign facilities, namely, the James Clerk Maxwell Telescope and the Isaac Newton Group

of Telescopes. The James Clerk Maxwell Telescope (15 metres in diameter) is the largest facility in the world specially designed for the sub-millimetre spectral area. It is situated near the top of the Mauna Kea in Hawaii, at an altitude of 4,092 metres.
The Isaac Newton Group of Telescopes consists of the William Herschel Telescope (4.2 m) and the Isaac Newton Telescope (2.5 m), situated near the Observatorio del Roque de los Muchachos, at La Palma, Canary Islands. Dutch researchers can submit applications for measuring time at these facilities.

5.4 Netherlands National Computing Facilities Foundation (NCF)

NCF was created as a foundation to procure high-quality facilities and infrastructure for the Dutch scientific world. NCF is responsible for the national high-end computer infrastructure. NCF is moreover closely involved in grid developments in the Netherlands and internationally. Supercomputers and grids are nowadays an integral part of scientific research. To be successful in their work Dutch researchers need to be able to use the most advanced computing facilities.
To bring about a healthy and stable development an international consortium has been founded under the name Global Grid Forum (GGF). Within GGF grid technology is being standardised technically and various other aspects of grids are discussed. There is a Dutch department of GGF, the Netherlands Grid-forum, where both scientific and commercial parties and branches of government exchange knowledge on a neutral basis. NCF is one of the initiators of Gridforum.nl.

5.5 NWO institutes

The NWO institutes are in possession of large research facilities, act as gateways to international facilities (such as ESA, ESO, CERN, ESRF, ILL, ITER) and in their areas of expertise are achieving focus and critical mass in Dutch research. The institutes' rationale lies in their scientific excellence, which is examined every six years by international evaluation committees.
As a part of this 6-year evaluation cycle NWO in 2005 subjected the NWO institutes ASTRON, CWI, ING, NIOZ, NSCR and SRON to an external evaluation. The research institutes were evaluated by means of the Standard Evaluation Protocol 2003-2009 for Public Research Organisations devised by VSNU, KNAW and NWO. An important part was the visitation by an international committee of scientific experts who have assessed both past performance and strategy and new developments.
NWO's Governing Board confirmed the evaluation reports and found with pleasure that the committees judged the quality of the evaluated NWO institutes to be 'very good' to 'excellent' (highest possible score). The evaluations closed in March 2006 with a number of Board decisions and agreements between the Board and the institutes for the coming plan period.

6 Communication and knowledge transmission

NWO believes communication to be essential to the realisation of its mission and aims. For NWO the scientific community is an important interlocutor in identifying and interpreting trends in science; social parties provide input to research programmes from their perspectives. Moreover, researchers must be given transparent information about the subsidies that NWO offers. Knowledge transmission from NWO-funded research has been a priority for a long time. How does NWO spent its means? How does that benefit society? At a meta-level NWO also tries to make the general public appreciative of the relevance of science in general.

6.1 Policy Communication and Public Affairs

NWO invests expressly in maintaining contacts with its professional relations in science and society in order to inform these groups about, and involve them in, its policy. Many of these contacts are personal and take place at various levels, through small and large meetings. These personal contacts are supported by written and digital communication instruments, among these the NWO website, the magazine Hypothese, electronic and/or paper newsletters from Divisions, and brochures.
In 2005 much communication was taken up by the process of developing a new strategy. Through a series of talks, meetings, interviews and polls NWO gathered ideas and suggestions from its knowledge partners for the new direction of NWO in the strategy period 2007–2010. This exchange of ideas with its many partners has been indispensable to NWO for the production of *Science Valued!*

6.2 Subsidy Communication

Subsidies are to be viewed as NWO's basic products. Communication on this mostly occurs electronically. The main source of information is the Subsidy Guide on the NWO website. Here researchers may find not only information and the necessary documents; the Guide is also the means of access to NWO's Iris application system used in most submission procedures. Aside from electronic communication, information on NWO's subsidy options is also given on a person-to-person basis. At various occasions NWO employees give presentations to researchers about the range of subsidies at NWO; in 2005 this happened for example during the NWO Talent Days and at the NWO Talent Classes.

6.3 Stimulating and facilitating scientific discourse

Various means are used to stimulate and facilitate mutual communication among researchers, in particular those working in NWO programmes and projects. The Publication Contributions programme enables the dissemination of findings, among other means through dissertations and magazines. Scientific conventions were organised under the auspices of the many programmes that are in progress. The project data base on the NWO website gives information about funded, current, and completed research, often with links to programme websites. Programmes and divisions published newsletters.

6.4 Knowledge transfer and communication with the press and the general public

Research findings must eventually reach those organisations and companies that can apply that knowledge. Various meetings were held and other communication products released to facilitate exchange between researchers and users of knowledge. NWO in 2005 had many products and activities to offer in the field of communication about science designed for the press and the public at large. NWO published press releases and updates on research, organised (together with VPRO) the National Science Quiz and National Science Quiz Junior and (with other parties) the Huygens, Paradiso, Spinoza and Tinbergen lectures. In addition NWO organised several other public events, such as the Bessensap symposium for media and researchers, and the Sign of the Times day for the general public. Finally, NWO

also participated, partly within the N5 Alliance framework, in the development of a science room in Naturalis, and in the Knowledge Week 2005.

Without exception the products and activities have large groups of 'consumers'. Tables 13 and 14 below detail the results of the press releases and the National Science Quiz.
The number of press releases reproduced in the media has risen compared to 2004 and totals more than 1,900.

Table 13: Indicators of media penetration of NWO research reports and press releases

	2005	2004
Number of NWO research reports and press releases in year of report	311	196
Number of adoptions		
National daily newspapers	300	260
Regional daily newspapers	296	209
Radio and television	158	27
Scientific magazines aiming at the public at large and other (e.g. Natuurwetenschap & Techniek)	1.186	1.139
Total	1.940	1.635

Table 13: Explanation
Table 13 shows how many communications were sent by NWO (including STW and FOM) in 2005 and to how many media publications this led. The figures above have been established through an intensive searching of the media for reports on activities in which NWO is involved. The offices of NWO, STW and FOM locate these articles on a weekly basis, after which the numbers thus found are added up to arrive at the above figures.

In 2005 the **National Science Quiz** and its **Junior** variant drew the same level of attention as in 2004: more than one million television viewers and around 22,000 entrants.

Table 14: Entries and viewing figures of National Science Quiz and National Science Quiz Junior

National Science Quiz VPRO-NWO	
Number of entries quiz	22.000
Viewing figures of the broadcast	1.100.000

Table 14: Explanation
The viewing figures of the broadcast combine those of the National Science Quiz and the National Science Quiz Junior. The figures are registered by the Ratings Research Foundation. The number of entries combines the entries received through newspapers and those received via the NWO website.

7 Granting subsidies: selection, input and output

The key process in NWO's work is the stimulation of scientific research through selection and funding of research proposals. Vital to the selection process, organised and supported by the NWO Office, is the researchers' input both as applicants and as referees or committee members. NWO wants this process to run as efficiently as possible. This chapter describes how the selection of research proposals took place, what NWO invested in this (input) and what results (output) were gained.

7.1 Selection process

NWO's means are only allocated after the submitted subsidy applications have been assessed on the basis of rigorous quality criteria. This also means that NWO must very often reject submitted applications, either because they are not of a sufficiently high quality, or (as occurs many times) because there are insufficient means.

Table 15 shows the total number of applications received in 2005 and the number that were accepted by NWO. The order follows that of the strategic targets from *Themes plus Talent.*
Compared to 2004 the number of applications received has risen considerably. This rise was mainly due to an increase in applications in the talent programmes and the themes. In the talent programmes two Veni selection rounds of the Innovational Research Incentives Scheme were held in 2005, in which more applications were submitted. The increase within the theme programmes can be explained by the actual launch of a number of new programmes in the theme Digitalisation and Information Technology. Furthermore, there is also a rise within the theme Fundamentals of Life Processes, which is explained by the fact that the figures of the ZonMw Horizon programme are included, which were unavailable in 2004.

The ambition, expressed in the previous strategic plan, to bring the net awarding percentage to a level of at least 30%, has been achieved in respect of the organisation as a whole. The awarding percentage is distorted, however, by a large number of subsidy instruments such as travel grants, exchange programmes and contributions to scientific meetings, which have a very high awarding percentage. If these instruments are not included the net percentage would be only just 30% and the gross percentage 24%, with the percentage for instruments varying from 10% to 40%. NWO sees a challenge here, both regarding the sizes of budgets and in the further decreasing of the burden on researchers.

Table 15: Applications and grants, classified according to NWO's strategic aims

	Number of preliminary applications			Number of applications		
Strategic aim	M	F	Total	M	F	Total
Talent	168	119	287	845	541	1.386
NWO themes	257	65	322	516	102	618
Internationalisation	13	1	14	445	167	612
Infrastructure	7	2	9	109	13	122
New Developments (i.e. open competition)	788	231	1.019	1.133	188	1.321
Knowledge Transfer	0	0	0	138	13	151
Other	0	0	0	318	90	408
Total 2005	1.233	418	1.651	3.504	1.114	4.618
Total 2004	1.595	395	1.990	2.770	692	3.462

Table 15: Explanation

This table displays the number of subsidy applications drafted by researchers in relation to the number of awarded subsidies. The gross awarding percentage expresses the total application pressure, the net percentage indicates the burden on researchers. The NWO subsidy instruments are classified, on the basis of their main objective, according to NWO's strategic aims.

- **Gross awarding percentage:** The number of accepted applications divided by the number of applications initially submitted to NWO. By 'initially submitted to NWO' is meant:
  - where preliminary applications are involved: the number of received preliminary applications;
  - where no preliminary applications are involved: the number of received (fully worked-up) applications.
- **Net awarding percentage:** The number of accepted applications divided by the number of (fully worked-up) applications submitted to NWO.

Number of awarded applications			Gross awarding percentage			Net awarding percentage		
M	F	Total	M	F	Total	M	F	Total
226	150	376	24	24	24	27	28	27
179	34	213	27	26	27	35	33	34
318	128	446	70	76	72	71	77	73
34	3	37	31	23	30	56	23	30
360	59	419	23	18	22	32	31	32
22	1	23	16	8	15	16	8	15
242	64	306	76	71	75	76	71	75
1.381	439	1.820	33	32	33	39	39	39
1.256	335	1.591	34	8	35	45	48	46

Burden on researchers

There can be no assessment of subsidy applications without burdening both applicants and researchers acting as referees. NWO considers it its task to limit this burden to a minimum. The digitalisation of the application process through Iris has been extended in 2005 to the possibility for referees to access applications electronically and send their comments through Iris. This extension offers advantages to the referees but also to the NWO Office that handles the administrative process.
Table 16 gives insight into the number of experts approached by NWO. The rise in the number of applications in 2005 has brought with it a rise in the number of referees.

Table 16: Burden on referees

	2004	2005
Total number of invited referees	10.985	13.648
Total number of evaluation reports received	6.815	8.615

Table 16: Explanation
Employment of external expertise: The total number of referees invited is the number that were sent a research proposal by NWO for evaluation.

Administrative costs – burden on NWO Office

The selection of applications, the development and implementation of new policies, the promotion of knowledge transmission and the acquisition of new research means are (in part) the responsibility of the NWO Office staff.
Table 17 displays the employment of means and manpower for the office and their accommodation; table 18 shows the level of absence through illness.

Table 17: Burden on NWO Office

	2004	2005
Number of FTEs NWO (including FOM and STW) office staff	406	398
Administrative costs (including FOM and STW) in k€	33.315	37.087
Percentage of administrative costs related to total spending	6,9%	7,2%

Table 17: Explanation
Number of FTEs NWO (including FOM and STW) office staff – The number of FTEs in the NWO Office and the percentage of administrative costs provide insight into NWO's overhead.

Table 17 shows that the office's size in 2005 was slightly reduced compared to 2004. Administrative costs have increased due to, among other things, the extension of NWO's accommodation, the necessary appointment of an interim general director, and the launch of ICTRegie.
Table 18 shows that in 2005 there was again a slight reduction in absence through illness compared to 2004.

Table 18: Absence through illness at NWO

NWO umbrella	2004	2005
Average percentage absence through illness	2,70%	2,60%

Table 18: Explanation
Calculation based on the methods agreed on by 1 January 2003 and derived from the Arbo-covenant with SZW. The NWO umbrella organisation consists of the following employers: NWO (NWO office, STW office, ASTRON, SRON, ING, NSCR); FOM; NIOZ; CWI.

Code of conduct on conflict of interests

NWO's right to exist is indissolubly connected with the objectivity of its decision-making and the transparency of the assessment procedures that it follows. The objectivity and transparency of the decision-making are only optimised if strictly observed during the whole assessment process. An important precondition of objectivity and transparency is the avoidance of any conflict of interests or even the appearance of it. To achieve this NWO in 2005 updated and further improved the Code of Conduct on this matter.

Appeals and objections

If an applicant considers him- or herself wronged, they have the option, established by law, to lodge an appeal or objection. NWO regards the appeals procedure as an efficient method to correct misjudgments or reconsider fundamental procedural matters. NWO considers the number of appeals lodged and particularly the number of appeals judged to be valid as an indicator of the transparency of the NWO procedures and their acceptation.
Out of a total number of nearly 4,500 submitted (pre-)applications in 2005, 1.5% of applicants lodged an appeal. Although fewer appeals were lodged than in 2004, the number of appeals found valid has regrettably increased. This means that NWO in the coming year will spend extra attention to the correct following of procedures.

Table 19: Carefulness of selection process

Written objections and appeals	2004	2005
Number of appeals	67	61
Number of valid appeals	7	10

Table 19: Explanation
This indicator represents the transparency of the NWO organisation and the extent to which its procedures and assessments are accepted and thus the extent to which NWO operates in a professional manner.

- **Number of valid appeals:** An appeal is valid if its reconsideration has caused the original decision to be reversed.

7.2 Input: people and means

After the selection process the funded research can start. This means that people and means are deployed to carry out the research. The tables in this section show the distribution of NWO means and of the personnel funded thereby among the various research institutions.

Besides NWO's second flow of funds sponsoring there are other funding channels in the Netherlands. The ratio among these flows of funds in the Dutch universities is shown by the size of the academic staff employed at the universities via the different flows of funds. Figure 4 shows this ratio based on the most recent VSNU data. With a total number of more than 4,300 FTE NWO sponsors about one quarter of the total number of researchers in the universities.

Distribution of FTE Scientific Personnel among universities by flow of funds
(source: VSNU, 2003 figures)

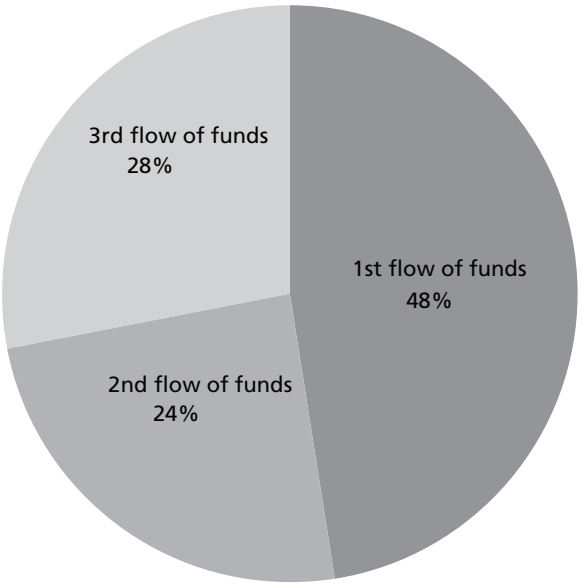

Figure 4: Scientific personnel at universities according to flow of funds

Distribution of budget among institutions

Table 20: Grant recipient indicators

NWO institutes (k€)	Central	ALW	CW	EW	GW
Netherlands Foundation for Research in Astronomy (ASTRON)	20.922			92	
National Research Institute for Mathematics and Computer Science (CWI)	13.429			1.649	
FOM Institute for Atomic and Molecular Physics (FOM-AMOLF)	15.311	130	426	404	
FOM Institute National Institute for Nuclear Physics and High Energy Physics (FOM-NIKHEF)	19.728	179			
FOM Institute for Plasma Physics Rijnhuizen (FOM-Rijnhuizen)	15.015			86	
Institute for Dutch History (ING)	3.209				
Royal Netherlands Institute for Sea Research (NIOZ)	16.586	3.346			
Netherlands Institute for the Study of Crime and Law Enforcement (NSCR)	1.643				
SRON Netherlands Institute for Space Research	20.165			234	
Total NWO institutes	126.008	3.655	426	2.465	0
Universities					
Erasmus University Rotterdam	667	1.581	105	65	915
Radboud University Nijmegen	2.248	2.492	1.232	985	2.462
University of Groningen	1.997	3.409	2.025	1.604	1.534
Delft University of Technology	722	971	1.169	1.902	155
Eindhoven University of Technology	3.309	145	1.203	3.285	399
Universiteit Leiden	1.382	2.425	2.336	2.257	4.801
Maastricht University	512	387		546	414
University of Twente	474	782	1.170	2.094	460
Utrecht University	3.959	7.126	3.172	2.676	2.528
University of Amsterdam	2.867	2.785	1.333	2.388	2.997
Tilburg University	482			361	447
Vrije Universiteit Amsterdam	1.024	4.414	1.186	2.252	1.666
Wageningen University (and Research Centre)	479	3.524	404	32	526
Total universities	20.122	30.041	15.335	20.447	19.304
Other research institutions	6.715	5.148	545	2.812	2.890
Other	5.950	818	382	1.354	-52
Administrative costs NWO	11.681	2.212	922	2.171	1.601
Totaal NWO 2005	170.476	41.874	17.610	29.249	23.743
Totaal NWO 2004	156.456	37.720	18.172	22.860	25.600

Table 20: Explanation

- **Grant recipient indicators:** This table represents the size and distribution of NWO funding among the various recipients, separated out into amounts per university/research institution. This provides an indication of whether NWO reaches the entire knowledge infrastructure.
- **NWO-Institutes/Universities:** The data regarding the NWO institutes concern NWO's lumpsum grants to the institutes and awarded grants to applicants working at NWO institutes. The data concerning universities refer to awarded subsidies to applicants working at Dutch universities. The institution where the head applicant works is the basis for the classification per university.
- **Central:** The column 'Central' presents the spendings relating to the institutes' own research activities and to the Governing Board's central programmes (among other things the Aspasia programmes and the central positions for the Innovational Research Incentives Scheme).
- The spendings on the stimulation and priority programmes, as well as those on the Genomics programmes Functional Genomics and Proteomics, Biomolecular Informatics and The Societal Component of Genomics Research are categorised with the various scientific divisions.
- **Other research institutions:** These are research institutions other than NWO institutes and universities.

MaGW	N	TW	WOTRO	ZonMw	NCF	NGI	ACTS	ICTRegie	Total	% Total NWO
									21.014	4
									15.078	3
					34				16.040	3
									20.086	4
									15.187	3
									3.209	1
			53						19.985	4
74									1.717	0
									20.399	4
74	0	0	53	0	34	0	0	0	132.715	26
1.513	84	1.063	47	8.421	17	1.138			15.616	3
2.853	3.230	3.967	687	4.327	25	1.781	344		26.633	5
2.717	5.804	1.176	308	2.104	72	2.033	1.026		25.809	5
762	5.909	10.094	21		224	6.361	2.994		31.284	6
956	2.430	6.994	39	83	189		282		19.314	4
2.347	3.854	2.873	732	3.737	140	721	172		27.777	5
2.388		733	36	3.857		767			9.640	2
1.431	4.038	9.702	51		120	74	898		21.294	4
4.493	2.315	3.321	533	4.782	281	2.465	619		38.270	7
6.042	2.845	2.413	2.544	2.425	184	619	112		29.554	6
4.645			49	100		35			6.119	1
2.583	2.079	1.678	387	2.113	165	317	78		19.942	4
737	178	3.852	1.325	521	64	4.695	1.370		17.707	3
33.467	32.766	47.866	6.759	32.470	1.481	21.006	7.895		288.959	56
3.637	706	274	1.126	6.669	2.047	4.831	12		37.412	7
436	110	677	163	25	316	5.163	179	400	15.921	3
2.850	4.109	3.036	736	3.585	488	2.246	643	807	37.087	7
40.464	37.691	51.853	8.837	42.749	4.366	33.246	8.729	1.207	512.094	100
38.315	39.296	52.901	8.579	44.652	4.565	29.657	3.068	4	481.845	100

Table 21: Personnel funded by NWO

	Central		ALW		CW		EW		GW		MaGW	
NWO institutes (fte)	SP	NSP	SP	NSP	SP	NSP	SP	NSP	SP	NSP	SP	NSP
Netherlands Foundation for Research in Astronomy (ASTRON)	55	145					3					
National Research Institute for Mathematics and Computer Science (CWI)	131	58	1				34					
FOM Institute for Atomic and Molecular Physics (FOM-AMOLF)	86	66	2		2		3					
FOM Institute for Plasma Physics Rijnhuizen (FOM-Rijnhuizen)	75	103					0					
FOM Institute for Plasma Physics Rijnhuizen (FOM-Rijnhuizen)	46	79					1					
Institute for Dutch History (ING)	25	18					0					
Royal Netherlands Institute for Sea Research (NIOZ)	44	128	25				0					
Netherlands Institute for the Study of Crime and Law Enforcement (NSCR)	15	6					0				2	0
SRON Netherlands Institute for Space Research	75	113					2					
Total NWO institutes	552	716	28	0	2	0	43	0	0	0	2	0
Universities												
Erasmus University Rotterdam	17	2	20	0	5	0	4	0	22	0	30	0
Radboud University Nijmegen	21	1	53	0	25	0	36	0	35	0	42	1
University of Groningen	17	0	69	2	32	0	42	0	18	0	61	0
Delft University of Technology	7	1	16	0	19	0	41	0	2	0	20	0
Eindhoven University of Technology	11	0	0	0	13	1	64	1	12	0	11	0
Universiteit Leiden	27	1	35	0	37	0	48	0	65	1	34	0
Maastricht University	7	0	7	0	0	0	11	0	10	0	46	0
University of Twente	10	0	3	0	19	0	49	0	7	0	22	0
Utrecht University	59	2	98	1	45	1	50	0	34	0	98	2
University of Amsterdam	33	0	34	1	27	1	52	1	44	0	105	0
Tilburg University	14	0	0	0	0	0	10	0	12	0	60	1
Vrije Universiteit Amsterdam	21	0	67	0	24	2	60	0	23	0	52	0
Wageningen University (and Research Centre)	6	0	47	0	4	0	1	0	9	0	13	0
Total universities	250	6	448	4	250	5	467	2	292	1	592	3
Other research institutions	51	0	80	4	10	0	22	3	114	1	25	0
NWO office		96		28		21		24		25		42
Total 2005	853	818	557	36	262	26	532	29	406	27	620	45
Total 2004	860	835	459	39	295	23	395	30	335	26	526	45

Table 21: Explanation

Personnel funded by NWO: This table presents the research positions funded by NWO through grants at the NWO institutes, universities and other institutions, office employees of the central apparatus (The Hague) and FOM and STW (Utrecht). The figures concern staffing per 31-12-2005.
The figures in this table have been rounded off to whole numbers. When joint applications from universities (and/or NWO institutes) are granted, the location of the head applicant is considered the recipient.

- **Central:** The column 'Central' presents the FTEs relating to the institutes' own research activities and to the central programmes Aspasia and Innovational Research Incentives Scheme (old style). The FTEs of the central, stimulation and priority programmes are grouped under the various scientific divisions that carry them out.
- **Other research institutions:** These are research institutions other than NWO institutes and universities.
- **NWO taskforces NGI and ACTS:** The figures given here relate to researchers funded by means of subsidies granted by NGI or ACTS. These subsidies are usually administered by NWO divisions. The appointed staff, however, are not included in the FTEs of the divisions but are wholly assigned to NGI and ACTS.

	N		TW		WOTRO		ZonMw		NCF		NGI		ACTS		ICTRegie		Total		Total	% in
	SP	NSP	SP	NSP	SP	NSP	SP	NSP	SP	NSP	SP	NSP	SP	NSP	SP	NSP	SP	NSP	general	Total
																	58	145	203	3
			3														169	58	227	3
	6																99	66	165	3
																	75	103	178	3
																	47	79	126	2
																	25	18	43	1
					1												71	128	199	3
																	17	6	22	0
																	77	113	190	3
	6	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	637	716	1.352	21
	1	0	9	1	0	0	126	18	0	0	9	0	0	0			242	21	262	4
	25	2	45	12	8	0	61	6	0	0	8	0	7	1			365	22	388	6
	51	32	23	3	5	0	29	4	0	0	3	0	14	0			364	41	405	6
	80	3	142	9	0	0	0	0	0	0	0	0	10	1			336	14	350	5
	35	0	87	4	0	0	1	0	0	0	0	0	2	0			235	7	242	4
	63	0	41	13	12	0	66	5	0	0	13	0	2	0			442	20	462	7
	0	0	7	4	1	0	52	3	0	0	3	0	0	0			144	7	151	2
	60	0	146	22	0	0	1	0	0	0	2	0	10	0			329	22	352	5
	36	3	38	7	10	0	86	5	0	0	14	1	10	0			578	22	600	9
	46	1	17	2	20	0	32	2	0	0	8	0	2	0			419	8	427	7
	0	0	0	0	1	0	3	0	0	0	1	0	0	0			100	1	101	2
	40	4	14	5	5	0	54	7	0	0	7	0	3	1			370	19	388	6
	5	0	35	10	12	0	30	4	0	0	23	1	0	0			184	15	198	3
	442	45	603	92	74	0	541	54	0	0	89	2	60	3			4.108	218	4.326	66
	2	0	5	1	4	0	77	3	0	0	31	4	7	1			429	16	445	7
		49		48		9		42		4		8				3	0	398	398	6
	450	94	611	140	79	9	618	99	0	4	120	15	67	4	0	3	5.174	1.348	6.522	100
	503	102	606	141	86	10	400	87	0	4	75	15	43	2	0	0	4.582	1.359	5.942	100

SP = Scientific Personnel
NSP = Not Scientific Personnel

7.3 Output: publications and other products

In the past year a total of more than 5,000 researchers were active in NWO-funded research projects. An important instrument for communicating the knowledge gained by them is publications. The table below shows the output of the NWO projects over 2005. The number of publications in refereed journals is slightly lower than it was in 2004, but considerably higher than in 2003.

Table 22a: Academic publications

	Publications in refereed journals	Publications in other scientific journals	Book contributions	Monographs	Dissertations
ALW	604	263	80	22	58
CW	450	362	29	0	78
EW	554	219	51	4	35
GW	258	318	224	70	22
IB	178	182	10	5	19
MaGW	542	205	195	27	46
N	794	144	15	0	68
NCF	71	8	0	0	5
TW	500	115	8	0	35
WOTRO	95	12	29	13	31
ZonMw*					
NWO institutes	1.576	511	148	98	64
Other	28	47	6	1	0
Total 2005	5.650	2.386	795	240	461
Total 2004	5.993	1.861	744	179	479

Table 22b

Nature and Science	Nature	Science
2004	20	21
2005	25	21

Tables 22a and 22b: Explanation

- **Productivity indicators:** This table shows the numbers of publications in 2005, most of them the products of long-term NWO-funded research.
- **Publications in refereed journals:** Number of articles in academic journals that apply an anonymous peer-review system independent of the editors.
- **Publications in other scientific journals:** Articles in other academic (electronic) journals, among them conference proceedings, and other scientific output such as CD-ROMs designed for scientists and researchers. Not included here are unpublished contributions to conferences like posters and oral presentations.
- **Book contributions:** Contributions to scientific books aimed at an audience of scientists and researchers.
- **Monographs:** Books written for an audience of scientists and researchers that describe the findings of scientific research.
- **Dissertations:** The publication on the basis of which a researcher obtains his or her doctorate.
- **Publications in *Nature* and *Science:*** *Nature* and *Science* are two prominent international journals. Although these journals are mostly oriented toward the physical and medical sciences while not publishing quite as many articles in the humanities and social sciences, NWO regards it as a special achievement when research projects lead to publications in these journals. The results of 2004 and 2005 show an increase in the number of NWO-funded publications in *Nature*.

* Data unknown at time of printing.

Besides activities aimed at a mainly scientific readership another part of the output is aimed at users of knowledge outside the academic world or a wider audience. The table below exhibits this output over 2005.

Table 22c: Professional products and other output

	Professional products		Other output
	Patents	Other professional products	
ALW	7	28	895
CW	7	0	185
EW	0	0	367
GW	5	146	103
IB	0	3	24
MaGW	1	773	16
N	8	72	1.437
NCF	0	0	0
TW	14	85	18
WOTRO	0	13	62
ZonMw*			
NWO institutes	8	25	1.817
Other	0	4	56
Total 2005	50	1.149	4.980
Total 2004	51	1.132	4.364

Table 22c: Explanation

- **Professional products:** This table shows the numbers of publications in 2005, most of them the products of long-term NWO-funded research.
- **Patents:** Registered or applied-for patents from NWO research and contracts flowing from that. These give an indication of the commercial significance of NWO research.
- **Other professional products:** The other professional products (also) demonstrate more wide-ranging efforts at knowledge transmission and social relevance. They include contracts, publications designed for a wide readership, contributions to documentaries or scientific TV or radio broadcasts, CD-ROMs etc.
- **Other output:** This includes all other output that derives for an important part from NWO-funded research: such things as prizes, membership of the programme committees of important conferences, unpublished conference papers etc.

* Data unknown at time of printing.

8 Financial policy

NWO's financial policy is aimed at an expansion of means, an increasing commitment of means to scientific research, a reduction in liquidity and a careful management of available means. This chapter reports on the implementation of this policy in 2005. In addition it contains a brief review of the 2005 budget cycle and a look ahead.

8.1 Financial policy and liquidity position

a Expansion of means

The total contribution from OCW increased slightly in 2005. The general government contribution for 2005 has risen somewhat owing to a small contribution to compensate for rises in salaries. Again no indexation was applied. This 'cut' comes on top of the already imposed cutbacks which over the years have increased to about M€ 17; OCW has, incidentally, reversed part of these cutbacks in 2005 and 2006. That OCW's total contribution has nevertheless increased is a consequence of the specific grants for among other things the Social Top Institutes (MTIs).
The share of the third-party means (that is, contributions from sponsors other than OCW) has risen from 18% to 19%. The number of departments financing NWO has remained at 8. The revenues from the business world have gone up a bit.

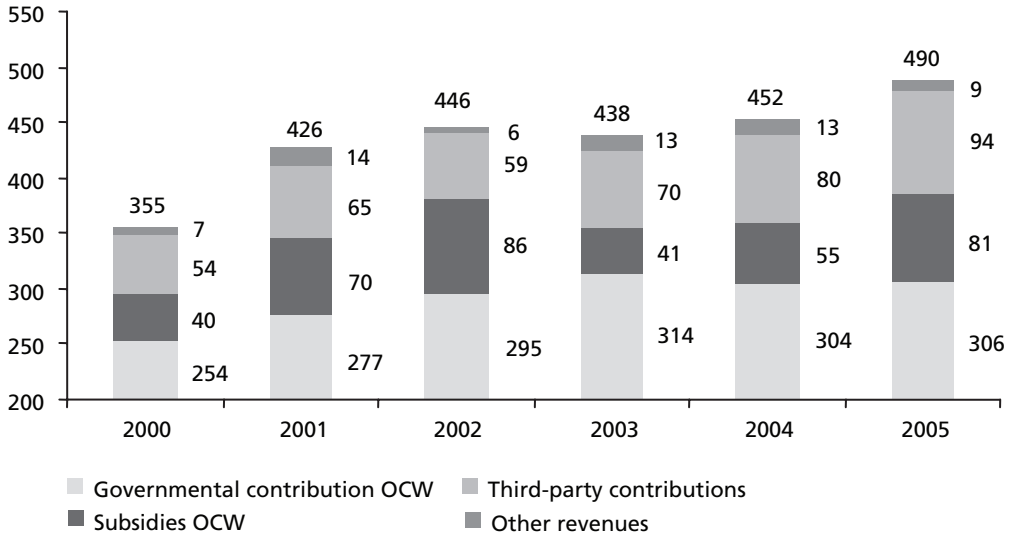

Figure 5: Development of NWO revenues in M€

b Increasing commitment of means to scientific research

The deployment of means for scientific research, by means of subsidies to third parties or by means of the exploitation of the institutes, has risen by 6% to M€ 472 (2004: M€ 445). With an inflation of about 2% this means that there was a growth in volume.
There was also growth in the financial obligations entered into at the end of 2005, particularly as a result of the growth in currents projects in the Innovational Research Incentives Scheme and projects of the Netherlands Genomics Initiative (NGI, formerly NROG).

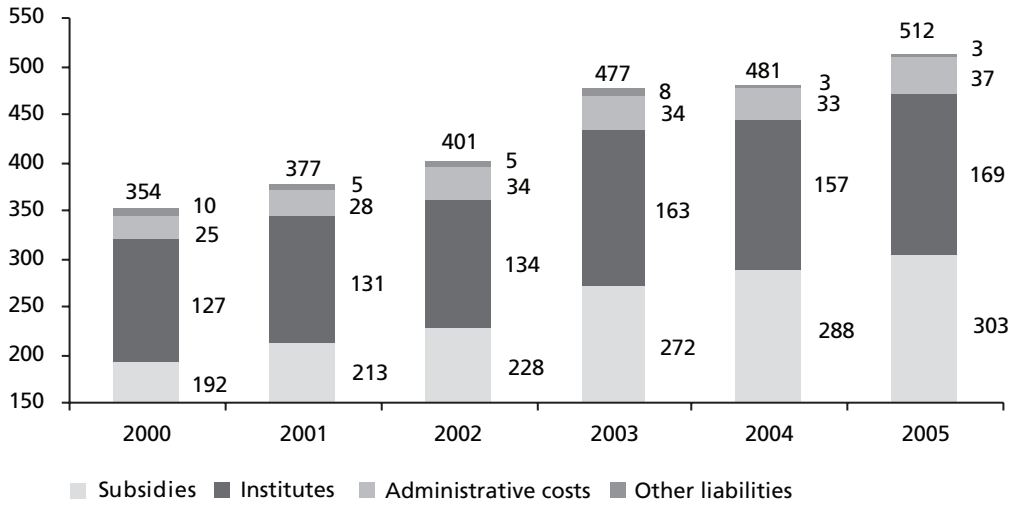

Figure 6: Development of NWO expenditure in M€

c Reducing liquidity

Liquid assets fell by M€ 23 as a result of a policy of overspending. Yearly the Governing Board, when setting the framework for next year's budget on the basis of an analysis of the budget and the liquidity position, makes a decision regarding the liquidity capacity that will exist at the end of the next 3-year period. Present policy is aimed at reaching zero liquidity at the end of the current 3-year period. Available means are thus deployed more quickly to stimulate scientific research, in full accord with NWO's strategic ambitions.
The risk that NWO is running in pursuing this policy is acceptable (but becoming bigger). Every half year the long-term figures and the prognosis for the development of the liquidity are brought up to date. Should liquidity, within the course of the fixed 3-year term, threaten to become negative, the Governing Board will take steps to prevent this. When in the spring of 2005 the framework for the 2006 budget was fixed it was decided not to make extra means disposable, on account of the uncertainties surrounding the funding of among other things the Smart Mix and of the Board's wish to reserve capacity for the new strategic plan. In the spring of 2006 the Board has decided to fix the overspending capacity for the 2007 budget at M€ 53.
In the coming years the effects of the overspending policy will clearly show themselves – provided the long-term perspective remains unchanged – in the liquidity position. The sizeable reduction of the general reserve is in anticipation of this. In 2003 the general reserve turned negative for the first time; the 2005 result lowers the general reserve to minus M€ 97. On the plus side are the designated funds, the earmarked sums put in reserve over the past years (M€ 295), which make NWO's own funds come out positive in the end. If in the coming years the government fails to make available new means, earmarked or not, NWO's own funds (general reserve and designated funds together) will become negative.

The figure below is intended to show that the overwhelming part of liquidity originates in the designated sums for Innovational Research Incentives Scheme, NGI, ICTRegie and the MTIs. Payment of available sums takes place in correspondence with the duration of the research. This causes a time gap between the receipt and the spending of these means, which makes liquidities go up.

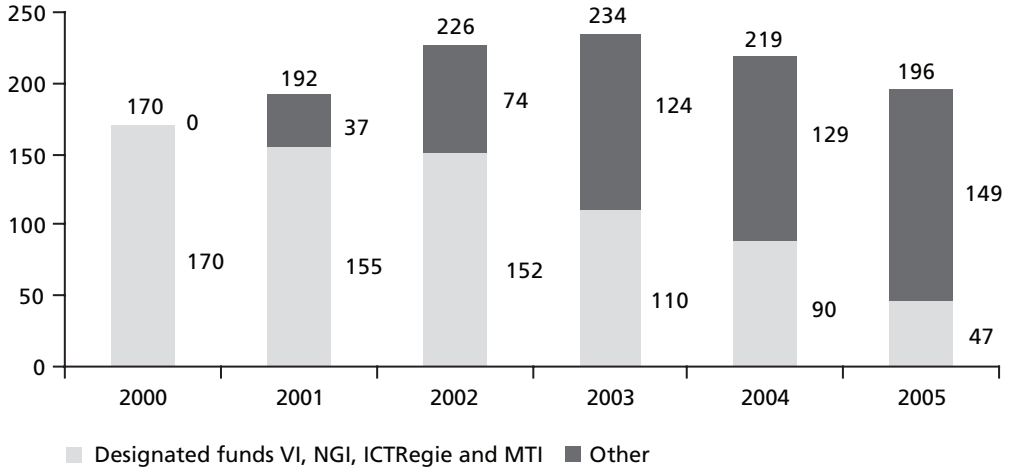

Figure 7: Development of NWO liquidity in M€

d Careful management of available means

Of the estimated liabilities in the revised budget, which goes with the simple annual accounts, 89% have been realised. NWO is not yet able to actually realise the target value of 95% of estimated liabilities in the year concerned. Among the reasons for this are the long time it takes to prepare programmes and the time needed to attract researchers after NWO has awarded a subsidy.
The level of debts, including awarded but unpaid sums as far as they relate to the past fiscal year, has gone down slightly from 31% to 30% of liabilities. The aim is to further reduce this percentage.
Management costs, expressed in the management costs percentage (management costs divided by the total liabilities) have gone up from 6.9% to 7.2%. This rise is caused by a number of incidental setbacks, the most important of which are:

- early 2005 a part of the extension of NWO's accommodation was not rented out as had been expected;
- the vacancy of the general director's position caused extra expenses to be made for replacement and advertising;
- the launching costs of ICTRegie, which are not yet matched by any research spendings.

The profit gained by careful cash management has risen as a result of the slow rise in interest during 2005 and of two incidental bonuses that were the outcome of an interest transaction with the Ministry of Finance and of fixing profits gained via a guarantee index fund. The profit is higher than the average interest paid by the Finance Ministry to the account current as part of 'treasury banking' (2.09% in 2005).

8.2 Budget (simple annual accounts)

In November 2004 NWO submitted its budget to the Minister of OCW. In December 2004 the Minister granted his written awarding to this budget. Subsequently some mutations were introduced as a result of, among other things, OCW's decision to make available a number of means, third-party contributions, and decisions made by the Governing Board and the division boards. The mutations to the 2005 budget were brought to the attention of OCW when the 2006 budget was submitted (November 2005).

The table below shows the total number of mutations made to the original budget. Additionally the realisation is presented. These figures apply to the simple annual accounts.

Budget and accounts NWO (in M€)	Budget 2005			Accounts 2005	Accounts 2004
	Original	Mutations	Available		
Governmental contribution OCW	298,5	6,6	305,1	306,0	303,6
Target subsidies OCW	43,6	11,4	55,0	74,1	54,9
Third-party subsidies	43,1	-1,9	41,2	42,0	38,8
Other revenues	1,0	0,7	1,7	1,3	7,8
Revenues	386,2	16,8	403,0	423,4	405,2
Liabilities	456,5	30,9	487,4	436,0	426,1
Result operational management	-70,3	-14,1	-84,4	-12,6	-20,9
Financial revenues	2,3	3,5	5,8	6,7	4,6
Result	-68,0	-10,6	-78,6	-5,9	-16,3
Mutation designated funds	-29,3	-6,4	-35,7	22,2	21,5
Mutation general reserve	-38,7	-4,2	-42,9	-28,1	-37,9

Budget 2005: explanation of mutations

The mutation in the OCW government contribution mainly concerns general salary measures.
The rise in OCW target subsidies concerns supplementary subsidies for MTIs, taskforces ICT and NGI and a number of programmes (Rubicon, Mosaic, Women in the Innovational Research Incentives Scheme and Aspasia).
The mutations in estimated liabilities are the result of supplements from the target subsidies and various readjustments in the sphere of liabilities caused by the estimates of various divisions and programmes.

Realisation of 2005 account (simple)

The realisation of liabilities is M€ 51 lower than the estimate. WOTRO and NCF have spent M€ 24 less than estimated due to delays in programmes. The temporary taskforces ICTRegie, NGI and ACTS have spent M€ 27 less due to the fact that a number of programme parts started later than expected.
For a part-by-part specification of the difference between estimate and realisation, see the explanation of the statement of assets and liabilities in the simple annual accounts.

Result allocation (simple)

The realised result is a negative M€ 6, which is M€ 72 more positive than the estimated result of M€ 78 negative. This difference is composed of higher profits of M€ 21 and lower liabilities of M€ 51.

8.3 Expectations for the future

When determining the financial frame for the 2007 budget the Governing Board set aside M€ 53 to achieve the desired reduction of the liquidity position. This will lead to a further decrease of the reserve at the Board's disposal.
The chance to continue the overspending policy is the result of among other things OCW's promise to NWO to contribute its share to the creation of the Smart Mix. As of 2007 an annual sum of M€ 100 is reserved for this, half of which comes from OCW, via NWO. Of course NWO hopes for new firm pledges in order to be able to make a start with the execution of the Strategic Plan 2007-2010.
For the time being NWO is still being confronted with cuts to the regular OCW means. Over the years cuts have been imposed which meanwhile have run op to a structural M€ 17 from 2008. These cuts were partly compensated for in 2005 and 2006, but they are still structurally present in the long-term estimates.
The housing of the NWO institutes remains a separate point of attention. The finances for AMOLF's new accommodation have meanwhile been finalised; building work will start in the course of 2006. In 2005 the Board also decided on the financing of the new accommodations of the CWI and ASTRON, involving a sum of about M€ 25.

9 Governance

NWO is a legally founded artificial person in public law and as such the legal successor of ZWO, founded in 1950. The NWO Law describes NWO's duties and powers. An important part of NWO's duties is performed by providing subsidies to academic researchers. The financial means for this are for the most part drawn from the budget of the Ministry of Education, Culture and Science. This chapter contains a brief synopsis of the way NWO deals with governance. Reference is made to a number of documents most of which can be obtained through NWO's website. 'Good governance' has NWO's unstinting attention.

9.1 Minister of Education, Culture and Science (OCW)

NWO falls under the responsibility of the Minister of Education (OCW). In order to properly take on this ministerial responsibility the Minister has a number of powers described in the NWO Law:

- to appoint and discharge members of the Governing Board
- to approve changes to the NWO Regulations (which describe the organisation's management and constitution as well as its relations with the research organisations)
- to form an opinion on the strategy plan
- to approve the budget
- to approve the annual accounts (part of the annual report)

The Minister consults with NWO's Governing Board once or twice a year. In 2006/2007 NWO's performance will be evaluated for the benefit of the Minister.

9.2 Governing Board

The Governing Board is responsible for carrying out NWO's duties. The Governing Board is supported by a general director, who is also in charge of the NWO Office.
Under NWO come division boards, subsidy organisations (NCF, WOTRO), research institutes and temporary taskforces (ACTS, NGI, ICTRegie). The Governing Board appoints or approves the appointment of members in the boards of these organisations. The NWO Regulations stipulate the rules to be followed in the NWO organisation. These rules have been further specified in covenants, guidelines and other regulations.
In order to effectively accomplish its public tasks NWO maintains well-regulated relations with other departments and other (intermediary) organisations in the scientific field, such as the VSNU, universities, KNAW, Ministry of Economic Affairs, SenterNovem, the EU, and Research Councils across Europe.
The Governing Board is accountable to the Minister. In addition it is self-evident that a public organisation like NWO must administer public means in a responsible way and be publicly accountable for it.

9.3 Good Governance Code

NWO regards the Good Governance Code as an excellent guideline in giving account of its public governance structure. Special attention must be given to NWO's administrative and supervisory structure, which deviates from the 'ideal model' described in the code. In the strategy plan 2007–2010 the Governing Board has expressed its intention to look more closely into the governance structure within NWO. To intensify NWO's interaction with its surroundings NWO, as a first step in changing its governance, will set up a 'senatorial college' that has a say in important policy decisions. This college will consist of prominent and authoritative persons from different sectors of society. Governance will also be reconsidered at division level. A number of division boards already contain experts from society at large who have a background in and commitment to science but are not academically employed.
Recently a number of measures were taken within the NWO organisation that are in close correspondence with the guidelines from the Good Governance Code:

- Putting in place internal systems for risk management and control
- Setting up a financial committee (containing two members of the Governing Board, the director of Organisation & Planning, and an external accountant)
- Developing an external complaints procedure
- Developing a code of conduct

9.4 Regulations as part of good governance

NWO has settled some important governance issues in a number of concrete documents (see also the NWO website):

Subsidy provision
Important to NWO are the quality, carefulness and transparency of the assessment process and the management of projects. The following documents contain a number of the measures implemented by NWO to achieve this:

- Subsidy regulation
- Appeals and protests*
- Personal data regulation
- Code on conduct on conflict of interests
- Scientific integrity
- Fraud protocol

Internal regulations
A number of internal governance issues will be settled in the following documents (among others):

- Whistle blowers regulation (a catch-all clause is part of the new CAO)*
- Complaints regulation*
- Code of conduct*

The Code of conduct on conflict of interests was modified in 2005. The documents marked with an * are currently being revised/developed.

9.5 Internal systems for risk management and control

NWO uses a planning & control system; in the spring the Governing Board discusses with the various boards, on the basis of the submitted annual accounts and long-term estimates, the results of the past year and the plans for the years to come. In the spring the Governing Board fixes the financial framework for the coming years; on the basis of this framework the various boards make a definitive budget for the following year which is submitted to the Governing Board in September. Next the general NWO budget is made and presented to the Minister of OCW no later than 1 November.
As part of this cycle the financial policy and financial risks are extensively discussed. In the guidelines on Financial management the laws and regulations that NWO has to abide by are translated into guidelines used within NWO. Every year in the consolidation protocol the principles are laid down for the financial reporting which all parts of NWO have to follow. At present much labour is being spent on perfecting the descriptions of the primary process, a result of the INK projects that were carried out in the past years. Within the framework of this cycle the new strategy plan for the period 2007–2010 will have to be translated into indicators with which the realisation of the designated aims can be monitored. An important element in this are the recurrent management talks.
During 2005 attention was given to the risks NWO is running fiscally, in the computerised information supply and the protection against illegal access. Measures to curb these risks were taken or are being taken. A main point of attention is further heightening employees' awareness of the risks regarding access both to computers and to buildings.