NWO Annual Report 2006

Including Indicators of Accountability

The Hague, June 2007
Netherlands Organisation for Scientific Research

Colophon

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More information

This Annual Report 2006 contains the NWO Governing Board's formal administrative account for the year 2006. 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 NWO issues two annual publications for other audiences:

– For the wider circle of professional relations in science and society, NWO publishes, in a print-run of around 13,000, 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 2006. In addition it contains NWO's Social Annual Report plus a number of other NWO publications, namely the issues of *Hypothese* which appeared in 2006 and the NWO Strategy Paper 2007–2010 *Wetenschap gewaardeerd!* (Science valued!) which appeared in May 2006. You can order this cd-rom free from charge at voorlichting@nwo.nl.
– To inform the general public about scientific developments, NWO publishes the easily accessible book *Op onderzoek - Wetenschap in Nederland* (Boom Publishers), which is sold at bookstores (publication date: middle of October 2007). In this book special findings from NWO-funded research are presented and explained with the help of interviews with scientists, illustrations and short articles, and researchers tell about their passion for science.

More information at www.wetenschapinnederland.nl.

Preface

Without a doubt 22 May 2006 was the most important day for NWO. Then more than 900 people crowded into the *Nieuwe Kerk* [New Church] in The Hague to attend the launch of *Science valued!*, NWO's strategic plan for 2007-2010.

Besides Prime Minister Jan Peter Balkenende and the then Minister of Education, Culture and Science Maria van der Hoeven, everyone involved in the planning and implementation of science in the Netherlands was present. Understandably, as NWO's new strategic plan was developed after a very broad and thorough consultative process with the scientific, political and commercial arenas. It is therefore a very broadly supported call to strengthen and shape knowledge development in the Netherlands, and through indirect government funding in particular. Main themes are: more opportunities for scientific talent, an improved consolidation of strengths and more research for the benefit of society. To realise these objectives major new investments are needed alongside the continuation of existing funds.

This call received a lot of support on 22 May. Unfortunately the realisation of the intended course stagnated with the fall of the then cabinet. A new government policy is needed to be able to realise all of the new ambitions. That policy requires decisions that exceed the decisiveness of an outgoing cabinet.
It was therefore a case of waiting for a new cabinet.

In 2006 we could, however, realise a number of previously approved ambitions and wishes. For example, NWO received 100 million euros for intensifying cooperation between science and the commercial sector in the form of the *Smart Mix*. Moreover NWO was awarded a further 100 million odd euros for amongst other things a number of research programmes within our divisions. The extra resources were also earmarked, for example, for the new programme *Top Talent* for young budding researchers and for the programme *Mosaic*, which will stimulate a large influx of ethnic talent into science. This meant that last year the first steps could be taken in the direction of the so-called intensification of research supported by NWO with the objective of identifying and facilitating top quality.

The expectations for the next few years remain high. Other publications from 2006 are contributing to this, such as the recommendations from the *Commissie Dynamisering* (Dynamisation Committee) and the Knowledge Investment Agenda from the Innovation Platform, which also called for more investments in science. The Budget for 2008 to be published this autumn will probably bring clarity to the situation. Then it will become clear to what extent the new Cabinet is willing to support the ambitions of *Science Valued!*, which implies a near doubling of NWO's budget. The postponement of the full realisation of *Science Valued!* does not detract from the many achievements realised by the scientific world in 2006. In this report NWO accounts for the policy it has carried out to support these efforts and to realise an optimal return.

In addition to this factual annual report, the main points of the developments over the past year within science funded by NWO are published under the title *Synthesis, NWO Annual Review 2006*. This contains a CD-ROM with information about funded and current research projects, the Social Annual Report and the NWO strategy memorandum 2007-2010.

This autumn, in mid-October, a general interest book will once again be available in bookshops, which this time will bear the title *Op onderzoek* (Exploring research). It is an accessible book with up-to-date impressions and interviews about NWO-funded research.

Peter Nijkamp
Chair Governing Board

Key figures (consolidated)

Statement of assets and liabilities (x €1000)	2006	2005
OCW government contribution	308.115	305.969
OCW subsidies	102.839	80.944
Third-party subsidies and contributions	83.447	94.269
Other assets	10.203	9.459
Total for assets	504.604	490.641
Subsidies to third parties	324.838	302.501
Exploitation of NWO institutes	151.162	169.640
Administrative costs	34.833	36.490
Other liabilities	12.071	3.803
Total for liabilities	522.904	512.434
Result of operational management	-18.300	-21.793
Financial assets	6.739	7.534
Result	-11.561	-14.259
Mutations in designated funds	18.898	20.669
Mutations in general reserve	-30.459	-34.928

Funded employees as per 31 December (FTE)	**2006**	**2005**
NWO institutes	1.353	1.352
Universities	4.337	4.326
Other research institutes	393	445
NWO office	356	398
Total	6.439	6.521

Publications	**2006**	**2005**
Publications in refereed journals	6.304	5.650
Publications in other scientific journals	2.315	2.386
Book contributions	897	795
Monographs	210	240
Dissertations	639	461
Patents	45	50
Other professional products	4.911	6.129

Contents

1 NWO mission and positioning

NWO's core tasks are to promote quality and innovation in scientific research and to bring about the transmission and use of knowledge. Under the title *Science Valued!* NWO in 2006 presented an ambitious strategy for a vigorous increase and optimal implementation of the second flow-of-funds in the period 2007-2010. The aim is to stimulate Dutch science in order to bring the Netherlands at the forefront of the world's knowledge societies. NWO's plans for the future, which are given concrete form in the three lines of action, 'Opportunities for researchers', 'Consolidating strengths' and 'Science for society', were everywhere very well received. As a result of the premature resignation of the Cabinet in 2006 the NWO strategy has so far not been put on the political agenda, nor has a decision been taken about the requested budget increase of 433 million euros.

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 (OCW), NWO is one of the organisations that is expected to give a major contribution to the strengthening of the Dutch knowledge system. NWO as a national organisation uses its programming in collaboration with the researchers in the field to give direction to scientific research, as well as serving as an intermediary between science and society.
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 Presentation of strategy *Science Valued!*

On 22 May 2006 NWO amid great public interest presented its strategy for the period 2007-2010, *Science Valued!*, in the Grote Kerk at The Hague. One of its main points of departure is that the need for high-quality, groundbreaking scientific research is one of the driving forces of the Netherlands' growth as an internationally operating knowledge society. To be able to optimally perform also in the future a number of bottlenecks must be dealt with which now constitute a serious threat to our scientific potential. Therefore NWO in 2006 launched a strategy that strengthens Dutch science in the coming years along three lines:

- **Opportunities for researchers**
  aims at preserving and increasing talent and promoting excellent, groundbreaking research;
- **Consolidating strengths**
  aims for a concentrated deployment of people and means;
- **Science for society**
  aims to create a better fit between social requirements and groundbreaking research.

Since a big investment in science is needed to make our country into an international frontrunner in knowledge, NWO in *Science Valued!* argued for a structural increase of the present second flow-of-funds budget by 433 million euro. (An extra annual increase of 283 million euro combined with the making permanent of as yet temporary funds of 150 million euro per year.) NWO again urged the need for an increase when at the beginning of 2007 the new government came to power, pointing to the broad support for the strategy 2007-2010, which was created in close consultation with all NWO's stakeholders in science, government, businesses and other social strata. These are important partners that will also be involved with the implementation of NWO's plans. NWO will of course report on the concrete elaboration of *Science Valued!* in future annual reports.

1.3 Champion of quality and innovation

NWO spends its means 'in competition' on the best researchers and research groups. The selection is in the hands of independent experts. The core criteria in the implementation of NWO's mission are and continue to be the high quality of the funded research and the innovative nature of the research agenda, which enable Dutch science to achieve (and maintain) a world-class position. 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 transmission. In the new strategy these spearheads will be given greater precision and prominence:

- Scientific quality and innovation heavily depend on the efforts of a sufficiently large number of eminent researchers. NWO therefore considers it of great importance to invest in **scientific talent**. The national funding organisation urges promising young people to choose a career in science, gives young scientists the opportunity for further development, and 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.
- Current social issues urgently require a way of addressing that is based on innovative, multidisciplinary research, in which various scientific disciplines, government and/or businesses at home or abroad cooperate closely. This method is characteristic of the routine of a number of NWO institutes and of the way NWO has given substance to the nine **themes** that have received special attention in the past years. For the years 2007-2010 NWO has again designated (thirteen) current scientific and/or social issues to be the bearers of theme-centred programmes.
- Through **international cooperation** knowledge and research are combined. NWO directs its efforts particularly towards cooperation in Europe.
- An advanced r**esearch infrastructure** is a major precondition for top-level research. NWO therefore stimulates the innovation of (international) research facilities through various funding instruments, her institutes and her participation in international facilities.
- The **communication and transmission of knowledge** about the findings produced by NWO-funded research stimulate understanding and the use of science in policy and/or practice.

1.4 Intermediary between science and society

NWO attaches great importance to partnerships with social parties. In 2006 this collaboration took the form, among other things, of a number of already existing cooperative ventures with several ministries besides OCW.

Collaboration with the Ministry of Economic Affairs

Together with the Ministry of Economic Affairs (EZ) NWO is a client of the Technology Foundation STW. In 2006 they ordered STW to be externally evaluated, which resulted in the judgment 'good'. NWO increasingly cooperates with SenterNovem, EZ's executive organisation. This collaboration is resulting pre-eminently in research projects in which knowledge transmission and use have been incorporated from the start.
In 2006 the first applications could be submitted for the Smart Mix, a programme developed by the Ministries of OCW and EZ together with SenterNovem and NWO. 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.
In 2006 SenterNovem and NWO jointly took care of the monitoring of the BSIK programmes. STW together with SenterNovem as delegated executor on behalf of EZ carried out an innovation-oriented programme (IOP) in the field of Photonic Devices.

Collaboration with the Ministry of Health

Since 2001 the organisation ZonMw is a combination of ZON (Zorgonderzoek Nederland), funded by the Ministry of Health (VWS), and the NWO Medical Sciences Division. The joint clientship of VWS and NWO is given shape through the Innovational Research Incentives Scheme and open competition and the joint funding of programmatic research, such as the programme Risk behaviour and dependence. Also in 2006 nine so-called 'Academic Workplaces Public Health' started. This is a matter of structural cooperation, mainly between one or more GGDs and an academic department, possibly in combination with one or more extra-academic knowledge institutes or health-promoting institutions.

Collaboration with the Ministry of Foreign Affairs

The NWO foundation WOTRO Science for Global Development is aimed at funding innovative scientific research into development issues, in particular sustainable development and the fight against poverty. In addition WOTRO wants to strengthen the cooperation with the Dutch government, development organisations and international research institutions. WOTRO aims at the practical use and application of research findings. WOTRO has its own management board and is co-funded by the Ministry of Foreign Affairs (DGIS).

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)** generates opportunities for innovation in the field of chemistry, life sciences and technology in which catalysis is central and the joint goal is to make a positive contribution to sustainability.
ACTS is a cooperative venture of the Ministries of EZ and 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. In this key area ACTS plays an important part in the action line 'Public-private cooperation for the development of sustainable solutions to new processes and products'.
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 is firmly embedded in society. NGI's first period ends at the end of 2007. In 2006 NGI after an extensive consultation process presented its Strategic Plan 2008-2012 to the Cabinet. NGI's Genomics Centres[1] together with a number of new consortia have made business plans for the period 2008-2012, on the basis of an evaluation, carried out in 2006, of their scientific and valorisation performance. A decision about the continued funding of NGI is expected to be made in the summer of 2007.
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. In April 2006, during an ICT-knowledge conference organised by ICTRegie, the Public Strategic Advice was published. Parallel to the conference the event DizzizIT was organised to enthuse young people for ICT. In October 2006 ICTRegie brought out the ICT Innovation Agenda, containing its views on the desired developments in the field of ICT research and innovation.

Casimir programme

The Casimir programme aims to increase researchers' mobility and the number of exchanges of researchers between companies and public knowledge institutions. The programme is funded by the Deltapunt Bèta/Technology (as delegated client on behalf of the ministries of OCW and EZ). In 2006 35 applications were submitted of which 15 could be approved.

1 In Dutch: Genomics Zwaartepunten

Contested Democracy

In December 2006 NWO Humanities together with NWO Social Sciences launched the research programme Contested Democracy. Apart from the innovation of democracy research, the study of the nature, evaluation and functioning of democracy serves a social purpose as well. Within Contested Democracy four ministries (Internal affairs, Agriculture, Housing and Health) and three advisory colleges (Scientific Council for Government Policy, Council for Social Development, Dutch Advisory Council for the Public Administration [2]) closely cooperate with NWO. The two-way traffic between these parties should result in the optimal utilisation of each other's knowledge and experience.

Other joint ventures

Cooperation between the ministry of General Affairs and NWO was given shape in 2006 in a so-called 'Practical Academic Workshop' where science and practice meet each other in order to apply scientific knowledge to social uses. One of the first topics was the sustainability of the Dutch 'polder' model. To secure the transmission of knowledge to policy officials the findings of the first workshop (report of discussion and essays) were made electronically available to various government bodies.

1.5 Provenance and distribution of 2006 budget

The budget that NWO in 2006 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's means.

Tabel 1 Budget indicators

	Government				Other	Total
	OCW		Other departments	Total from government		
	Basic revenues	Other				
Revenues 2006 (k€)	308.115	102.839	47.476	458.430	46.174	504.604
Share of total revenues %	61%	20%	10%	91%	9%	100%
Revenues 2005 (k€)	305.969	80.944	56.789	443.702	46.939	490.641
Share of total revenues %	62%	16%	12%	90%	10%	100%

Table 1: Explanation
This table exhibits the provenance of NWO's revenues. Please consult chapter 8 of this annual report for more details on the budget indicators.
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 and International Affairs.

2 In Dutch: Wetenschappelijke Raad voor het Regeringsbeleid (WRR), Raad voor Maatschappelijke Ontwikkeling (RMO), Raad voor het openbaar bestuur (ROB)

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.

Table 2 shows how the budget in 2006 and 2005 was divided between the various spearheads of NWO policy.

Table 2 Division of budget between strategic goals

Allocation strategy paper (in M€)	Administrative account	
	2006	2005
Themes	83	76
Talent	75	67
Open competition	98	96
Investments/Infrastructure	37	26
Internationalisation	12	10
Other subsidy instrument	38	66
Other subsidies	21	25
Total subsidies	364	366
Institutes	101	105
Other	23	5
Administrative costs	35	36
Total NWO	523	512

Table 2: Explanation
The year 2006 was a transition period between the Strategic plan for 2002-2005 and that of 2007-2010. The strategy plan 2002-2005 contain objectives that fit NWO's strategy for this time frame. Table 2 shows the division of NWO expenditures between these objectives in 2006. This division matches the agreements that were made with the ministry of OCW with respect to the indicators agreement.

1.6 Annual Report 2006: accountability indicators

This Annual Report contains a record of facts concerning NWO in 2006. Chapters 2-9 contain data about the results for which particularly the accountability indicators are used that NWO and OCW agreed on in 2003. After this introductory chapter (1) the following subjects will be discussed:
2. Talent and open competition
3. Themes
4. Internationalisation
5. Infrastructure
6. Communication and knowledge transmission
7. Granting subsidies: selection, input, output
8. Financial policy
9. Governance

2 Talent and open competition

To strengthen science in a permanent way requires a sufficiently large number of researchers being given the space to perform to the best of their abilities. To realise this requirement NWO has for quite some time been heavily investing in talented researchers in different stages of their scientific careers. The instruments for this are the NWO Spinoza Award, and talent programmes such as the Innovational Research Incentives Scheme, Rubicon and Mosaic. The open competition offers researchers the chance to further develop their ideas as a foundation for future innovation.

2.1 NWO Spinoza Award

In 2006 NWO awarded the NWO Spinoza prizes for the twelfth time to researchers who belong to the absolute top of the league in their field of expertise. The NWO Spinoza Award is the highest Dutch award in the sciences. In 2006 it went to:

Prof. J.M. (Jozien) Bensing, *clinical psychologist at the Netherlands Institute for Health Services Research (NIVEL) and Utrecht University.*
Bensing demonstrated that the relationships between doctors and their patients can be investigated on a sound empirical basis. She also developed a research method for non-verbal communication that is now used throughout the world.
Prof. C.G. (Carl) Figdor, *immunologist at the Nijmegen Centre for Molecular Life Sciences and the University of Twente.*
Figdor was one of the first in the world to apply dendritic cell therapy – training the individual's immune system to attack tumour cells – to cancer patients. Furthermore, he played an important role in the development of the Nijmegen Centre for Molecular Life Sciences.
Prof. B.J.G. (Ben) Scheres, *molecular geneticist at Utrecht University.*
Scheres discovered which role stem cells play in pattern formation and growth of plant roots. He successfully demonstrated that many mechanisms in plants are closely related to processes in animals.
Prof. J.J. (Jan) Zaanen, *physicist at Leiden University.*
Zaanen made an important contribution to the understanding of the concept of high-temperature superconductivity. This is the phenomenon where the electrical resistance of some materials suddenly disappears at temperatures far above absolute zero.

2.2 Innovational Research Incentives Scheme

The Innovational Research Incentives Scheme is geared towards different stages of a scientific career. The total number of submitted applications in 2006 was lower than in 2005. This is mainly caused by the Veni round, which is held three times in every two years. In 2006 there were allocations in one round and only the number of applications connected with these were counted. In 2005 two rounds were approved; the applications for these were included as well. In 2006 there were in all far more applications (907) than in 2004 (670), a Veni year comparable to 2006.
The total gross and net awarding percentages in 2006 are comparable to those of 2005. In the Vici programme the burden on researchers is being reduced on account of the system of preliminary applications. This causes the net approval 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 shows the numbers of received applications and grants, and the awarding percentages for the three components of the Innovational Research Incentives Scheme in 2006.

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	300	194	494	61	32	93	20.3	16.5	18.8	20.3	16.5	18.8
Vidi	0	0	0	251	97	348	58	27	85	23.1	27.8	24.4	23.1	27.8	24.4
Vici	129	26	155	50	15	65	24	6	30	22.0	28.6	23.1	48.0	40.0	46.2
Total 2006	129	26	155	601	306	907	143	65	208	21.7	20.8	21.4	23.8	21.2	22.9
Total 2005	114	31	145	736	450	1186	176	109	285	22.1	23.3	22.6	23.9	24.2	24.0

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 approval percentages for female candidates for the total duration of the Innovational Research Incentives Scheme are at least as high as those for male candidates.
In 2006 the gross awarding percentages for women in Vidi and Vici were higher than those for men. In the Veni programme the awarding percentage for women was lower than the male percentage, as was the net awarding percentage in Vici. In 2005 the awarding percentage for women in Veni was higher than for men, but in Vici both the gross and net percentage was lower. The approval percentage for women in the Innovational Research Incentives Scheme was slightly higher than the percentage for men over the period 2002-2006 (women 22.5%, men 21.7%).
In the period 2002-2006 the Innovational Research Incentives Scheme has enabled 567 Veni, 396 Vidi and 138 Vici researchers to carry out their innovative and pioneering research work. These figures are in line with the target figures 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 the career development of the three groups of laureates is visualised. All three figures show marked career progress. Notably the Vidi laureates show a remarkable progress from postdoc positions to the positions of lecturer (UD), senior lecturer (UHD) or professor (HGL).

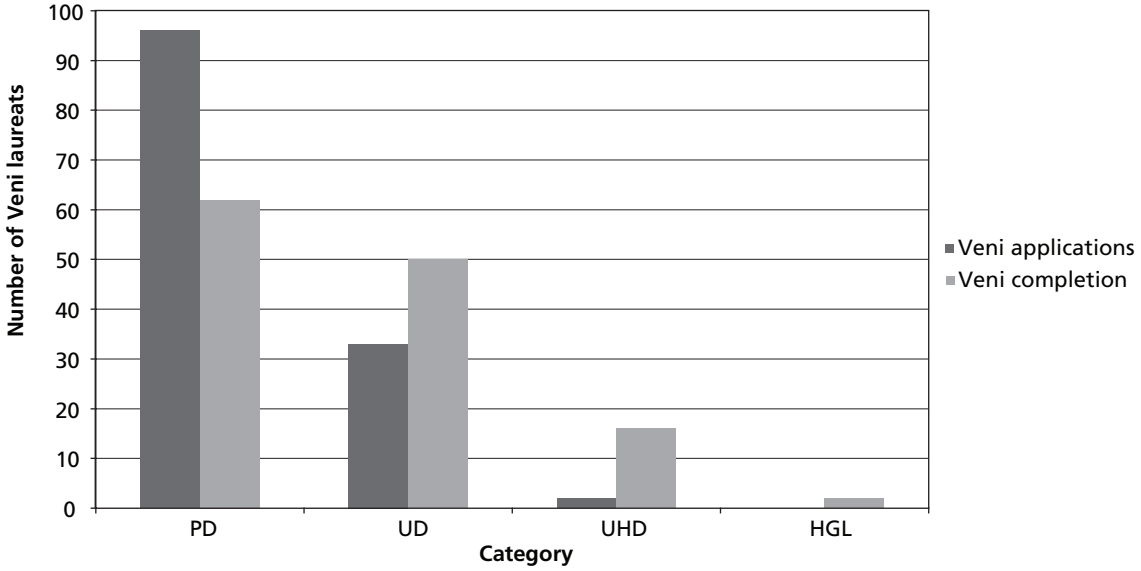


Figure 1 Career development of Veni laureates

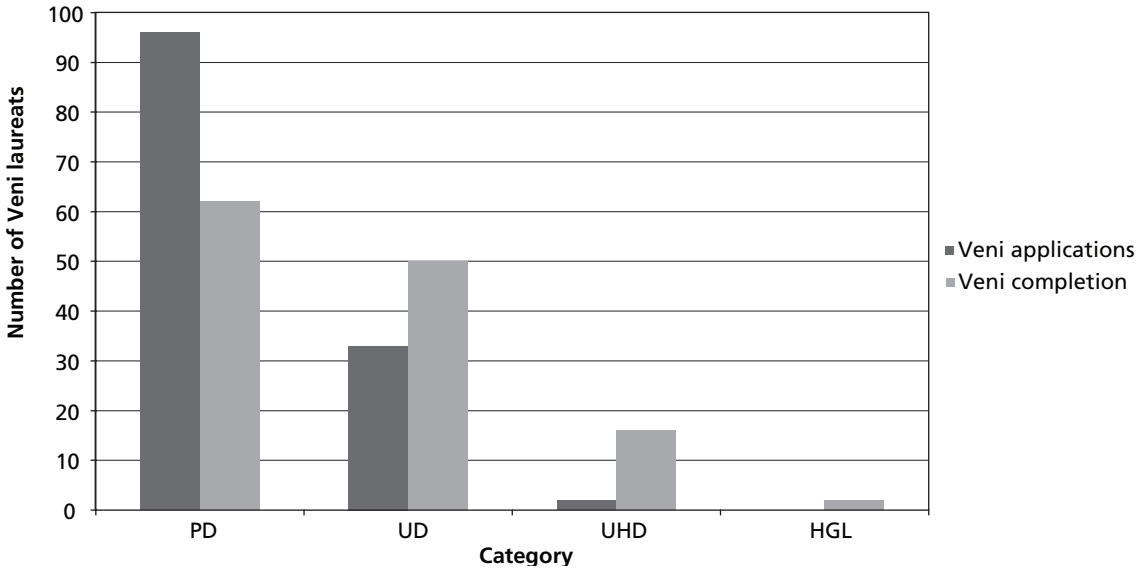


Figure 2 Career development of Vidi laureates

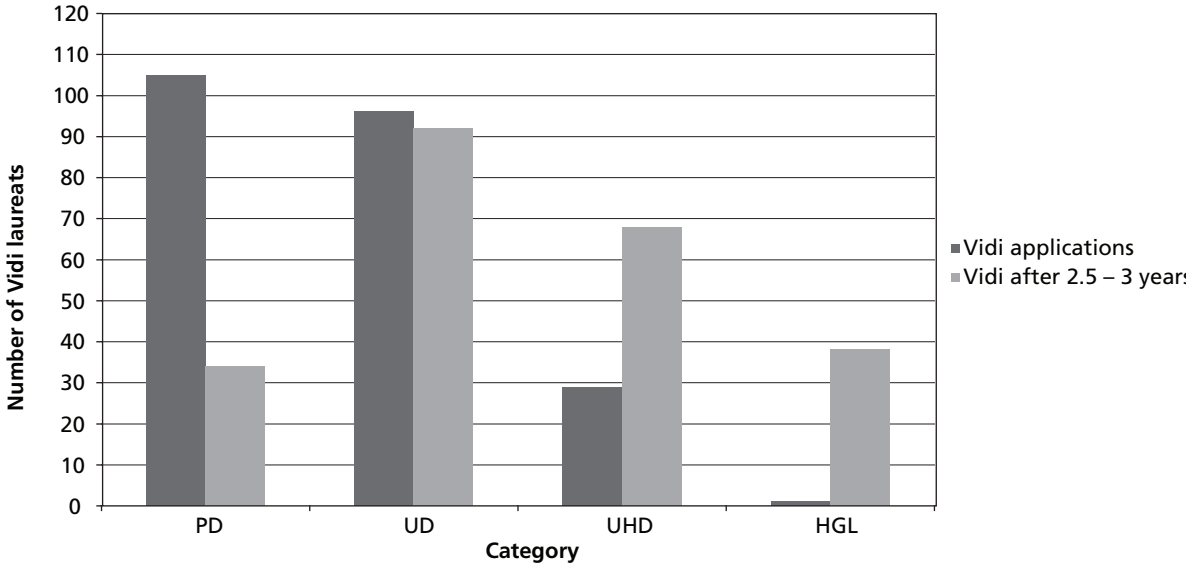


Figure 3 Career development of Vidi laureates

Figure 1-3: Explanation

The X-axis represents the type of laureates. The Y-axis represents the number of 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 will give an extra stimulus to the career prospects of women laureates. From the assessment of Aspasia in 2008 we may learn whether this is indeed the case.

Tabel 4 Innovational Research Incentives Scheme indicators, follow-up careers

	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	V	M	V	M	V	M	V	M	V	M	V	M	V	M	V
Veni	73	74	25	26	3	0	0	0	48	48	40	35	10	17	2	0
Vidi	47	40	40	47	12	14	1	0	18	17	39	41	29	30	18	11
Vici	5	0	7	0	17	29	71	71	0	0	2	0	10	0	88	100
Total	48	55	32	33	10	8	10	5	21	30	35	35	21	22	23	12

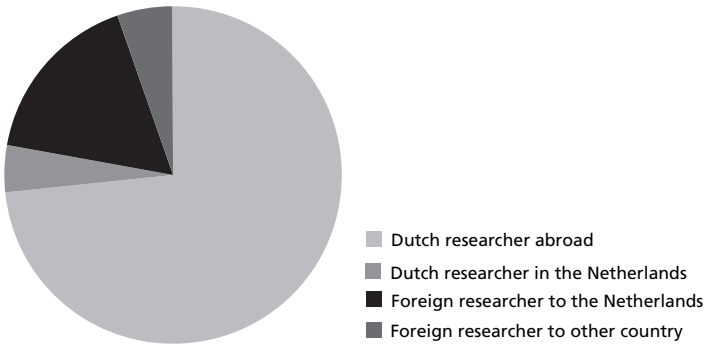
Table 4: Explanation
PD: Postdoc
UD: Lecturer
UHD: Senior Lecturer
HGL: Professor

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.

2.3 Rubicon

The Rubicon programme stimulates the scientific mobility of promising researchers who have recently obtained their doctorate. The programme is aimed at researchers who are at the threshold of their scientific careers and who may be expected, on the basis of their scientific qualities, to play important roles in Dutch science in the near future. Both the quality of the researcher and his/her proposal and that of the host institute are included in the assessment. The subsidy programme is open to all scientific disciplines.
Rubicon has replaced the Talent programme. 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 Veni subsidy of the Innovational Research Incentives Scheme.

Figure 4 Scientific mobility of Rubicon laureates



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."

Tabel 5 Rubicon

	Number of preliminary applications			Number of applications			Number of awarded a pplications			Gross awarding percentage			Net awarding percentage		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Number of Rubicon grants	0	0	0	199	118	317	63	32	95	31,7	27,1	30,0	31,7	27,1	30,0

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.

2.4 Special target groups

Toptalent

The minister of OCW has made available a total sum of 16 million euro for the period 2007-2010 to enable young, creative scientific talent to personally organise the course of their doctoral work. For this purpose NWO has developed the Toptalent programme. In December 2006 128 applications had been submitted of which 41 were approved in May 2007.

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. More specifically the programme stimulates the influx of PhD students from these groups. 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 and 2006 owing to the huge interest in the programme, the high quality of the candidates, and the place of the programme in NWO's policy for the cultivation of talent for giving greater attention to minority groups.

By 10 January 2006 120 pre-applications for Mosaic had been received. After a first selection 45 applicants were invited to work up their proposal. Two of these withdrew their proposals, leaving a total number of 43 applications. Of these 23 were approved. The festive presentation of the Mosaic subsidies, in the presence of HRH Princess Máxima, was on 19 October.

Tabel 6 Mosaic

	Number of preliminary applications			Number of applications			Number of awarded applications			Gross awarding perscentage			Net awarding percentage		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Total 2006	52	68	120	17	26	43	9	14	23	17,0	20,6	19,0	52,9	53,8	53,5
Total 2005	54	88	142	16	29	45	5	17	22	9,3	19,3	15,5	31,3	58,6	48,9

Table 6: 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.

Aspasia

The Aspasia programme aims for an increase in the number of female senior lecturers and professors. 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 university Boards in 2006 promoted 15 female Vidi and 2 female Vici laureates, for which they received Aspasia grants. Following the 2006 rounds of the Innovational Research Incentives Scheme again many proposals for promotion were initiated. During the course of 2007 it will become clear how many women will actually be promoted.

MEERVOUD and FOm/v

Alongside these general NWO stimulation programmes for the preservation and advancement of female researchers various NWO divisions have developed their own activities in this area. Through the MEERVOUD programme the divisions ALW, CW and EW encourage the career progression of female researchers from postdoc to UD. MEERVOUD made this possible for 4 researchers in 2006. The FOm/v programme attempts to preserve women physicists for science. In 2006 it was decided after evaluation to continue the programme in the coming years. It now has a structural budget of 300,000 euro per year. New is that female research trainees are entitled, at crucial points during their research, to have coaching talks or get a second opinion.
On 27 October 2006 the Minerva Award was presented for the fourth time. The winner was Dr Sylvie Roke. The prize is awarded for the best scientific publication by a female researcher in the previous two years.

2.5 Technological Toptalent: STW grants

Apart from its participation in the Innovational Research Incentives Scheme, the Technology Foundation STW has its own talent programme entitled Simon Stevin. In 2006 and 2005, respectively, Dr Kofi Makinwa and Dr Michiel Pertijs B.Sc. after competition won the title of Simon Stevin Gezel, with which are connected a work of art and the sum of 3,000 euro. The money may be spent on an activity that fits in with the aims of STW. Every year the competition is the occasion for the publication of a booklet.
Also every year an experienced and prominent scientist is awarded the title Simon Stevin Master. Along with a trophy (a small sculpture) the Master receives a cheque for 500,000 euro, to be spent on application-oriented research. In 2006 the title went to Prof. Dr Jaap Schouten B.Sc.

2.6 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.

3 Themes

In the previous strategy period NWO for the first time selected (nine) themes with the aim of creating focus and mass in research. In the past years these themes have given substance to the innovation of the research agenda. The thematic programmes have moreover proven to be an excellent vehicle for multidisciplinary cooperation.
For the strategy period 2007-2010 NWO has again, on the basis of broad consultation, selected (thirteen) topical scientific and/or societal subjects as carriers of thematic programmes. In 2006 a start was made with giving specific content to these new themes, in close cooperation with stakeholders in science and society.

3.1 Investments in themes and grants

Table 7 paints a picture both of the 2006 expenses in the separate themes from the strategy period 2002-2005 and of the number of programmes that were in progress within these themes in 2006.

Table 7 NWO theme indicators, spending and output

NWO themes	Number of running theme programmes	Expenses per theme 2006 (k€)
Shifts in Governance	2	2.009
Cognition and Behaviour	2	3.126
Cultural Heritage	8	3.725
Digitalisation and Information Technology	14	9.185
Ethical and Social Aspects of Research and Innovation	3	2.729
Fundamentals of Life Processes	14	31.464
Nano-Sciences	11	2.989
Emerging Technologies	17	10.823
System Earth	21	16.801
Total 2006	92	82.851
Total 2005	93	76.458

Table 7: Explanation
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 2006
The sum spent in 2006 on research in the field of the themes.

Depending on available means researchers are given the opportunity to submit applications for the various programmes within the themes. Table 8 gives a survey of the number of submitted applications and allocations. Both the number of pre-applications and that of applications have fallen (strongly) compared to 2005. This is caused by the fact that in 2006 within some of the themes there were fewer rounds than in 2005.

Table 8 NWO themes, 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
NWO themes															
Shifts in Governance	0	0	0	10	3	13	7	1	8	70	33	62	70	33	62
Cognition and Behaviour	0	0	0	21	1	22	6	1	7	29	100	32	29	100	32
Cultural Heritage	30	9	39	28	13	41	10	5	15	21	26	23	36	38	37
Digitalisation and Information Technology	40	7	47	67	7	74	25	3	28	28	30	29	37	43	38
Ethical and Social Aspects of Research and Innovation	0	0	0	15	9	24	11	7	18	73	78	75	73	78	75
Fundamentals of Life Processes	82	14	96	28	2	30	7	0	7	9	0	7	25	0	23
Nano-Sciences	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Emerging Technologies	0	0	0	11	0	11	4	0	4	36	0	36	36	0	36
System Earth	34	8	42	33	5	38	18	2	20	35	18	32	55	40	53
Total 2006	186	38	224	213	40	253	88	19	107	27	28	27	41	48	42
Total 2005	257	65	322	516	102	618	179	34	213	27	26	27	35	33	34

Table 8: 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 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.

Below are brief descriptions of the themes as well as lists of the programmes that were in progress within these themes in 2006. For more detailed information about approved, running and completed projects in 2006, see the attached CD-ROM.

3.1.1 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 existing 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 2006

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

3.1.2 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 2006

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

3.1.3 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, theater 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 2006

- 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 2002–2006
- 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

3.1.4 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.
In 2006 NWO-EW sponsored about 300 researchers who occupy themselves with promising subareas of information science, such as worldwide computer systems, visualisation and software engineering. The projects are funded out of the open competition or fall within the informatics research programmes GLANCE, VIEW, STARE, and FOCUS. With these programmes NWO contributes to enlarging focus and mass in the Dutch informatics research. Each programme give specific content to the national ICT research agenda 2005-2010 (NOAG-ict).
The strategic research within this theme is being carried out in six large research projects in such diverse fields as embedded systems, language and speech technology, software engineering and providing access to the digitalised cultural heritage. In all these programmes research is driven by societal demand. Numerous parties, from ministries and companies to museums and archives, invest in joint research projects, programme committees and user committees. Six out of eight NWO divisions are co-sponsors of one or more of these programmes.

On 6 February 2006 Minister Brinkhorst of Economic Affairs launched the website and telephone-operated information desk 'Van Kennis naar Kunde'. This joint initiative of NWO-EW and the ICT organisation ICT-Office has been developed to stimulate contact between small and medium-sized ICT businesses and researchers. At the website ICT businesses can find information about successful cooperative projects between companies and knowledge institutions. Through the information desk NWO-EW staff bring businesses in contact with the best research teams to answer their specific knowledge questions.

Programmes within the theme Digitalisation and Information Technology in 2006

- Accessibility and Knowledge Extraction in the Netherlands (ToKeN) (EW, MaGW), term 2001–2007
- Continuous Access to Cultural Heritage (CATCH) (EW, GW), term 2004–2010
- Flemish-Dutch Language and Speech-processing Technology Programme (STEVIN) (GW, EW), term 2005-2009
- Freeband Knowledge Impulse (STW), term 2002–2009
- GlobAL Computer ScieNCE (GLANCE) (EW) term 2004–2010
- 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

3.1.5 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 2006

- Ecology Regarding Genetically Modified Organisms (ERGO) (ALW), term 2006-2012
- Ethics, Research and Government (GW, MaGW, STW, ZonMw), term 2002–2009
- Societal Component of Genomics Research (GW, NGI), term 2001–2008

3.1.6 Fundamentals of Life Processes

After the decision was made in 2005 to continue the theme Fundamentals of Life Processes under the name System Biology, the year 2006 was devoted to preparing this new focus.
The human genome comprises 30,000 to 40,000 genes whose expression in time and space reflects human development. To describe the dynamics of this sort of processes tools need to be developed that chart processes at different levels of complexity (molecule, cell, organ, organism, population). The models created this way serve as a starting point for a more detailed understanding of biological function. This takes place through the iterative use of data input, computational modelling, simulation and experiments. Modelling is consequently not the end goal but a means to reach a greater understanding at system level and to develop more focused experiments.
Systems biology (or integrative biology) is the discipline that uses the above approaches to understand the dynamic interaction between components of a living system or between living systems, from building blocks to ecosystems. Systems-biological approaches will allow a more effective use of data collections and the making of more relevant predictions of the dynamics of living systems from their molecular and cellular properties.
Systems-biological approaches are by definition multidisciplinary. This is also one of the basic principles of the new subsidy round of the programme ‘Computational Life Sciences’, for which preparations started in 2006. Also in 2006 a consortium was created (SysBioNL) in which are represented both various scientific disciplines involved in systems biology and industries.
Internationally too NWO is involved in systems-biology initiatives. NWO takes part in the *ERA-NET Systems Biology (ERASysBio)* and in the first transnational call *Systems Biology of Micro-organisms (SysMo)* that was launched in 2006.

Programmes within the theme Fundamentals of Life Processes in 2006

- Biomolecular Informatics (CW, ALW, EW, ZonMw), term 2002–2007
- Biomolecular Physics (N), term 2003–2010
- Computational Life Sciences (EW, ALW, NCF, ZonMw), term 2003–2008
- Diseases in the Elderly (RIDE) (ZonMw), term 1999–2008
- 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
- Horizon (ZonMw), term 2003–2006
- Research on Infectious Diseases (ZonMw, WOTRO), term 2003–2008
- 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

3.1.7 Nanosciences

The nanosciences' social potential for sustainability and efficiency were explored in 2006 in a Cabinet View on Nanotechnology. The Cabinet has asked STW, FOM and NanoNed to set up a wide-ranging research agenda that will also include the insights of relevant knowledge institutions, industries and social organisations. Attention will also be paid to high-risk research and the preconditions for good research such as infrastructure and schooling.

Programmes within the theme Nanosciences in 2006

- ERA-NET Chemistry (CW), term 2005–2009
- ERA-NET Nanoscience (STW, FOM), term 2006–2012
- EUROCORES Self Organised Nanostructures (SONS) (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 1999–2007
- Photon Physics in Optical Materials (N), term 1999–2007
- Process on a Chip (POAC) (ACTS), term 2003–2008
- Softlink: Technology Related Soft Condensed Matter Research (CW, N), term 1998–2006
- Solid State Quantum Information Processing (N), term 2004–2013

3.1.8 Emerging Technologies

Many processes for generating and producing energy need to be radically revised to give industries a handle for improving chemical processes. This concerns not only the development of sustainable alternative processes but also of economically feasible applications on an industrial scale. Such developments require green and smart process technology, combining such fields as microsystem technology, industrial catalysis, chemistry, thermodynamics, materials science, transport, computing techniques and process management. As examples of disciplines where new scientific concepts may lead to further technological breakthroughs may be mentioned, among many others, quantum technology, fotonics, biomimetics, sensor technology, miniaturisation and self-learning systems, systems for data analysis, modelling and simulation.
Since 2005 within this theme the programme Extreme UV Multilayer Optics is in progress. 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 2006

- Combinatorial Chemistry (CW), term 2001–2008
- Evolution of the Microstructure of Materials (N), term 1999–2008
- Extreme UV Multilayer Optics (N), term 2005–2008
- Dispersed Multiphase Flow (N), term 2000–2007
- IOP Photonic Devices (STW), term 2006–2011
- Laser Wakefield Accelerators (N), term 2001–2008
- Metrology with Frequency Comb Lasers (N), term 2006–2010
- Microphotonic Light Sources (N), term 2005–2010
- Physics for Technology (N), term 1997–2011
- Physics of Granular Matter (N), term 2004–2011
- Physics of Thin Film Materials (N), term 1996–2007
- Separation Technology (CW, STW), term 2002–2008
- Scientific Instrumentation (N), term 1998–2007
- Statistical Physics and Micromechanisms of Deformation, Damage and Fracture (N), term 2001–2006
- The Physics of Fluids and Sound Propagation (N), term 2003–2009
- Tissue Engineering (ZonMw), term 2004–2010
- Turbulence and its Role in Energy Conversion Processes (N), term 2003–2010

3.1.9 System Earth

The theme 'System Earth' comprises research programmes concerning mankind's influence on natural systems and the consequences of that. A number of programmes is also aimed at reducing human influence. 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 aimed at the prediction of climate change, ocean circulation and the rise in sea level, research within this theme finds application in the development of alternative and renewable sources of energy and low-emission production processes, and in the ability to better assess in advance the effects of policy measures.

Programmes within the theme System Earth in 2006

- Advanced Sustainable Processes by Engaging Catalytic Technologies (ASPECT) (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 2002–2007
- Climate Variability (Clivarnet) (ALW, EW), term 2004–2008
- Energy Research (MaGW), term 1998–2008
- Environment and Economy (M&E) (MaGW), term 1997–2006
- EUROCORES Euroclimate (ALW), term 2004–2010
- EUROCORES EuroDiversity (WOTRO, ALW), term 2004–2011
- EUROCORES Euromargins (ALW), term 2002–2007
- Integration Biosynthesis and Organic Synthesis (IBOS) (ACTS, CW), term 2003–2010
- Joint Solar Programme (N), term 2005–2010
- Land-Ocean Interactions in de Coastal Zone (LOICZ) (ALW, MaGW), term 2002–2007
- Manipulation of Meso-scale Structures in Hot Magnetised Plasmas (N), term 2004–2008
- Molecular Atmospheric Processes (N), term 2001–2006
- Sustainable Hydrogen (CW, ACTS, N, WOTRO), term 2003–2011
- Sustainable Technology (Netherlands-Japan) (CW), term 2003–2007
- Vulnerability, Adaptation and Mitigation (VAM) (MaGW, ALW), term 2004–2009
- Water (ALW, WOTRO), term 2004–2008

3.2 Thematic programmes 2007-2010

Within the frame of the strategy paper *Science Valued!* NWO, on the basis of broad consultation, has chosen thirteen subjects as carriers of thematic programmes in the strategy period 2007-2010. In these come together NWO's ambitions for the lines of action 'Consolidating strengths' and 'Science for society'.
In choosing the mostly new themes NWO was guided by apparent needs in science and society. The research topics that flowed from these have the support of the universities and other external parties. The thematic programmes will be further specified in consultation with scientific and societal parties that are qualified for this on the grounds of the topic. This process has been initiated in 2006 by the various NWO divisions involved. The speed with which the themes will be given form and content over the coming years is strongly dependent on the possibilities of funding. In the spring of 2007 the new NWO theme programme Cultural Dynamics was the first to be launched with a first subsidy round. Cultural Dynamics is a joint programme of the divisions Humanities, Social Sciences, and WOTRO Science for Global Development.
Below you will find a survey of the thematic programmes 2007-2010. A brief sketch of the content of these programmes can be found in the strategy paper 2007-2010 and at www.nwo.nl/strategy.

Thematic programme in the strategy period 2007–2010:

- Conflicts and security
- Creative industry
- Cultural dynamics
- Sustainable Earth
- Dynamics of Complex Systems
- Use of Nanosciences and Nanotechnology
- Brain and Cognition
- Knowledge Base for ICT Applications
- Quality of Life – Dynamics of Life Courses
- Responsible Innovation
- New Instruments for Health Care
- New Methods for Production, Storage, Transport and Use of Energy
- Systems Biology

4 Internationalisation

Science by definition has no borders and scientists cooperate globally. NWO wants to achieve international cooperation as well as competition. This requires strengths and means to be consolidated in a targeted way. NWO's internationalisation policy is mainly 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 in 2006 cooperated with partners in 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. NWO's activities 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. In collaborative ventures the best researchers and research groups can work to create innovation and quality. But there is also another reason for cooperation. 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 moreover increasingly open to researchers abroad.

4.2 Cooperation within Europe

NWO participates in the development and deployment of various European collaboration and subsidy instruments. These are instruments of the European Commission such as those of the new European Framework Programme KP7 (ERC, ERA-net, Technology Platforms and Joint Technology Initiatives), instruments of ESF (EUROCORES) and of the EuroHORCs (EURYI).

4.2.1 The European Research Council (ERC)

During the past years NWO has strongly lobbied in favour of creating a European funding organisation for investigator-driven research in the development of KP7 for research and innovation. With the creation of the European Research Council (ERC)—as one of the four elements of KP7—a new funding opportunity is offered to excellent researchers who aim to do groundbreaking work. The ERC is supervised by the Scientific Council, one of whose members is Dutch.

4.2.2 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 aim to produce joint research programmes with joint calls for proposals. In 2006 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

4.2.3 Participation in Technology Platforms and Joint Technology Initiatives

In Technology Platforms knowledge institutions and companies cooperate, for example to improve the competitiveness of European industry. In 2006 NWO took part in the Technology Platforms Sustainable Chemistry and Innovative Medicine. A decision on the Joint Technology Initiatives will be taken in 2007.

4.2.4 Participation in ESF-EUROCORES

In the strategic paper *Science Valued!* 2007-2010 NWO stated as its objective that in the coming strategy period it would participate in 15 newly created transnational research programmes to enhance its international profile and collaboration. With the participation in 4 newly launched EUROCORES a first step has been taken.

Table 9 NWO participation in EUROCORES

EUROCORES	2006	2005
Number of EUROCORES newly launched	4	4
Number of EUROCORES in which NWO participates	16	14
Percentage EUROCORES with NWO participation	70%	82%
Part contributed by the Netherlands to the total EUROCORES budget	14%	18%

Table 9: 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 2006 NWO took part in the following 15 EUROCORES:

- CNCC: Conciousness in a Natural and Cultural Context
- ECRP I en II: 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
- 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)
- Inventing Europe: Inventing Europe: Technology and the Making of Europe, 1850 to the Present
- OMLL: Origin of Man, Language and Languages
- S3T: Smart Structural Systems Technologies
- SONS: Self-Organised Nanostructures
- TECT: The Evolution of Cooperation and Trading

In 2006 the European Science Foundation (ESF) selected six new EUROCORES themes. At the start of 2007 NWO officially confirmed its participation in four of these:
- HumVIB: Cross-national and Multi-level Analysis of Human Values, Institutions and Behaviour
- LogICCC: Logical Modelling in Interaction, Communication, Cognition and Computation
- TOPO-EUROPE: 4-D Topography Evolution in Europe: Uplift, Subsidence and Sea Level Change - The Geoscience of Coupled Deep Earth - Surface Processes
- EuroSTRESS: Stress and Mental Health

4.2.5 Participation in EuroHORCs and EURYI

In 2005 and 2006 NWO chairman Peter Nijkamp was 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 (KP7). EuroHORCs' concrete instruments at this moment are the European Young Investigators (EURYI) and the mobility instrument Money Follows Researcher.

European Young Investigators Awards (EURYI)

In 2006 NWO continued its participation in the European programme EURYI, of which 21 science organisations from 16 European countries are members, who also made available the means for this. The EURYI programme stimulates highly talented researchers to carry out their research at European research institutions. These are researchers who can be considered potential international leaders in their area of knowledge. The Dutch applications were again very successful. Of the 25 approved applications five were Dutch. The laureates each received 1.2 million euro to be spent on their research over a five-year period.

Table 10 NWO participation in EURYI

	2006	2005
Number of Dutch EURYI awards	5	3
Dutch share in total number of EURYI awards (%)	20%	12%

Table 10: Explanation
Dutch share in total number of EURYI awards
This shows how successful the Netherlands is in this programme.

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 Awards), with Russia (Russia programme in cooperation with the ministry of OCW) and with several Asian countries such as China, India, Taiwan and Korea. NWO is exploring new possibilities for cooperation with a number of fast emerging economies, such as India and China.
Through WOTRO Science for Global Development NWO furthermore supports research in developing countries in the broadest possible scientific context. In 2006 WOTRO published a new strategic plan for the period 2007-2010. In this the emphasis is on funding innovative scientific research into development issues in developing countries, in particular the fight against poverty and sustainable development. Special attention is given to international cooperation and the promotion of the exchange and use of knowledge, among other things through the involvement of potential knowledge users. WOTRO is also responsible for the NWO contribution to realising the UN Millennium Goals. The Directorate-General for International Cooperation (DGIS) of the ministry of Foreign Affairs awarded WOTRO a grant of 19 million euro as a contribution to realising this strategy.

4.4 Visitors and travel grants

Visitors and travel grants allow Dutch researchers to visit foreign research institutions or make it possible to invite foreign researchers to visit the Netherlands.

Table 11 shows the number of applications and grants awarded in several international programmes. 'Other programmes' includes EUROCORES, EURYI and European and non-European cooperations.

Table 11 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	45	1	46	19	1	20	42,2	100,0	43,5	42,2	100,0	43,5
Visitors and Travel Grants	0	0	0	207	145	352	180	128	308	87,0	88,3	87,5	87,0	88,3	87,5
Other programmes	16	1	17	174	47	221	115	24	139	63,9	50,0	61,0	66,1	51,1	62,9
Total 2006	16	1	17	426	193	619	314	153	467	72,7	78,9	74,6	73,7	79,3	75,4
Total 2005	0	0	0	367	145	512	268	116	384	73,0	80,0	75,0	73,0	80,0	75,0

Table 11: 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

5 Infrastructure

Scientific research is in most cases only possible if researchers have access to advanced research facilities. These are partly purchased from specialised companies. More often these facilities are developed by researchers themselves, for the simple reason that they don't exist yet. These facilities are accordingly an important stimulus to innovations. The need for strong magnets for particle accelerators for instance was the driving force behind the development of the superconducting magnets that would later make MRI scanners possible. NWO stimulates innovations in the research infrastructure through various subsidy instruments.

5.1 National Programme for Investments in Large-Scale Research Facilities

The first round of the National Programme for Investments in Large-Scale Research Facilities (budget: 100 million euro) was held in the autumn of 2005. NWO advised the ministry of OCW that year to approve five of the 42 applications. This advice led in the course of 2006 to a Cabinet decision, after which NWO approved the projects and allocated the means. These are the following projects that were all launched in the course of 2006:

- Digital Databank for Newspapers, Koninklijke Bibliotheek – domein: alfa/gamma.
- BIG GRID, the Dutch e-Science Grid; nationaal consortium- domein: bèta & life sciences, met uitstraling naar alfa/gamma.
- An Advanced Multi-Disciplinary Facility for Measurement and Experimentation in the Social Sciences CentERdata, Universiteit van Tilburg – domein: alfa/gamma.
- Nijmegen Centre for Advanced Spectroscopy; Radboud Universiteit – domein: bèta & life sciences.
- New Frontiers in Imaging the Brain: A Proposal for a National Brain Imaging Resource; Radboud Universiteit Nijmegen; Universiteit Utrecht en Universiteit Leiden – domein: alfa/gamma & life sciences.

In the meantime NWO has also set up a committee that will concern itself with developing 'road maps' to large-scale infrastructure in the Netherlands. This is also of importance for giving the Netherlands a clear contribution in the European context through the European Strategy Forum for Research Infrastructure (ESFRI).

5.2 Investments NWO Large and NWO Medium

The NWO Large programme concerns investments upwards of 900,000 euro in research facilities. Within this programme five applications were approved in 2006. These concern facilities of nationwide importance that are also available to researchers from other institutions. The following applications were accepted:

- A Solid-State NMR User Facility for Advanced Materials Science. Radboud Universiteit Nijmegen
- Focussed Ion Beam – Scanning Electron Microscopy as a Powerful new Tool in Geo- and Life Sciences for site-specific high-resolution Analysis of Natural Samples. Universiteit Utrecht
- A genome-wide association database of the Rotterdam study. Erasmus Universiteit Rotterdam/ Erasmus Medisch Centrum
- Nanofabrication for nanophotonics. FOM/AMOLF
- APERTIF - A Square Kilometre Array Pathfinder. ASTRON

The NWO Medium programme concerns investments between 110,000 and 900,000 euro. This programme is carried out decentrally by the NWO divisions according to sums that are fixed per division. In 2006 there were 27 grants and awards.
Information about numbers, applications and allocations 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	0	0	12	2	14	5	0	5	42	0	36	42	0	36
NWO Medium	9	2	11	83	11	94	22	5	27	26	45	28	27	45	29

Table 12a: 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.

Table 12b Means in investments 2006

	NWO Large	NWO Medium	BIG	NCF	Other
Means spent in year of report (k€)	9.832	14.287	7.857	6.807	3.620

Table 12b: Explanation

NWO Large applies to investments of more than € 900.000.
NWO Medium applies to investments from 110.000 to € 900.000. The investments include those of ZonMw.
BIG: National programme for investments in large schale research facilities.
Others: among others: ESRF, DANS, DUBBLE, ISIS.
Investments are spread out over several years.
This table only shows investments which were made in 2006.

5.3 International research facilities

Research is an international affair. Research facilities are sometimes so large that they cannot be supported by one country alone. In addition the required capacity may create a desire for international cooperation. Some of such large-scale facilities, created with NWO support, are based in the Netherlands. There is, for example, 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 synchotron radiation facility ESRF at Grenoble. On behalf of the Netherlands NWO participates in ESRF together with the Belgian federal government.
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 the course of 2006 an evaluation of the use of both facilities started. In the course of 2007 the Governing Board will decide whether to continue NWO's support of these facilities.
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 Hawai, 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)

The National Computing Facilities Foundation (NCF), an independent unit of NWO, is responsible for the national high-end computer infrastructure, to be created through a grid environment for qualified research in the Netherlands. NCF gives shape to this policy in a European context, taking account of the specifics of the Dutch situation as laid by the government and NWO.
Supercomputers and other computer, data and visualisation resources within a grid environment have become part and parcel of much present-day scientific research. Dutch researchers must be able to use the most advanced computing facilities in order to carry out their work successfully.
In 2006 much time was spent on acquiring a new national supercomputer; in December this resulted in the - then still conditional - selection of a system.
Another success of last year was the acquisition of means for the BIGGRID project, in which also the Netherlands Bioinformatics Centre (NBIC) and NIKHEF are partners. A total of 29 million euro was made available for setting up the national research grid, including special facilities for storage and processing capacity and local and national facilities for the entire research community, particularly the life sciences and particle physics.
NCF in 2006 actively worked in a European context on the interconnection of national grids, the formation of the European High Performance Computer infrastructure, and the administrative set-up of the European e-infrastructure.

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 mass in Dutch research. All institutes in 2006 outlined their plans for the coming years as part of the NWO strategy for the period 2007-2010. Linking up with the main lines of the NWO strategy the institutes have developed new themes and research lines and aim to further strengthen national and international cooperations. This consolidation of strengths is also needed for the development of and access to international research facilities that are on the European science agenda. All institutes are making efforts to make knowledge accessible to a wider audience and taking initiatives for (further) cooperation with users of knowledge.

The institutes' rationale lies in their scientific excellence, which is examined every six years by international evaluation committees by means of the Standard Evaluation Protocol 2003-2009 for Public Research Organisations devised by VSNU, KNAW and NWO. The evaluation process of the NWO institutes ASTRON, CWI, ING, NIOZ, NSCR and SRON was closed in March 2006 by NWO's Governing Board. A number of administrative agreements were made for the coming plan period. One of these concerns a new house style for the institutes that makes better visible their association with NWO.
As part of the evaluation cycle NWO in 2006 subjected the FOM institute AMOLF to an external evaluation, finding with delight that the committee judged this institute to be 'excellent' (the highest possible score). Preparations were made for the external evaluation of the FOM institute NIKHEF in 2007. In October 2006 Prof. Dr Carlo Heip took office as general director of the NIOZ. Heip combines this post with his function as director of the KNAW institute NIOO-CEME. At the end of 2006 NWO appointed Dr Michael Garrett as general director of ASTRON; he took office in February 2007.

6 Communication and knowledge transmission

NWO regards communication as intimately connected with all its activities. Without communication with the scientific field, social partners, knowledge consumers and the wider public NWO cannot effectively fulfil its tasks. What is NWO's view of science and its development? How is this view translated into subsidy instruments? And what are the practical effects of the research carried out within the various programmes? NWO deploys a wide range of communication products and activities to inform its various relations about the many aspects of its work.

6.1 Policy communication and Public Affairs

NWO invests heavily in the contacts with its professional relations in science, politics 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 2006 policy communication was largely focused on the launch and marketing of the strategy *Science Valued!* On 22 May 2006 the Grote Kerk in The Hague was filled with relations from science and society to witness the launch of the long-term strategy. At the same time a special of the magazine Hypothese was published that was devoted to the strategy. Also the paper itself was widely distributed among NWO's various relations.

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.

6.3 Talent support

For young investigators there are the NWO Talent Days (twice per year) and the NWO Talent Classes (6 times per year). In workshops varying from creative thinking and media training to negotiating and career development, young researchers (PhD students and postdocs) are offered the chance to further improve themselves in a number of ways.
These workshops for young talent turn out to meet a great need and were fully booked as soon as registration started. To support the laureates of the Innovational Research Incentives Scheme an annual VI network day is organised on which are offered workshops adapted to their level and many opportunities for exchanging experiences. There is also a special annual meeting for Spinoza laureates.

6.4 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. 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.

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

Research findings must eventually also 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 2006 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, for the first time with preliminary rounds on TV in which teams of newspaper readers competed against each other. Together with other parties the Paradiso, Spinoza and Tinbergen lectures were organised. In addition NWO organised several other public events, such as the 'science meets press' symposium Bessensap, and the *Unbelievable!* day for the general public organised by NWO Humanities. Finally, NWO also participated in, among other things, the Academic Year Prize and in the Knowledge Week 2006.

Without exception the communication products and activities have large groups of 'consumers'.
In 2006 the number of press releases taken over by the media was 1732.
In 2006 the National Science Quiz and its Junior variant were watched by 2,600,000 viewers. This strong increase is mainly due to the new set-up with eight preliminary rounds. In the tables below (13/14) the results of the press releases and the National Science Quiz are further explained.

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

	2006	2005
Number of NWO research reports and press releases in year of report	255	311
Number of adoptions		
National daily newspapers	295	300
Regional daily newspapers	257	296
Radio and television (including internet)	287	158
Scientific magazines aiming at the public at large and other	893	1186

Table 13: Explanation
Table 13 shows how many communications were sent by NWO (including STW and FOM) in 2006 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.

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

National Science Quiz VPRO-NWO	2006	2005
Number of entries quiz	19.000	22.000
Viewing figures of the broadcast	2.600.000	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.

6.6 Annual Report

With the publication of a general-audience book on science, a double-sized issue of the magazine Hypothese and a purely factual annual report NWO in 2006 abandoned its traditional way of annual reporting. The new publications replaced the NWO yearbook and the annual reports of the NWO Divisions. Considering the success of this new approach the decision was made to report on the past year 2006 in the same manner.

The book *Verwondering - Wetenschap in Nederland*, intended for a general readership, was published in cooperation with Boom publishers for a wide audience interested in science. In layman's terms are described findings of and trends and developments in NWO-funded research. The book is used as a promotional present, but was also sold through bookstores. All 4,500 copies have now been sold. In 2007 the second volume of this (continuing) series will come out: *Op onderzoek - Wetenschap in Nederland* (edition 6000).

The Hypothese special under the title Synthese (edition 13,000) is specifically intended for the supporters of researchers and NWO's relations. Synthese is a combination of policy and scientific information and contains brief annual reports from all divisions, foundations, institutes and taskforces of or allied to NWO. A CD-ROM containing detailed project information about approved, ongoing and finished research was first presented in 2005.

The present formal annual report comprises the essential data of 2006 compiled according to the accountability indicators and supplemented by the financial annual accounts.

7 Granting subsidies: selection, input and output

The key objective in NWO's work is the stimulation of scientific research through funding. Funding usually takes place on the basis of a national competition which is aimed at the selection of the best research proposals. To arrive at a fair assessment of submitted proposals many experts are consulted, both at home and abroad. The NWO office tries its utmost to reduce the burden on the experts to a minimum and make the process run as efficiently as possible.
In this chapter we describe how the selection of research proposals took place, what NWO invested in this (input) and what results (output) were achieved.

7.1 Selection process

Within NWO's various subsidy programmes a rigorous selection of submitted proposals takes place, on the basis of fixed criteria. One of those is the scientific quality of the proposed research. It follows from NWO's aims that only the best research is funded. The majority of applicants receive a negative decision on the submitted application. This is either because it is not of a sufficiently high quality, or because the available NWO means are often insufficient.

Table 15 shows the total number of applications which NWO decided on in the course of 2006. The order follows that of the strategic targets from the preceding strategic memorandum *Themes plus Talent.*

The number of pre-applications in 2006 was considerably smaller than in 2005. The reason is that in 2006 a number of the large programmes from the open competition stopped using pre-applications and now uses a system of continuous application. Moreover the number of applications was below that in 2005, since a number of large theme programmes—differently than in 2005—had no round in 2006. The same applies to a number of programmes in the category Other. Finally, in 2006 there was a considerably smaller number of applications in the Casimir round (in Table 15 this subsidy is categorised under 'Knowledge transmission'). This may be an effect of the small funding rate in the first Casimir round in 2005 (15%). Another factor may have been the fact that in 2006 the Casimir round coincided with the preliminary round of the Smart Mix.

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

	Number of preliminary applications			Number of applications			
	M	F	Total	M	F	Total	
Strategie aims							
Talent	192	102	294	915	512	1.427	
NWO themes	186	38	224	213	40	253	
Internationalisation	16	1	17	426	193	619	
Infrastructure	9	2	11	132	24	156	
Free competition	112	24	136	891	100	991	
Knowledge transfer	0	0	0	34	8	42	
Other	0	0	0	328	69	397	
Total 2006	515	167	682	2.939	946	3.885	
Total 2005	1.233	418	1.651	3.504	1.114	4.618	

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 awards applications			Gross awarding percentage			Net awarding percentage		
	M	F	Total	M	F	Total	M	F	Total
	251	148	399	0	26	25	27	29	28
	88	19	107	27	28	27	41	48	42
	314	153	467	73	79	75	74	79	75
	53	12	65	40	50	41	40	50	42
	262	27	289	27	22	27	29	27	29
	16	4	20	47	50	48	47	50	48
	211	30	241	64	43	61	64	43	61
	1.195	393	1.588	37	37	37	41	42	41
	1.381	439	1.820	33	32	33	39	39	39

Burden on researchers

To evaluate the submitted applications NWO seeks the help of a large number of specialists in the relevant field of research. It is these experts and their substantive comments on the applications that enable assessment and selection to take place. NWO sees it as its task to reduce to a minimum the burden on these experts, as well as on the researchers who submit applications. NWO thinks it can make a contribution to this reduction by using a selection process that is increasingly electronic. In addition researchers are relieved by allowing progress reports and project result to be submitted through the electronic IRIS system.
Table 16 gives insight into the number of experts approached by NWO. The number of approached applicants in 2006 is lower than in 2005, which accords with the fact that in 2006 the number of applications was lower than in 2005 (see table 15).

Table 16 Burden on referees

	2006			2005		
	NL	Foreign	Total	NL	Foreign	Total
Total number of invited referees	3.712	7.125	10.837	4.953	8.695	13.648
Total number of evaluation reports received	2.450	4.245	6.695	3.477	5.138	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. The number of office staff is smaller than in 2005, among other reasons because of the fact that the ZonMw staff as of 1 January 2006 have switched to another employer.

Table 17 Burden on NWO Office

	2006	2005
Number of FTEs NWO (including FOM and STW) office staff	356*	398
Administrative costs (including FOM and STW) in k€	34.833	36.490
Percentage of administrative costs related to total spending	6,7%	7,1%

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. The administrative costs in relation to the total NWO turnover has decreased.

* The number of office staff in 2006 does not include ZonMw staff. These staff members have switched employer as from January 2006.

Table 18 shows the level of absence through illness, which has slightly risen compared to 2005. More information on NWO's staff policy can be found in the Social Annual Report on the CD-ROM that can be ordered free of charge at voorlichting@nwo.nl.

Table 18 Absence through illness at NWO

NWO umbrella	2006	2005
Average percentage absence through illness	2,69%	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.

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.
In 2006 a total number of 3900 applications were submitted. 1.2% of applicants lodged an appeal. This number is smaller than in 2005 (1.5%). NWO also found that since the introduction of the code on possible conflict of interest in early 2006 no appeals have been received that concern conflict of interest. Also the number of appeals found valid has fallen compared to 2005.

Table 19: Carefulness of selection process

Written objections and appeals	2006	2005
Number of appeals	48	61
Number of valid appeals	7	10

Table 19: Explanation
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 usually starts as soon as possible. NWO monitors the research in progress. Among other things a record is kept of the people working on the funded projects. 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 5 shows this ratio based on the most recent VSNU data. NWO sponsors about one quarter of the total number of researchers in the universities.

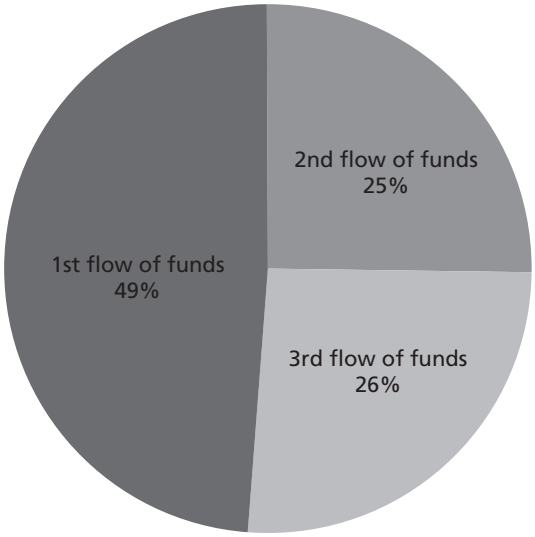


Figure 5 Scientific personnel at universities according to flow of funds

Table 20 represents the size and distribution of NWO funding among the various recipients. Table 21 represents the research positions funded by NWO.

Distribution of budget among institutions (consolidated)

Table 20 Grant recipient indicators

NWO institutes (k€)	Central	ALW	CW	EW	
Netherlands Foundation for Research in Astronomy (ASTRON)	13.461			262	
National Research Institute for Mathematics and Computer Science (CWI)	12.953	32		2.826	
FOM Institute for Atomic and Molecular Physics (FOM-AMOLF)	16.447	153	245	158	
FOM Institute National Institute for Nuclear Physics and High Energy Phsics (FOM-NIKHEF)	19.117				
FOM Institute for Plasma Physics Rijnhuizen(FOM-Rijnhuizen)	16.985			51	
Institute for Dutch History (ING)	3.043				
Royal Netherlans Institute for Sea Research (NIOZ)	15.469	3.884		61	
Netherlands Institute for the Study of Crime and Law Enforcement (NSCR)	1.456				
SRON Netherlands Institute for Space Research (SRON)	16.779	38		222	
Total NWO institutes	115.710	4.107	245	3.580	
Universities					
Erasmus University Rotterdam	678	1.276	150	65	
Radboud University Nijmegen	7.955	2.202	1.837	1.309	
University of Groningen	2.734	4.265	1.936	1.644	
Delft University of Technology	826	749	1.206	2.035	
Eindhoven University of Technology	660	0	1.054	3.442	
Universiteit Leiden	2.893	1.719	1.918	2.395	
Maastricht University	223	197	0	489	
University of Twente	257	504	924	2.092	
Utrecht University	5.848	7.051	2.901	2.788	
University of Amsterdam	1.953	2.813	1.554	3.167	
Tilburg University	625	62	0	428	
Vrije Universiteit Amsterdam	941	3.856	1.408	3.131	
Wageningen University (and Research Centre)	559	3.208	492	40	
Total universities	26.152	27.902	15.380	23.025	
Other research institutions	4.715	4.600	237	3.121	
Other	8.524	2.494	414	1.288	
Administration costs NWO	10.900	2.185	904	1.929	
TOTAL NWO 2006	166.001	41.288	17.180	32.943	
TOTAL NWO 2005	171.116	41.574	17.610	29.249	

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 iInstitutes/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.

	GW	MaGW	N	TW	WOTRO	ZonMw	NCF	NGI	ACTS	ICTRegie	Total	Total NWO
											13.723	3%
							74				15.885	3%
			409				-15				17.397	3%
			204								19.321	4%
											17.036	3%
											3.043	1%
					315						19.729	4%
		184									1.640	0%
							1				17.040	3%
	0	184	613	0	315	0	60	0	0	0	124.814	24%
	1.093	1.386	82	1.193	35	6.968	-22	381	56	0	13.341	2%
	2.447	3.190	2.198	4.020	881	2.892	22	6.344	306	0	35.603	7%
	1.726	2.691	5.032	2.059	279	1.797	100	104	1.478	0	25.845	5%
	109	544	4.678	9.954	35	0	128	5.623	3.656	0	29.543	6%
	487	686	2.228	6.478	14	85	188	0	337	0	15.659	3%
	5.375	1.927	3.843	3.854	589	3.189	225	1.349	241	0	29.517	6%
	320	2.744	0	521	16	2.410	0	1.173	0	0	8.093	1%
	829	1.404	3.480	11.204	52	0	179	75	915	0	21.915	4%
	2.579	4.719	2.376	3.462	517	4.483	221	1.832	758	0	39.535	8%
	2.956	6.327	2.834	1.095	2.883	3.079	130	419	157	0	29.367	6%
	510	4.375	0	0	57	0	0	8	0	0	6.065	1%
	1.494	3.085	2.407	1.234	230	2.734	233	261	131	0	21.145	4%
	623	737	167	3.125	1.346	505	79	6.194	857	0	17.932	3%
	20.548	33.815	29.325	48.199	6.934	28.142	1.483	23.763	8.892	0	293.560	56%
	3.265	7.388	385	804	551	4.799	5.060	7.263	165	15	42.368	8%
	478	820	536	1.687	388	9.053	-36	742	159	782	27.329	5%
	1.432	2.880	4.441	2.880	669	1.811	522	2.134	675	1.471	34.833	7%
	25.723	45.087	35.300	53.570	8.857	43.805	7.089	33.902	9.891	2.268	522.904	100%
	23.743	40.464	37.691	51.853	8.837	42.749	4.366	33.246	8.729	1.207	512.434	100%

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.

Table 21 Personnel funded by NWO

fte	Central		ALW		CW		EW		GW		MaGW	
NWO institutes	SP	NSP	SP	NSP	SP	NSP	SP	NSP	SP	NSP	SP	NSP
ASTRON	61	140					3					
CWI	113	52	1				38					
FOM-AMOLF	93	65	2				1					
FOM-NIKHEF	83	94										
FOM-Rijnhuizen	48	85					1					
ING	21	20										
NIOZ	47	116	28				1					
NSCR	11	6									3	
SRON	80	118					1					
Total NWO institutes	557	696	31	0	0	0	45	0	0	0	3	0
Universities												
EUR	15	0	20	1	5	0	5	0	18	0	38	0
RU	12	0	49	0	27	0	36	0	50	1	48	0
RUG	16	0	78	2	37	0	38	0	31	0	58	0
TUD	6	0	13	0	18	0	42	0	3	0	13	0
TUE	7	0	0	0	24	0	69	1	14	0	11	0
UL	28	0	30	1	35	0	51	0	109	1	41	0
UM	5	0	5	0	0	0	11	0	6	0	50	0
UT	6	0	4	0	17	0	49	0	11	0	22	0
UU	45	0	103	2	51	1	62	0	48	0	107	1
UvA	19	0	29	1	26	0	62	3	64	1	100	1
UvT	12	0	1	0	0	0	11	0	15	0	58	0
VUA	19	0	69	0	25	1	60	0	34	1	66	0
WUR	7	0	54	1	8	0	1	0	12	0	16	0
Total universities	197	0	455	8	273	2	497	4	415	4	628	2
Other research institutes	47	0	69	3	14		20	3	52	0	24	0
NWO office		99		27		22		22		22		38
Total 2006	801	795	555	38	287	24	562	29	467	26	655	40
Total 2005	853	818	557	36	262	26	532	29	406	27	620	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 31-12-2006.

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.

	N		TW		WOTRO		ZonMw		NCF		NGI		ACTS		ICTRegie		Total		Total general	Percentage in total
	SP	NSP	SP	NSP	SP	NSP	SP	NSP	SP	NSP	SP	NSP	SP	NSP	SP	NSP	SP	NSP		
																	64	140	204	3%
			3														155	52	207	3%
	6		1														103	65	168	3%
	5																88	94	182	3%
																	49	85	134	2%
																	21	20	41	1%
					6												82	116	198	3%
																	14	6	20	0%
																	81	118	199	3%
	11	0	4	0	6	0	0	0	0	0	0	0	0	0	0	0	657	696	1.353	21%
	1	0	6	2	0	0	91	10	0	0	3	0	1	0	0	0	203	13	216	3%
	19	2	52	8	14	5	38	2	0	0	2	0	4	1	0	0	351	19	370	6%
	47	30	29	3	7	0	31	7	0	0	2	0	12	0	0	0	386	42	428	7%
	74	3	153	10	2	0	0	0	0	0	0	0	11	1	0	0	335	14	349	6%
	31	0	88	5	0	0	2	0	0	0	0	0	4	0	0	0	250	6	256	4%
	58	0	38	12	18	0	41	2	0	0	7	0	3	0	0	0	459	16	475	7%
	0	0	10	3	0	0	42	5	0	0	7	0	0	0	0	0	136	8	144	2%
	54	1	145	13	2	0	2	0	0	0	2	0	11	0	0	0	325	14	339	5%
	41	3	28	3	10	0	64	4	0	0	5	0	11	0	0	0	575	14	589	9%
	43	1	21	3	40	0	44	4	0	0	5	0	3	0	0	0	456	14	470	7%
	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	100	0	100	2%
	33	3	9	5	10	0	32	5	0	0	5	0	3	1	0	0	365	16	381	6%
	3	0	35	9	54	0	7	1	0	0	11	0	1	0	0	0	209	11	220	3%
	404	43	614	76	158	5	396	40	0	0	49	0	64	3	0	0	4.150	187	4.337	67%
	0	0	12	1	18	0	105	9	0	0	9	1	5	1	0	0	375	18	393	6%
		51		49		7				5		11				3	0	356	356	6%
	415	94	630	126	182	12	501	49	0	5	58	12	69	4	0	3	5.182	1.257	6.439	100%
	450	94	611	140	79	9	618	99	0	4	120	15	67	4	0	3	5.175	1.349	6.521	100%

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.

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 on NWO-funded research projects (see table 21). An important indicator for the output of these projects is publications. The table below shows the output of the NWO projects over 2006. The numbers of publications in refereed journals, contributions to books and dissertations are higher than in 2005.

Table 22a Productivity indicators

	Academic publications				
	Publications in refereed journals	Publications in other scientific journals	Book contributions	Mono-graphs	Dissertations
ALW	575	200	74	11	48
CW	569	327	28	2	102
EW	732	175	58	6	44
GW	301	187	340	84	64
IB	277	144	21	15	10
MaGW	437	228	162	43	32
N	716	127	10	0	84
NCF	117	22	4	2	7
TW	428	413	26	0	103
WOTRO	91	8	33	6	26
ZonMw	513	82	28	0	41
NWO institutes	1.137	355	55	36	49
Other	411	47	58	5	29
Total 2006	6.304	2.315	897	210	639
Total 2005	5.650	2.386	795	240	461

Table 22b Publications in Nature and Science

	Nature	Science
Total 2006	48	16
Total 2005	25	21

Tables 22a and 22b: Explanation

Productivity indicators

This table shows the numbers of publications in 2006, most of them the products of long-term NWO-funded research.

Academic publications

– **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 2005 and 2006 show an increase in the number of NWO-funded publications in *Nature*.

Table 22c Professional products and other output

	Other professional products and publications	Patents
ALW	358	4
CW	20	13
EW	419	1
GW	319	0
IB	59	0
MaGW	582	0
N	911	4
NCF	7	0
TW	295	13
WOTRO	184	0
ZonMw	691	7
NWO-institutes	870	3
Other	196	0
Total 2006	4.911	45
Total 2005	6.129	50

Table 22c: Explanation

Professional products and other output

This table shows the numbers of publications and products in 2006, most of them the products of long-term NWO-funded research.

Other professional products and publications

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. 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.

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.

8 Financial policy

NWO's financial policy is aimed at an expansion of means, an increasing commitment of means to scientific research, controlling liquidity and a careful management of available means. This chapter reports on the implementation of this policy in 2006. In addition it contains a brief review of the execution of the 2006 budget and a look ahead.

8.1 Financial policy

a Expansion of means

NWO's assets in 2006 increased by M€ 14 compared to 2005. The general government contribution from OCW rose somewhat by M€ 2 to M€ 308, mainly as a result of compensation for rises in salaries. From OCW NWO in 2006 received M€ 103 (in 2005 M€ 81) in earmarked means. The increase was mainly caused by allocations for the National programme for investments in large-scale infrastructure.

The share of the third-party means (that is, contributions from sponsors other than OCW) has fallen from 19% to 16%. The number of departments financing NWO apart from OCW has increased from 8 to 9.

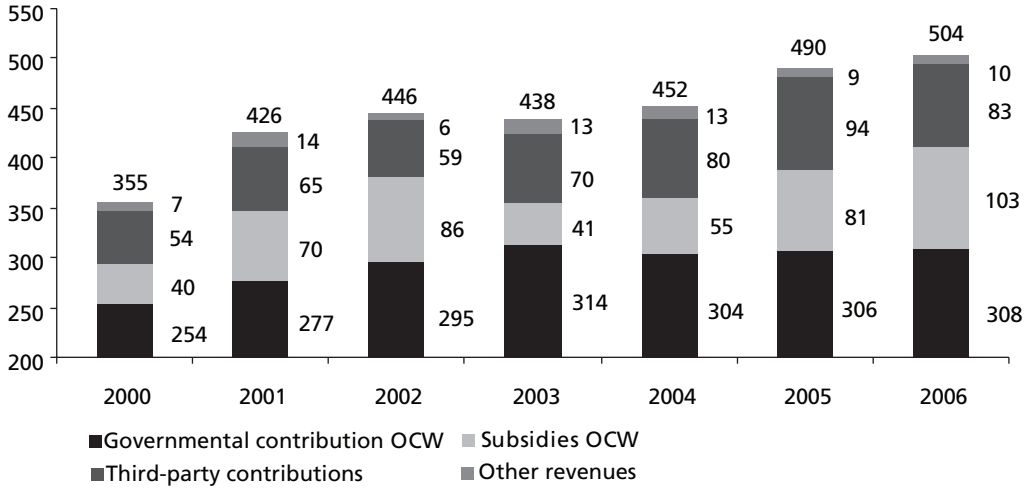


Figure 6 Development of NWO revenues in M€

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 slightly by 1% to M€ 477 (2005: M€ 472).
The obligations undertaken for the funding of scientific research have risen in 2006 by M€ 58, particularly as a result of allocations for the National programme for investments in large-scale infrastructure.

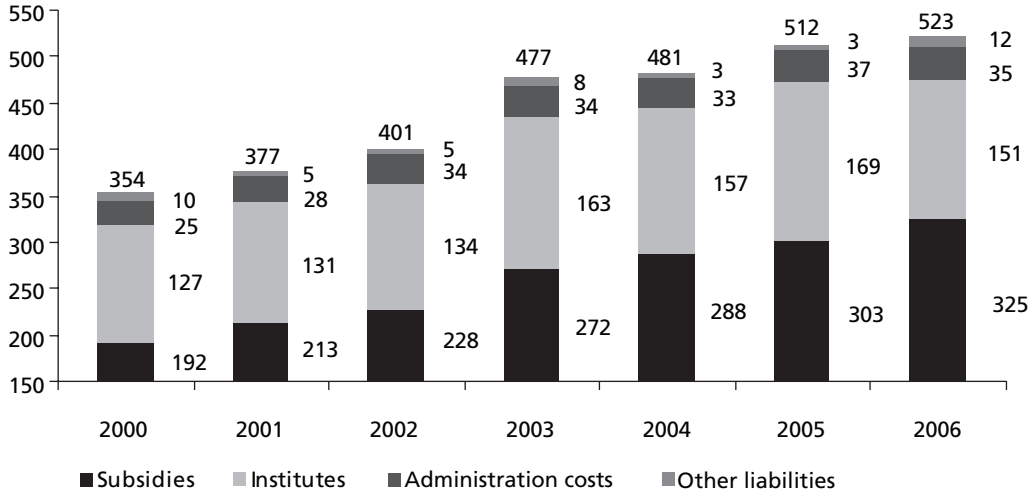


Figure 7 Development of NWO expenditure in M€

c Controlling liquidity

Liquid assets rose in 2006 by M€ 50 compared to 2005. Despite the overspending policy of the past years liquidity has not fallen. The rise can mainly be explained by the fact that an important part of the BSIK-subsidy for LOFAR was received ahead of schedule, that a part of the subsidy for the National programme for investments in large-scale infrastructure was not paid to the recipients in 2006, and that the account current ratio with ZonMw has gone up. If financial perspectives remain the same, liquidity will fall in the coming years, among other things as a result of the overspending policy of the past years.

When setting the framework for the budget 2007, in the spring of 2006, the Governing Board decided, on the basis of the calculation of the liquidity space to be expected at the end of 2009, to deploy M€ 53 to strengthen the Open competition and as a contribution to the 'socially-inspired programmes' that are to be developed. In this way the Governing Board, in expectation of the means requested from the Ministry of OCW, has made a first tentative step toward realisation of the strategic plan 2007-2010.

The overspending policy in the short term leads to a fall in liquidity. The liquid assets are still higher than the liquid liabilities; the quick ratio has risen from 1.2 to 1.3. If the long-term perspective does not change, the effects will in the coming years become visible in the liquidity position. The further decrease of the general reserve anticipates that. The 2006 result brings the general reserve further down to M€ 128 negative. This is counterbalanced by the designated funds - the earmarked sums that have been reserved over the past years - as a result of which NWO's own funds are positive. The share of own funds in the total assets (solvability) at the end of 2006 had fallen below 50% (from 54% to 49%). If new government means, earmarked or not, fail to appear in the coming years, then NWO's own funds (general reserve and designated funds together) will become negative.

When setting the framework for the budget 2008 the Governing Board consequently decided that at this moment there is no room for overspending. As soon as more is known about the (financial) consequences of the new government's policy intentions, the Governing Board will be able to determine whether there is room for overspending and how it can be deployed.

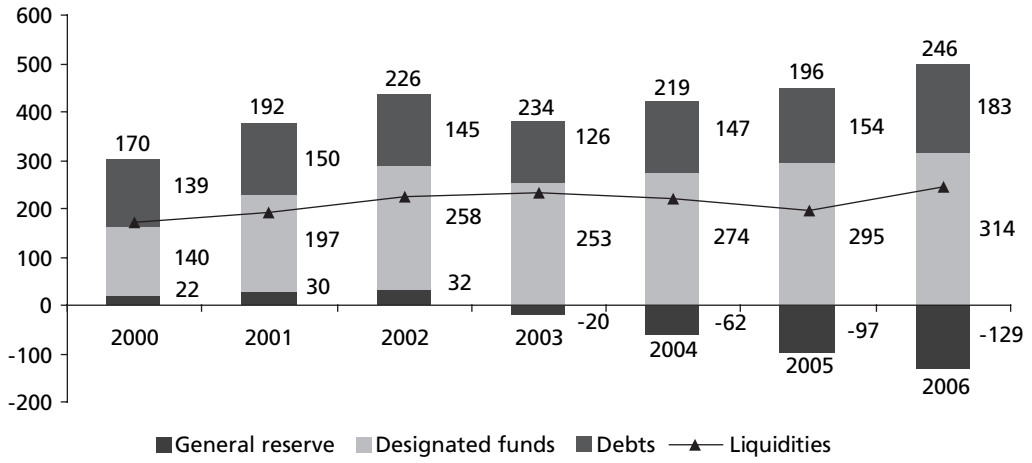


Figure 8 Development of NWO liquidity and liabilitiesin M€

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 actually start up a programme after NWO has awarded a subsidy.

The level of debts (see figure 7), including awarded but unpaid sums as far as they relate to the past fiscal year, has risen from 30% to 35% of liabilities. NWO's aim is to reduce this percentage.

Management costs, expressed in the management costs percentage (management costs divided by the total liabilities) have fallen from 7.1% to 6.7%. Management costs fell by M€ 1.7 compared to 2005, among other things by the administrative integration of MW in ZonMw.

The profit gained by careful cash management has fallen in an absolute sense and as percentage of the average state of liquid means. In 2005 the profit was very much higher as a result of incidental windfall. The average profit is however still higher than the average interest paid by the Finance Ministry to the account current as part of 'treasury banking' (2.83% in 2006).

8.2 Budget (simple)

In November 2006 NWO submitted its budget for 2007 to the Minister of OCW. In September 2006 the Minister granted her written approval to this budget. Subsequently some mutations in the 2006 budget 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 2006 budget were brought to the attention of OCW when the 2007 budget was submitted (November 2006).

Table 23 shows the total number of mutations made to the original budget. Additionally the realisation is presented. These figures apply to the simple annual accounts.

Table 23 Budget accounts NWO in M€

Budget and accountsg NWO	Budget 2006			Accounts	Accounts
(in M€)	Original	Mutations	Available	2006	2005
Government contributions OCW	301,6	6,5	308,1	308,1	306,0
Target subsidies OCW	52,3	33,0	85,3	94,3	74,1
Third-party subsidies	35,7	4,7	40,4	35,3	42,1
Other revenues	1,1	0,0	1,1	0,6	1,2
Revenues	390,7	44,2	434,9	438,3	423,4
Liabilities	476,0	33,1	509,1	466,4	436,0
Result operational management	-85,3	11,1	-74,2	-28,1	-12,6
Financial revenues	4,0	1,7	5,7	5,8	6,7
Result	-81,3	12,8	-68,5	-22,3	-5,9
Mutation designated funds	-42,5	11,6	-30,9	7,9	22,2
Mutation general reserve	-38,8	1,2	-37,6	-30,2	-28,1

Table 23: Explanation
The mutation in the OCW government contribution mainly concerns general salary measures and price increase.
The rise of OCW target subsidies concern subsidies for the National programme for investments in large scale research facilities.
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 estimated of various divisions and programmes.

Realisation of 2006 account (simple)

The realisation of liabilities is M€ 43 lower than the estimate, particularly as a result of the shifting of M€ 22 to later years with the National programme for investments in large-scale infrastructure. Divisions, WOTRO and NCF have spent c. M€ 5 less than estimated, and the temporary taskforces ICTRegie, NGI and ACTS have spent M€ 7 less. 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€ 22, which is M€ 46 more positive than the estimated result of M€ 68 negative. This difference is composed of higher profits of M€ 3 and lower liabilities of M€ 43.

8.3 Expectations for the future

When determining the financial frame for the 2007 budget the Governing Board set aside M€ 53. This will lead to a further decrease of the reserve at the Board's disposal. When the financial frame for the 2008 budget was determined it was concluded that the present uncertainty about the effects on NWO of future government policy does not leave room for overspending. The ending of the Smart Mix without compensation for NWO will in a number of years cause liquidity problems.
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 trying to cope with the previous cuts to the regular OCW means. Over the years cuts have been imposed which have run op to a structural M€ 17 from 2008. Of these the cuts as a result of the motion-Verhagen (M€ 3.9 annually), which OCW promised would be compensated, have not yet been covered.
housing of the NWO institutes remains a separate point of attention. The finances for AMOLF's new accommodation have meanwhile been finalised; building work has started in the course of 2006. Building work for CWI's new accommodation will start in 2007. The plans for the new accommodation for ASTRON are still being discussed. To fund these investments NWO will probably call on the loan facility as a part of 'treasury banking'.

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. This chapter contains a brief synopsis of the way NWO deals with governance. 'Good governance' has NWO's unstinting attention.

9.1 Minister of Education, Culture and Science (OCW)

NWO falls under the ministerial 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 Governing Board remained unchanged in 2006. In the autumn the minister put forward an opinion about the strategic plan 2007-2010; the final judgment was left to the new Cabinet. The budget 2006 that was submitted to the minister was formally approved in September 2006. The minister has not formally responded to the budget 2007 that was submitted by the Governing Board in November 2006; it can therefore be regarded as approved. The same goes for the annual report 2005, submitted July 2006. In 2007/2008 NWO's performance will be evaluated for the minister's benefit.

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 of OCW. 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.

Two Board members together with the general director and the external accountant form the financial committee. The financial committee twice convened in 2006. It discussed the annual accounts 2005 and the findings of the accountant (in preparation of the discussion about the accountant's report in the Governing Board), the risks involved in public-private cooperation and the liquidities and the reappointment of the accountant.

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 in this period to look more closely into NWO's internal governance structure, particularly to give the various stakeholders a part in NWO's management structure. In consultation with the minister of OCW this will be put into practice in the coming years.

Other best practices from the Good Governance Code will be gradually introduced. In 2006 work has been done on a whistle blowers regulation, which will be brought to employees' attention in the course of 2007. At the same time the topic 'integrity' will be discussed at staff meetings.

Furthermore a code is being developed that specifies the rules to be followed in the valorisation of the findings of scientific research done at NWO institutes and in NWO-funded programmes. Work is also in progress to publish the current procedures concerning complaints and the launching of appeals and protests.

9.4 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.
The final piece of the whole cycle is the annual accounts; the internal audit department, on the basis of an assessment of the main risks in the reporting process, carries out internal audits to test the effects of the internal control measures. In 2006 a first step was taken in bringing about a structural embedment of risk management in the planning & control cycle. With the support of KPMG two workshops were held to designate the main strategic and operational risks for NWO.

Attention is further needed to lay down the general NWO standards used in carrying out the primary process. The results of the INK projects in previous years may be of good use to achieve this.

The NWO strategy for the period 2007-2010 will, as part of the regular planning & control cycle, have to be translated into indicators that can monitor the achievement of the stated goals. An important element in this are the periodical management talks.