

SCIENCE VALUED!

NWO-POLICY 2007-2010

SUMMARY

Science as cultural and public good

Scientists are continually advancing the limits of our knowledge and capabilities. Motives for their groundbreaking research are on the one hand fascination for unravelling complex processes and, on the other hand, the search for applications directing technological and scientific innovation and improvement. What are the fundamental building blocks of the microcosmos? What may replace oil as an energy source and when? How do deaf people learn languages? Why do humans have so few genes? What is the relationship between religious beliefs and cultural or political identity? And thousands of other fascinating questions. The history of science is a continuous cycle of posing and answering novel questions. Advancing science is indispensable in solving the issues our society faces, concerning the ageing population, social cohesion, security, health care, life-long learning, climate change, energy, innovation, or new forms of governance. Both motives are prerequisites for a strong knowledge society, necessary, if the Netherlands are to survive as a small country in a global playing field.

Increasing pressure on science

The Netherlands have no choice but to dedicate itself to advancing science and its utilisation. In recent years the pressure on science to contribute to utilisation of science, has strongly increased. The applicability of research results plays an increasingly important role in the selection of research topics. Knowledge directs the development of our society and it is an important, if not the most important product our society operates on. If Dutch science is to satisfy the high expectations, and if the Netherlands is to contribute to realising the Lisbon objectives, as agreed within the EU, various bottlenecks in its knowledge system must be rigorously tackled. The strong global position that Dutch science has acquired due to investments of several decades ago, might otherwise be lost. A strongly enhanced knowledge society is key to a better future for the Netherlands. Top-quality universities and scientific institutes are needed to meet this objective. The Netherlands need and deserve a leading position in Europe.

Challenges and bottlenecks

In the past years the investments in higher education, scientific research and innovation have however structurally failed to meet the ambitions in the Netherlands. Many parties have called for more investments. Recently the Council of Economic Advisors (advisory body to Dutch Lower House) stated that additional investments in the order of 10 to 15 thousand million euros annually are required in the entire knowledge system, to meet the objectives the Netherlands has set itself. The national Innovation Platform is also formulating its knowledge investment agenda 2006-2016, as a guideline for future investments by public and private bodies in education, science and innovation.

As a consequence of these investment shortfalls and other weaknesses in science and new challenges in society, the Dutch knowledge system currently faces various bottlenecks. For example, the influx of young research talent is much too low to maintain the level of science, once the baby boomers have retired. Moreover, the requisite research facilities are often outdated, which further constrains the possibilities of researchers to do their work. The brain drain is one of its results.

Internationally, the competition to acquire a leading position in the global economy is increasingly fierce. With the advent of a European Research Area and the rise of emerging economies, researchers have to compete and perform at top level, like never before. Dutch research efforts are however often undermined by fragmentation: research programming lacks sufficient synergy and the available strengths are underutilised, causing a shortfall on the return on investments. Focus and critical mass, as well as improved cooperation will be necessary if the Dutch knowledge system is to play a significant role within Europe.

The emphasis on innovation increases the demand for short-term applications. Yet all too often the available results are not translated into useful solutions. The need for multidisciplinary and interdisciplinary research as a source of scientific and social innovation is growing, but in the Netherlands science has always been organised in a disciplinary way.

NWO: guardian of quality and intermediate between science and society

If the Netherlands must continue to compete at international level, it must have a powerful knowledge system with strong universities and scientific institutes. As a distributor of indirect government funds, NWO is one of the organisations expected to contribute significantly to the strengthening of the Dutch knowledge system. NWO can meet this expectation as guardian of the quality of science, its role (together with the research institutes) in guiding scientific research by its research programmes, and as mediator between science and society.

With its careful selection procedures, NWO protects and strengthens the quality of Dutch science.

Responding to new possibilities, NWO stimulates innovation that benefits the knowledge society as a whole. Over the next years NWO will mainly enhance its mediation.

The foundation of NWO's work is the cooperation with (individual) researchers, universities and other public research institutes: they formulate scientific questions, carry out research and, moreover, provide NWO with the quality and manpower needed to carry out the selection procedures. Strengthening of the mediation role will also lead NWO to maintain intensive contact with government departments, the private sector and other public agencies, who submit their research questions to NWO as departure for (thematic) research programmes. These partnerships with parties inside and outside the scientific arena are essential for NWO to carry out its duties properly.

An ambitious strategy for government funding

NWO has now formulated its strategic plan for the period 2007-2010. NWO's basic ambition is for the Dutch research system – building on the strengths of university research and with government funding as key – to attain a leading position in Europe within ten years. With its strategy NWO wants to assist Dutch researchers to acquire a strong position for attracting additional resources from the European Research Council (ERC) of the European Union, which is currently established.

Looking to the future, choices have therefore been made based on the considerable scientific potential in our country, bearing in mind the aforementioned challenges and bottlenecks. NWO is grateful for the input received from many different partners during the process which culminated in this strategy; the support from these parties is vital for its successful implementation.

The result of this process is an ambitious plan of action along three strategic lines: 'Opportunities for researchers', 'Consolidating strengths' and 'Science for society'.

Line of action 1: Opportunities for researchers

Excellent researchers in the Netherlands often have insufficient scope to perform at their best and to present themselves at an international level. Innovative, curiosity-driven research is under considerable pressure and the lack of modern research facilities limits researchers' options. Too few young people opt for science, mainly because they believe it does not offer enough career opportunities. From the view that investment in research is necessary to sustain the strengthening of science in the future, NWO will place a strong emphasis over the next few years on 'Opportunities for researchers', making use of the following instruments:

- improving the career prospects for talented scientists, by realising talent programs for each phase of the scientific career, with special attention to diversity;
- increasing the possibilities for curiosity-driven research by guaranteeing more resources in open competition, and by ensuring that possibilities for pilot research are incorporated in research programs;
- ensuring state-of-the-art research facilities by doubling the budget for the Investment Subsidie Schemes NWO Large and NWO Medium, without imposing matching requirements from the institutes concerned;

- attracting talent from abroad by facilitating participation of foreign researchers in NWO talent programmes and by establishing a special fund to attract top international researchers (back) to the Netherlands;
- reducing bureaucracy further for researchers by on line applications and reviews, standardising procedures, using preliminary proposals and continuous submission.

Line of action 2: Consolidating strengths

A consolidation of strengths at a national level is needed if scientific research in the Netherlands is to be boosted. Chances of scoring high in the global scientific arena will qualify the selection. Good examples of cooperation and consolidation are the NWO institutes as places for top research and as home for large-scale scientific research facilities. In the line of action 'Consolidating strengths' NWO will dedicate itself to the following:

- developing 'National Research Initiatives': programs with a budget of 30-50 million euros, to consolidate research efforts in areas where the Netherlands occupies a global top position;
- realising interdisciplinary national cooperation together with the research establishment by thematic program lines of the NWO divisions;
- intensifying the cooperation of NWO institutes with university groups and other institutes;
- realising large-scale research facilities together with the innovation agency SenterNovem by implementing the so-called 'BIG programme' (budget 125 million per year) for investments of 25 million euros or more, and by contributing to the development of Dutch Road Maps for large-scale research facilities;
- stimulating and facilitating international cooperation by strengthening European research cooperation, in particular by actively contributing to European partnerships such as ERA-net, EUROCORES and Technology Platforms, by intensifying the cooperation with sister European councils and by selectively deploying resources for scientific cooperation with emerging economies;
- scaling up NWO grants by incorporating smaller forms of support in larger contexts and by using a larger proportion of the grants for projects in which several research groups cooperate.

Line of action 3: Science for society

Society's call for strengthening technological innovation increasingly demands rapidly applicable knowledge. This requires a better harmonisation between current, social issues and the available scientific potential. As a mediating organisation, NWO, on the basis of the open innovation model, brings together research requests and scientists under the slogan 'Science for society'. NWO is dedicated to:

- socially-inspired programs, by cooperating with partners to translate social issues of government departments, the private sector and other public agencies into research questions, by devoting more attention to research that focuses on the translation of scientific insights into practical applications and by exploring how best to match research with questions from small and medium-sized companies;
- realising strategic partnerships in research utilisation, by example intensifying the shared partnership with the sister organisations TNO and SenterNovem;
- improving cooperation between scientists and professionals, by carrying out the so-called 'Smart Mix' program, by continuing the Casimir program (encouraging the interface with industry) and by establishing the 'academic practice workshops';
- continuing research and innovation authorities as the boosters of new research initiatives, and selection of Social Top Institutes (STIs) as instruments for innovative research of social issues;
- enhancing researchers' awareness of research utilisation by integrating communication and knowledge dissemination in the program development, organising workshops focused on utilisation, establishing a consultation for the utilisation of scientific knowledge via the Technology Foundation STW, and continuing to request special attention to utilisation in research proposals and monitoring.

Required: an additional fundamental investment of 433 million euros

The implementation of these ambitious plans requires a fundamental investment in science with direct government funding. NWO therefore requests of the government a structural increase of 433 million euros annually. That amount consists of two components. An amount of 150 million euros is needed to continue various successful initiatives, such as the Innovative Research Incentive Scheme and research and innovation agencies, as structural component of the existing – incidental – funding for innovative top research. In addition 283 million euros is needed annually on a structural basis to realise the intended jump forwards. In addition to strengthening of the open competition and talent policy, these additional resources will mainly be used for new modalities, such as National Research Initiatives (NRIs) and large-scale research facilities. In addition, the Ministry of Education, Culture and Science and the Ministry of Economic Affairs have already allocated 100 million euros for the Smart Mix. Moreover, NWO has set itself the task of acquiring an additional 100 million euros.

Prerequisites for successful implementation

For NWO's strategy for the next few years to be successful, several prerequisites have to be met. The NWO strategy assumes a strong foundation, namely good education and strong direct government funding. Good education, from primary to tertiary level, will ensure the necessary supply of talent for science to draw upon. Strong direct government funding is necessary to ensure that universities can fully participate in indirect government funding. NWO contributes to the latter by financing the new instruments for the anticipated budget increase without any increase in the matching pressure for universities, whereas for the Innovative Research Incentive Scheme and the investment programmes for infrastructure (NWO Large and NWO Medium) universities will no longer be expected to contribute. Furthermore, more national coordination is necessary for the implementation of the different financial instruments for innovation. The following also applies here: consolidation of strengths as a precondition for success. Part of this is a shared partnership between NWO, TNO and SenterNovem.

NWO: up to the challenge!

NWO is implementing various internal changes. For an improved connection between science and society, NWO proposes an advisory board at the management level as an initial step towards changes in its *governance*. Cooperation between divisions will be promoted, for example by a more flexible approach to the allocation of the basic budgets. NWO institutes and research authorities – important instruments for the implementation of the strategy – will be given a stronger foothold within the organisation. By providing transparent reports about the progress of the strategic plan, NWO will assure that its financing agents have the necessary guarantees that all investments are optimally used.

The Netherlands as front runner in Europe

In this strategic plan NWO presents an ambitious and concrete intention – with joint efforts from all partners – to give the Netherlands a leading position in Europe within ten years.