



Annual Report 2009

Technology Foundation STW



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Technology beyond your dreams

The word crisis has been used often in the past two years. Crisis comes from the Greek and means decision, but also turning point – a point in time when a break with a trend occurs and when decisive separation is made between what there was and what is coming [krinein = separate, decide, judge].

A crisis is therefore only a genuine crisis if you learn something from it and if you decide that things must be different from now on.

A crisis from which you learn nothing is just money down the drain.

The balance of power in the world has clearly shifted from what it was in the 20th century and the shift has only just begun. The balance of power follows technological ascendancy. This was clear in the 20th century but also in every preceding century, as was the case with the technologically superior ships of the Golden Age of the Netherlands, or even further back in time.

Technological ascendancy has shifted in recent years away from Europe and America and in the coming period it will end up in the hands of a few major powers that collectively account for more than a third of the world's population. That's a good thing, as prosperity will finally be more evenly distributed around the world! Why should that peninsula to the west of Asia (i.e. Europe) benefit more than others from the unprecedented prosperity and health benefits of a high level of technology?

To be simply able to respond to that staggering numerical superiority, the Netherlands, along with the rest of Europe, will have to work harder on science and technology. Our knowledge economy needs investment in pioneering research and advances in the effective transfer of knowledge. It is also necessary to realise that technological breakthroughs don't happen by themselves but can be encouraged. The Netherlands is also in the unique position that it is a small, tight-knit, and densely populated country in which we know each other well, have no cultural differences to bridge and are able to cooperate well at the interdisciplinary level.

This makes us skilful in creating complex products and managing complex processes.

In a few technological fields, the Netherlands has the opportunity to be earlier, faster and smarter than other countries. A few things will be required for this in the Netherlands.

1. As a country, we need to select the best research and maximise the transfer of knowledge. STW is entirely set up to achieve this.
2. Interplay between researchers and possible users has to be optimal. STW brings these parties together and encourages optimum interplay from the start of every research project. Moreover, in excess of 40% of users come from small and medium-sized enterprises.
3. Research funds have to be spent as efficiently and strategically as possible. From the national perspective, STW links local projects at all the universities to national platforms of researchers and users.
4. Innovation organisations have to focus their programmes on the sustainable development of a small number of fields. This demands the nerve to choose. STW achieves this through its Perspective programmes.
5. Demand-driven academic research has to focus on the specific challenges to industry. STW therefore especially concentrates on small-scale, demand-driven research involving only one or a few parties, which is designed to specifically cater to industrial knowledge requirements.

Technology doesn't simply occur. You have to want to invest in it, nurture your talents for it, work hard for it and use it carefully and cleverly. In short, technology beyond your dreams. Technology is something you have to do!

Eppo Bruins, *director*

Developments in STW

Achieving the transfer of knowledge between technical sciences and users is the mission of Technology Foundation STW. It does so by bringing users and researchers together, funding excellent technical science and guiding all its projects towards optimum opportunities for the transfer of knowledge. To achieve its mission STW pursues its own policy and responds to external developments, proactively where possible. This chapter reports on the policy followed in 2009 and its results. The economic crisis which started as a financial crisis in late 2008 was a major external development. To help tackle the crisis, STW released 9.1 million euros from its general reserves to accelerate investment in research. STW was also closely involved in a scheme to enable knowledge workers to continue working. This resulted in the government's Knowledge Worker Scheme (180 million euros available), which enabled hundreds of researchers from industrial laboratories to conduct research at knowledge institutions.

Internal developments

STW has various funding instruments which are discussed below. Each instrument plays its own role in STW's mission. Although STW does not specifically work thematically, its research programme and projects can be categorised into five fields: ICT, nano, life sciences, energy and materials, and sustainability. Sustainability is the common thread that runs through much of STW's research. Published in late March 2010, the 3rd annual photograph of the Knowledge Investment Agenda (KIA) showed that STW became the largest funder of academic ICT research in the Netherlands in 2009.

Open Technology Programme

The Open Technology Programme (OTP) focuses on science and technology research and its characteristic feature is the lack of boundaries between disciplines. OTP projects therefore cover the entire range of science and technology research. Applications can be submitted on an ongoing basis. STW's share for 2009 came to 25 million euros. STW added a further 2 million euros to this from its general reserve in the year under review.

In 2009 the board reduced the maximum STW contribution per OTP project from 1.5 million

euros to 0.75 million euros. If the project involves investment costs of at least 250,000 euros, STW's contribution may be up to 1 million euros. In so doing, we apply a clear distinction between major OTP projects and small Perspective programmes (upward of 2 million euros) and we synchronise projects in OTP and Perspective.

STW received 194 proposals for the OTP in 2009; the board awarded grants for 47 of these following assessment by independent specialists and on the basis of ranking. This involved a sum of 31 million euros, including users' cofunding.

Perspective

The Perspective programmes focus on solving innovation problems by developing new technologies by means of a multidisciplinary approach, cooperating with users, joint funding by private parties and by specific activities concerned with valorisation and entrepreneurship. Perspective is especially intended to bring about the application of innovative knowledge and thereby contribute to technological innovation in the Netherlands.

In the year under review, STW's board decided to work out five new Perspective Themes into programme proposals (see box). The subjects, which are briefly discussed below, link up perfectly with themes and key areas which are important for the community and industry, such as those defined by the Dutch government. The Ministry of Economic Affairs was pleased with the new programmes. The calls for the programmes concerned will open in 2010.

The first call for the Perspective programmes that STW's board approved in early 2009 took place in the year under review. A total of 55 full proposals were submitted for the programmes Building on Transient Plasmas (BTP), Diagnostic Tools for Neurological Disorders NeuroSIPE, Integral Solutions for Sustainable Construction (IS2C) and Learning from Nature to protect crops (LFN), and of these a total of 29 were approved. This meant a sum of 22 million euros was spent on new research. The first round of proposals in the Autonomous Sensor Systems (ASSYS) programme were also assessed; grants were awarded for seven of them.

New Perspective programmes 2010

BioGeoCivil - Bio-Based Geo & Civil Engineering for a Sustainable Society

The aim of the programme is the development of biologically based processes and products to reduce the environmental impact of geotechnical and civil-engineering activities and thereby contribute to a sustainable society.

CARISMA - Cardiovascular Risk Management by advanced medical image analysis

The programme's objective is the development, validation and valorisation of a new generation of methods for medical image analysis. Relevant subjects this includes are integrated analysis of heterogeneous and 4D image data, improved detection and diagnosis of disease, better treatment and better prognosis, and special attention to the cardiovascular system; an improved approach is of major social and economic importance.

From Waste to Resource (W2R) - Ecological Design for Production of Chemicals and Energy from Organic Residues

The aim of this programme is the development of processes for integrating the use of industrial waste as raw material, in line with the creed waste=food, from the cradle-to-cradle philosophy. The programme is inspired by processes in nature.

GTIP - Generic Technologies for Integrated Photonics

This programme's objective is to bring about a breakthrough in photonic ICs for a wide range of applications. Another aim of the programme is to take a major step forwards in the design of photonic ICs by using emerging manufacturing techniques which combine high performance with low costs. The programme specifically builds on the prominent position that

the Dutch photonics community has achieved as a result of major investments in recent decades.

SMARTSeparations - SMART Separations for complex systems

This programme's aim is to bring about the new separation principles/driving forces which are required for separating complex systems, as identified by the Dutch processing industry in the Innovation Roadmap Separation Technology.

Perspective procedure for 2010 revised

Based on experiences during the first four years of Perspective, in 2009 the board decided to change the procedure so that researchers know sooner where they are up to, coherence within a programme is increased, the load placed on the system is reduced, and the temptation to conceive complicated cofunding structures disappears. To stimulate this, from 2010 programme ideas will have to be published on STW's website in advance and applicants will have to organise a public matchmaking meeting, to enable optimal participation in the field. After this researchers and partners will have to submit a fully worked out programme for assessment. The requirements for cofunding have been brought into line with those for projects in the Open Technology Programme.

Partnership

The aim of the Partnership instrument is to address questions and requirements in the business community immediately by means of high-quality science and technology research. This is achieved through cooperation with leading industrial R&D laboratories in the Netherlands. STW believes public-private partnerships of this kind will lead to sustainable innovation in the business community. The minimum size of a Partnership programme is 3 million euros, half of which is funded by STW and half by the industrial partner. This is what distinguishes Partnership from other STW instruments: many STW projects involve cooperation with industrial partners but never with only one specific partner. STW's board

provided Partnership with 1.5 million euros from the general reserve in 2009. One million euros of this went to the first Partnership programme, Hyflux, which came about in 2009.

In June, during the International Water Week, in Singapore, a contract for at least five years was signed by STW representatives and the Singapore-based company Hyflux Ltd, which has its R&D laboratory in Helmond, the Netherlands. Dutch university groups will conduct research during this period to achieve technological breakthroughs in inorganic and hybrid membrane separation technologies and in their application under extreme temperatures, pressures and pH values, for example. Grants were awarded at the end of the year under review for four projects from the first call, two in Delft, one in Eindhoven and one in Utrecht.

Hyflux's founder and CEO, Olivia Lum, visited the Netherlands in September. STW organised a special meeting in Delft where she met prospective project managers.

During a visit to Singapore, the Dutch Minister of Economic Affairs, Maria van der Hoeven, spoke very highly of the partnership. The VVD political party (People's Party for Freedom and Democracy) in the Netherlands put questions to the Lower House concerning the partnership and enquired in particular about the rules on assistance from the government. Van der Hoeven and the Minister of Education, Culture and Science, Ronald Plasterk, said in

their reply that the construction with Hyflux was not only completely in accordance with existing rules but makes a positive contribution to the knowledge economy and employment opportunities for researchers in the Netherlands.

Innovational Research Incentives Scheme

The Innovational Research Incentives Scheme is an instrument operated by NWO to provide personal subsidies to researchers at various stages of their scientific career, from recently graduated (Rubicon), through recently qualified post-doctorate researchers (Veni) and researchers who have already delivered their first results as researchers (Vidi), as well as by now well-established researchers who are putting together their own group (Vici).

In 2009 grants were awarded for a total of 24 projects in STW's field of activity: three Rubicons, fourteen Venis and seven Vidis. The Vici round of submissions in 2009 only resulted in grants being awarded in 2010.

Valorisation Grant

The Valorisation Grant is a personal subsidy granted to enterprising researchers for the development of innovative high-tech activities on the basis of knowledge they have developed in the university or research institution. The Valorisation Grant is a joint activity of STW, the ICT Research and Innovation Authority (ICTRegie), and NanoNed. It comprises two phases: phase 1



Eppo Bruins (STW) and Olivia Lum (Hyflux) ratifying the public-private partnership between STW and Hyflux.
— photograph by Sam Rentmeester/FMAX

is the feasibility study for the proposal and phase 2 is the valorisation phase. Candidates for phase 2 are only permitted to make submissions if they have successfully completed phase 1. The maximum subsidy for phase 1, which has to be completed within six months, is 25,000 euros. The maximum subsidy amount for phase 2 is 200,000 euros for a period not exceeding 2 years. STW increased the Valorisation Grant budget by adding 0.6 million euros from its general reserve in 2009. A total of 1.8 million euros was awarded in grants for projects in 2009 (31 phase 1 projects and 11 phase 2 projects).

Valorisation Workshops

STW organises two types of Valorisation Workshops. The Knowledge Protection and Exploitation Workshop is intended to inform researchers at universities and other knowledge institutions of possibilities that exist for knowledge protection and exploitation and of the opportunities this offers.

The Orientation Towards Entrepreneurship Workshop focuses on students and employees of universities and research institutions who have a business idea and are considering starting their own business; it informs them of important matters in such a venture. In 2009, just the second workshop was held once. Nine teams with a business idea participated. The winning team was that of Jan Visschers of the FOM Institute of Particle Physics (Nikhef), in Amsterdam, which is part of the Dutch Foundation for Fundamental Research on Matter (FOM). He has a plan for modules for digital cameras to count X-ray photons. The cameras can be used in material analysis, medical imaging, electron microscopy and scientific instrumentation.

Strategic cooperation programmes

NWO theme: Fundamental energy research

The Smart Energy Systems research programme was approved as part of this theme in 2009 and is being funded by NWO Exact Sciences (NWO-EW), STW and ICT Research and Innovation Authority (ICTRegie). STW is pleased that energy-saving is now receiving attention within the scope of this theme. Energy-saving is the first major step towards more sustainable energy supplies that can be taken now, before new alternatives



Ard Cools (STW) at the Valorisation Workshop, presenting the award for best Business Idea to Jan Visschers (FOM-Nikhef).

for energy sources can be developed.

STW has earmarked 2 million euros of its general reserve for this programme.

NWO theme: Use of Nanosciences and Nanotechnology

The NWO programme Nano started at the end of 2009 as part of this theme. STW, FOM (Foundation for Fundamental Research on Matter), ALW (Earth and Life Sciences), CW (Chemical Sciences) and ZonMw (Netherlands Organisation for Health Research and Development) work together on this theme; STW is in charge of the programme and acts as the contracting party. STW has released 2.5 million euros from its general reserve for this programme.

In 2009 STW projects started in the following NWO themes:

- *Socially Responsible Innovation;*
- *Dynamics of complex systems ('Complexity');*
- *New Instruments for Healthcare.*

Financial report

In the annual accounts for 2009 STW introduced a change to the way information is presented. The aim is to provide greater insight into the total awarded in grants per activity or programme. The comparable figures for 2008 were adjusted in accordance with this method. The changes in the manner of presentation have no effect on capital and the results. A specific overview has also been included for the Ministry of Economic Affairs.

STW's income increased by 11 million euros in 2009 to 78 million euros. The rise was the result of an increase in other NWO subsidies and third-party contributions.

Expenditure on awarding grants also amounted to 78 million euros in the year under review. In 2009 thirty-one million euros was spent on the Open Technology Programme (OTP) and 26 million euros was spent on Perspective programmes. Twenty-one million euros was spent on other programmes, such as the Innovational Research Incentives Scheme, Valorisation Grant, Partnership, Simon Stevin Mastership Award, and on supplementing other current programmes. The reserve set aside in 2008 for ASSYS, an extra Perspective programme, was awarded in 2009. In addition, four new Perspective programmes started in 2009: Building on Transient Plasmas, IS2C, Learning from Nature and NeuroSIPE, for a sum of 21 million euros, which was the

amount awarded in subsidies. An acceptance percentage of 37% was achieved in the OTP in 2009.

The general reserve fell sharply by 8 million euros in 2009 to 1 million euros (freely disposable amount), owing to the targeted policy and the associated large number of grants awarded. The board designated 11 million euros for a specific use and 5 million euros of the funds were locked by third parties and tied up in designated capital. The total amount in capital and reserves after appropriation of results fell by 6 million euros to 17 million euros. Changes in the adopted policy on capital are periodically monitored.

STW ensures that the funds entrusted to it are carefully managed. On the cost side the focus is especially on management costs and the efficiency of the office. The management costs relating to the total income amount to 6.2% for 2009 and 6.9% for 2008. After discounting third-party sums the net management costs

amount to 4.3% for 2009 and 5.0% for 2008. The supplier of the financial package reported at the end of 2009 that support for the package will be terminated as of 1 January 2011. A new financial package will be implemented in 2010. The aim is simple management and implementation, proper integration possibilities and flexibility.

External developments

Division of funds from natural gas profits through FES

FES proposal on HTS&M: together with other partners, STW/NanoNed Office worked hard in the year under review to draft the FES proposal on High Tech Systems & Materials and present it for submission to the Ministry of Education, Culture and Science. In December the Dutch government decided to award a grant for the proposal and to provide 125 million euros for it. The programme's structural design and management will be completed in 2010.

Key indicators

Some aspects of STW's work and results can be presented as indicators. We provide the key indicators here. Quantitative data on the indicators and other material with figures on STW are provided in chapter 4.

- 78 million euros received for research;
- 78 million euros spent on research;
- 732 FTE spent on research;
- around 500 user committee meetings;
- 10 congresses, symposia and workshops organised by STW;
- 1079 user relationships;
- 93 post-doctorate (highly educated girls and boys);
- around 600 scientific publications;
- 13 patents;
- 4 licence agreements;
- 3 start-ups (excluding Valorisation Grant);
- 44 start-ups (Valorisation Grant).

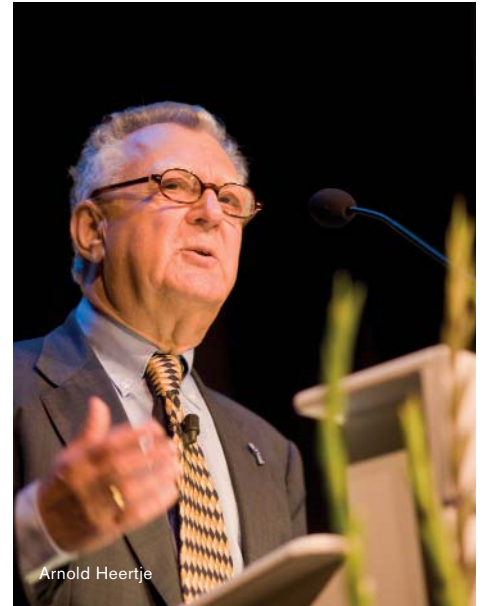


STW Annual Congress 2009

STW Annual Congress 2009



Eppo Bruins

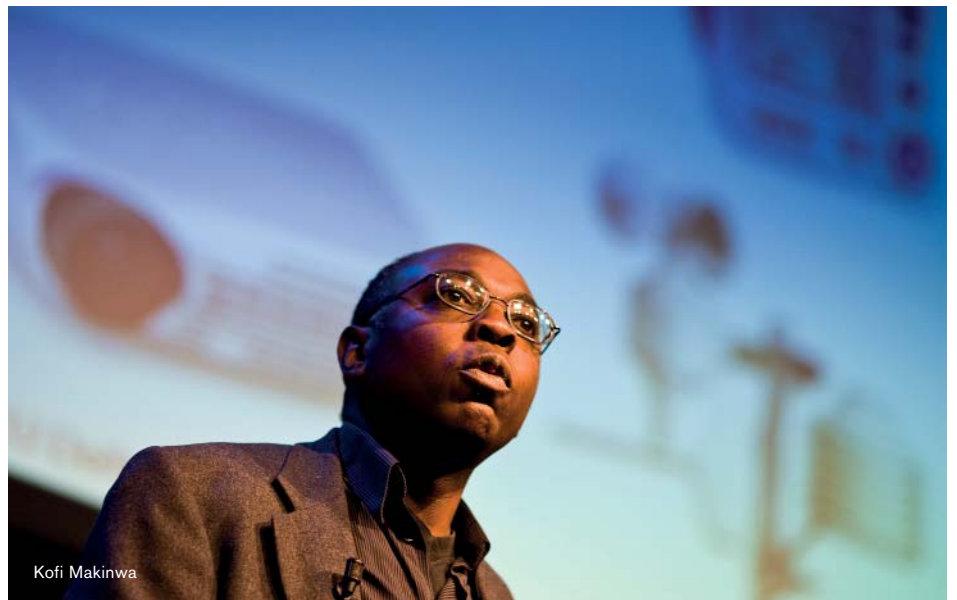


Arnold Heertje



STW organised its **Annual Congress** at Nieuwegein's Business Centre on 8 October 2009. The annual congress is part of the network activities which STW organises throughout the year. The activities are intended to bring researchers and users together from every field of technology. The congress's permanent features include lectures, workshops, the presentation of the Simon Stevin Mastership Award, and choosing the recipient of the Simon Stevin Gezel Award and Simon Stevin Student Award. Jan Douwe Kroeske was chairman of the day was. The speakers were: Professor Arnold Heertje on 'Our economy after the credit crisis' and Professor Kofi Makinwa on 'Smart Sensors: From ideas to products'.

Six workshops were also held for STW PhD students, (prospective) project managers and policymakers on the day of the annual congress, along with a business market for new companies which arose from STW projects.



Kofi Makinwa



Jan Douwe Kroeske

Simon Stevin Awards

The ceremony of the Simon Stevin Awards is a permanent feature of the STW annual congress.

Simon Stevin Mastership Award

STW introduced the annual Simon Stevin Mastership Award in 1998. Senior researchers who have earned their spurs in STW research, and who actively endeavour to apply the results and are able to form groups and keep them together, receive half a million euros to spend on one or more scientific research projects with an STW profile. The award went to Professor Detlef Lohse (University of Twente) in 2009. At the congress, Lohse gave an enthralling lecture on his research.

Lohse had already received the Spinoza Premium award in 2005. In 2009 Professor Albert van den Berg (Simon Stevin Mastership Award 2002) received the Spinoza Premium Award.

Simon Stevin Gezel Award

Dr Rick Scholte (Eindhoven University of Technology) received the Simon Stevin Gezel Award at the STW annual congress. Scholte, together with Dr Ralucu Marin-Perianu

(University of Twente) and Jan-Willem van Wingerden (Delft University of Technology) were nominated for the award. Scholte's brief and clear presentation at Nieuwegein's Business Centre convinced the audience of the scientific and social value of his work.

Scholte spoke of his research into sound imaging: the visualisation of sound with proper applications in practical situations. The Sound Imaging system is a measuring robot with microphones which measures and calculates the sound level at a hundred points to an accuracy of 1 millimetre. Scholte's method enables optimum conversion of spatial information from the acoustic holograms obtained, with extremely accurate results and without any appreciable delay in the computational process. The method enables a sound source to be detected extremely accurately, thereby making it possible to deal with the precise source of excessive noise in machines. This enables the designer to modify the design, so that the source of the irritating noise disappears or is at least reduced.

The research was combined with the STW Valorisation Grant 'Sound Imaging, a Sound Business'. Scholte has since established his own company, Sorama.

Following the three presentations, members of the audience had the opportunity to cast their votes in ballot boxes. Getting more than 50% of the votes, Scholte left his co-finalist behind. "Wireless sensor networks (Marin-Perianu) and wind energy (Van Wingerden) are forceful, contemporary subjects, so I found it difficult to estimate my chances beforehand," a delighted Scholte said. "I'll use the 5000-euro prize money to improve the service of our company, Sorama."

Simon Stevin Student Award

Fourteen participants took a shot at winning the Simon Stevin Student Award. They had to show the jury by means of a poster presentation what society will notice about their research. The winner was François Malan, of Leiden University Medical Centre (LUMC), with his poster: 'Refixeer een loszittende kunstheup terwijl u wacht; veilig en goedkoop!' (Refit a loose artificial hip while you wait: safe and cheap) for which Malan received a 1000-euro cheque.



Peter Apers, STW's chairman

Simon Stevin Awards 2009



Detlef Lohse, Simon Stevin Master 2009



Ceremony of Simon Stevin Mastership Award to Detlef Lohse.



Rick Scholte, Simon Stevin Gezel 2009



Belaca Marin-Perianu



Jan-Willem van Wingerden



Ceremony of Simon Stevin Gezel Award to Rick Scholte.



François Malan, Simon Stevin Student 2009

Workshops at STW Annual Congress 2009

Workshops at the STW Annual Congress for STW PhD students, (prospective) project managers and policymakers:

1. How to take charge of your PhD project?

*Under the supervision of
Dr Elroy Cocheret (ElroyCOM)*

2. How can I write an excellent STW proposal?

By Marja Oosterlaken-Dijksterhuis, STW

3. Successful enterprise in the knowledge infrastructure.

*Under the supervision of Wim Bens,
Innovation Lab, Eindhoven University
of Technology*

4. How can we measure the quality of science and technology research?

*Under the supervision of
Professor Paul Hekkert,
Delft University of Technology*

5. How should we proceed with nano in the Netherlands?

*Under the supervision of
Léon Gielgens, Nanoned*

6. How should I present ... research, for example?

By Jan Douwe Kroeske



Elroy Cocheret



Marja Oosterlaken-Dijksterhuis



Wim Bens



Rens Vandeberg (left) and Léon Gielgens (right)



Paul Hekker

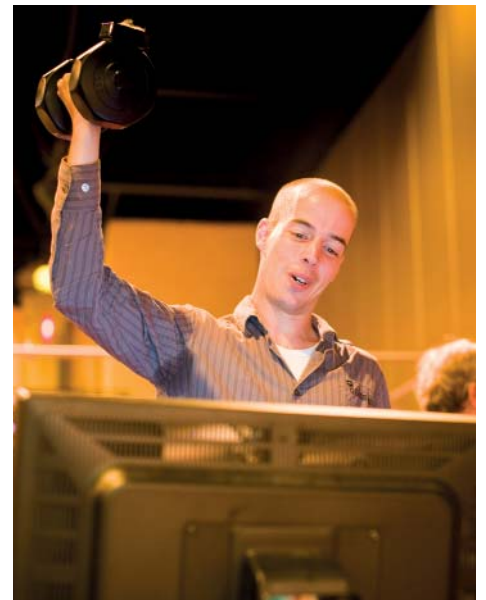


Jan Douwe Kroeske (right)

Businessmarket

An impression of the business market. The following (recently established) companies had stands at the businessmarket and demonstrated their 'product':

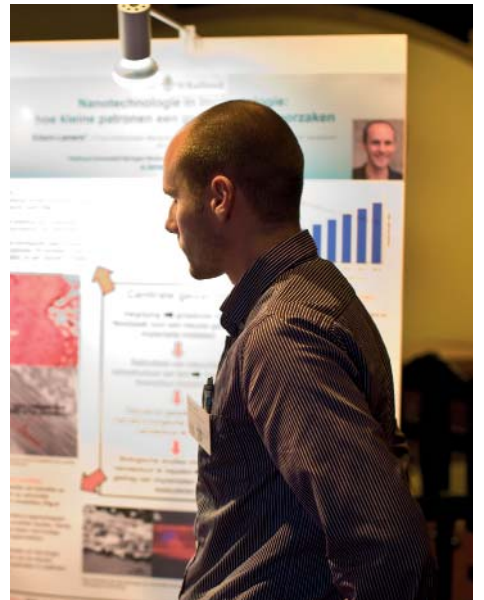
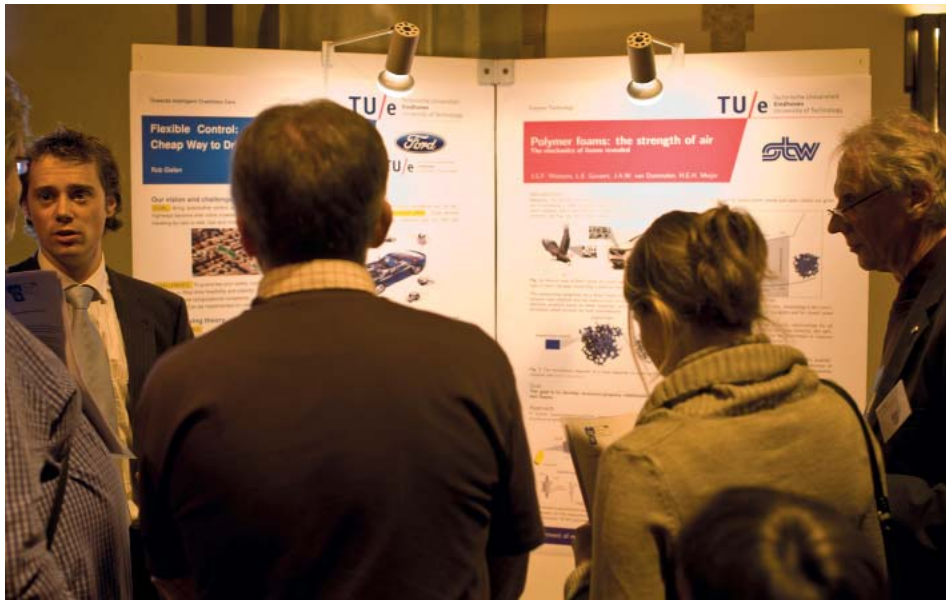
- _ Cymo BV
- _ Eagle Vision Systems
- _ Inertia Technology BV
- _ IQ+
- _ Luminostix BV
- _ MyLife Technologies
- _ SolMateS BV
- _ Sorama BV



Poster Competition

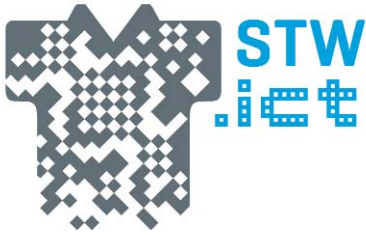
Judging of the poster presentations for the Simon Stevin Student Award.

The jury was composed of: Simone Lahaije (Economic Affairs), Hans d'Achard van Enschut (STW), Herman Wijshoff (Océ) and Huub Eggen (STW's technical chairman).



Other events

Preparation for change from ProRISC/SAFE to STW. ICT



The **ProRISC** and **SAFE** workshops were held for the twentieth time on 26 and 27 November 2009, at Veldhoven. STW announced at the gathering that from next year the two-day meeting will be renamed the **STW. ICT conference**. Expansion with other meetings on ICT, embedded systems and sensors would be a logical step.



Eppo Bruins presenting the new STW. ICT logo _ photograph by: Bram Saeys, Eindhoven.

Spinoza Award 2009 winner: Albert van den Berg

(Simon Stevin Mastership Award 2002)

Ronald Plasterk, the Minister of Education, Culture and Science, presented the **NWO Spinoza Premium Awards for 2009** on Wednesday 25 November. Albert van den Berg, Michel Ferrari and Marten Scheffer each received 2.5 million euros. A unique aspect of this is that the three top Dutch scientists will be conducting research together. This has never happened before in the fifteen years of the Spinoza Premium

Awards. While being presented with the award the researchers revealed their plan to conduct a study into the causes of migraine.

Friends of Science

Friends of Science was held on 2 December 2009, at the Fokker Terminal in The Hague. The Innovation Platform is the initiative of 'Vrienden van Wetenschap' (Friends of Science), started under the direction of Robbert Dijkgraaf (Royal Netherlands Academy for Arts and Sciences: KNAW

and René Smit (VU University Amsterdam). Its mission is to place science high on the social and political agenda. Friends of Science seeks to show what the social relevance of science is, what it contributes to the Dutch economy and how we can place it in the political limelight. Various examples of the application of knowledge from STW were showcased at the event.



from left to right: Marten Scheffer (WU), Ronald Plasterk (OCW), Albert van den Berg (UT) and Michel Ferrari (LUMC).



Simon Stevin Gezel Rick Scholte with Jan Peter Balkenende

Ton van der Steen at Lowlands University



On Friday 21 August, in a sweltering Echo tent at the **Lowlands festival**, **prof.dr.ir. Ton van der Steen** (Simon Stevin Mastership Award 2007) gave a lecture on techniques for visualising the inner wall of blood vessels, in the fight against heart attacks and strokes. Although not attended by a large audience – the festival had only just started – those who were present were extremely interested. One of the noteworthy points of his lecture was the immense appreciation there is in the United States for the work done in his group. This has resulted in participation in a major experiment in the United States, in which for four months every year a truck full of imaging equipment visits supermarkets offering people on-site examinations of the condition of the blood vessels around their hearts. His most striking experience during the lecture was that the soundcheck in the adjacent Juliet tent made it difficult to hear how members of the public reacted to his lecture.



Summary of programmes and activities

Programme	Duration	Total budget in M€	Budget in 2009 in M€	Programme implementation
Open Technology programme	open submission		31	STW
Perspective (including corporate contributions):				STW
Green & Smart Process Technologies (GSPT)	2007-2013	6,6		STW
Multiscale Simulation Techniques (MuST)	2007-2013	5		STW
Smart Systems in Package (SmartSiP)	2007-2013	6,3		STW
Thin Film Nanomanufacturing (TFN)	2007-2013	7		STW
Autonomous Sensor Systems (ASSYS)	2008-2014	4,8		STW
Clean Combustion Concepts (CCC)	2008-2014	6,5		STW
GenBiotics	2008-2014	5,7		STW
Smart Optics Systems (SOS)	2008-2014	5,5		STW
Building on Transient Plasmas (BTP)	2009-2015	6,1		STW
Integral Solutions for Sustainable Construction (IS2C)	2009-2015	6		STW
Learning from Nature to protect crops (LFN)	2009-2015	6,5		STW
NeuroSIPE	2009-2015	7		STW
Partnership:				
Hyflux	2009-2014	3		STW, Hyflux
Valorisation Grant	2004-ondetermined		3	STW, ICTRegie, Nanoned
Cooperation with NWO:				
Complexity	2009-2014	7		STW, NWO-EW
Ethics of Technological Research	2003-2009	1		STW, NWO
Innovatieve Genomics Clusters	2004-ondetermined	9		STW, NGI
Socially Responsible Innovation	2008-2012	12		STW, NWO
Mozaiek	2004-ondetermined		4	STW, NWO
New Instruments in Health Care (NIG)	2008-2010	9		STW, NWO, ICTRegie, ZonMw, FOM
Rubicon	2005-ondetermined		2	STW, NWO
Smart Energy Systems (SES)	2010-2016	6		STW, NWO-EW, ICTRegie
Innovation Research Incentives Scheme:				
VENI	2000-ondetermined		3	STW, NWO
VIDI	2000-ondetermined		5,6	STW, NWO
VICI	2000-ondetermined		4,5	STW, NWO
Bsik-programmes:				
NanoNed	2004-2010	250		STW
Dutch Program for Tissue Engineering	2004-2010	50		STW, ZonMw

Programme	Duration	Total budget in M€	Budget in 2009 in M€	Programme implementation
Cooperation with third parties:				
ERANET NanoScience	2005-2010	3		STW, FOM
IOP Photonic Devices	2006-2010	22		STW, Agency NL
JACQUARD	2001-2015	17		STW, NWO-EW
PROGRESSII	2007-2012	8,3		STW
Sentinels	2004-2014	8,3		STW
Seperation Technology	2002-2010	1		STW, NWO-CW
STW platform activities:				
Adaptive Intelligence (SNN)	1995-ondetermined			STW
ProRISC*	1989-ondetermined			STW
SAFE*	1998-ondetermined			STW
Sense of Contact	1998-ondetermined			STW
SIREN (conference)	2005-ondetermined			STW
Clean and Efficient Incineration	1997-ondetermined			STW
* from 2010: STW.ICT				
Simon Stevin Awards:				
Simon Stevin Mastership Award	1998-ondetermined		500 k€	STW
Simon Stevin Gezel Award	2005-ondetermined		5 k€	STW
Simon Stevin Student Award	2008-ondetermined		1k€	STW
Valorisatieworkshops:				
Knowledge protection and exploitation	2006-ondetermined			STW
Orientation towards entrepreneurship	2006-ondetermined			STW
Monitoring:				
ITEA	2001-ondetermined			STW, Agentschap NL
MEDEA+ / CATRENE	2001-2008/2008-2011			STW, Agentschap NL
Bsik-programmes	2004-2011			STW, Agentschap NL, NWO

figure 1 **Types of users in 2009**

- companies: < 250 employees
- companies: > 250 employees
- knowledge institution
- public/(semi)public

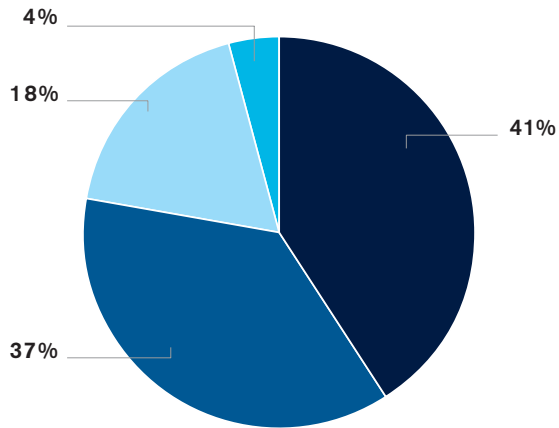


figure 2 **Number of industrial-user relationships**

- user relationships
- new user relationships vis-à-vis preceding year
- foreign user relationships
- new foreign user relationships vis-à-vis preceding year

Relationships with universities and hospitals, foreign of otherwise were not counted. Company divisions are not counted as separate users.

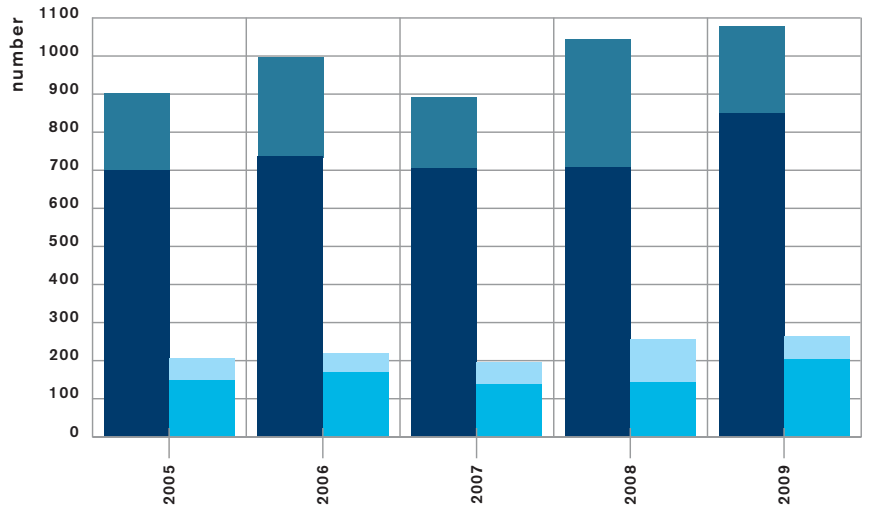
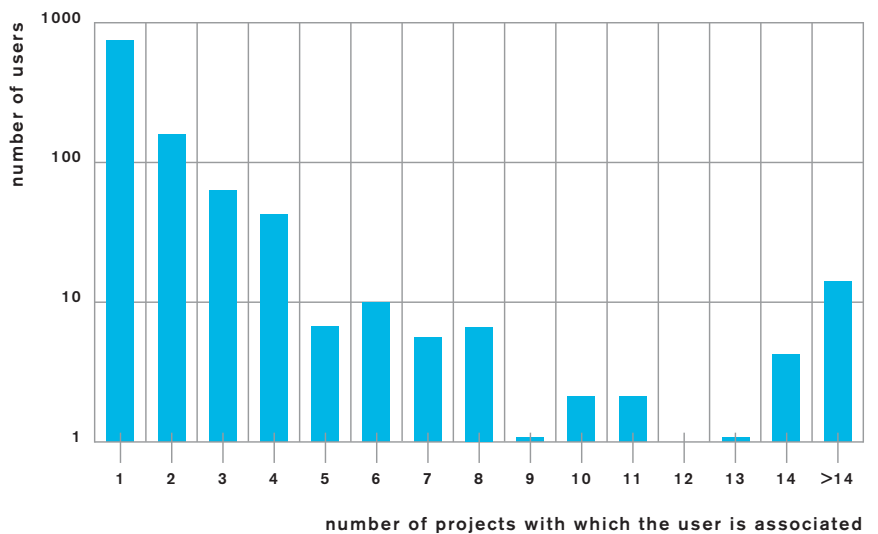


figure 3 **Projects and users**

Distribution of external users according to the number of projects in which they are involved. For example, 777 users are 'only' involved in one STW project, 154 users in two projects. A further 14 users are involved in more than 14 different projects. STW research is therefore not just for the happy few. A total of 1079 users were involved in the research of 2009. Universities and hospitals, foreign of otherwise were not counted. NB: Company divisions are not counted as separate users.



Number of patent applications resulting from STW research.

figure 4 Patent applications

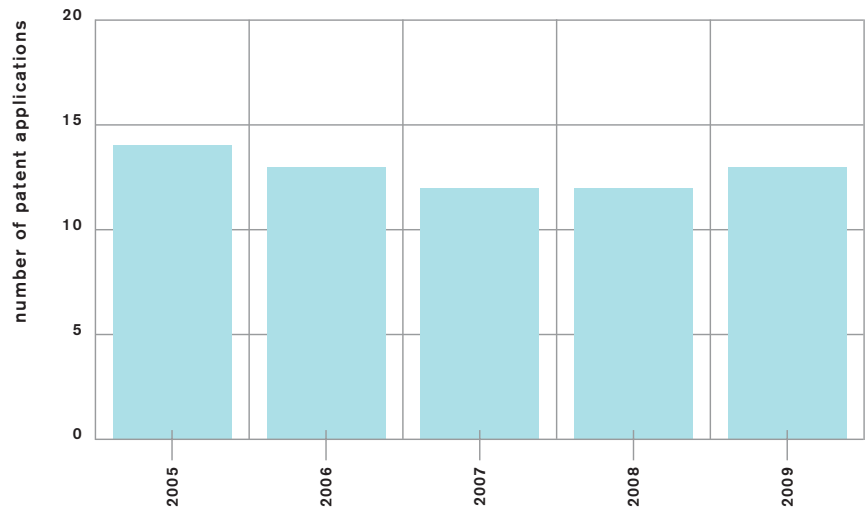
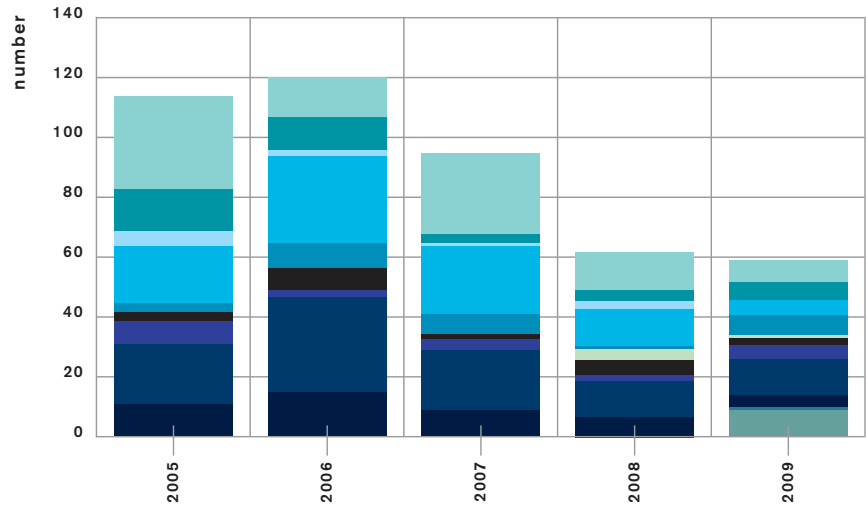


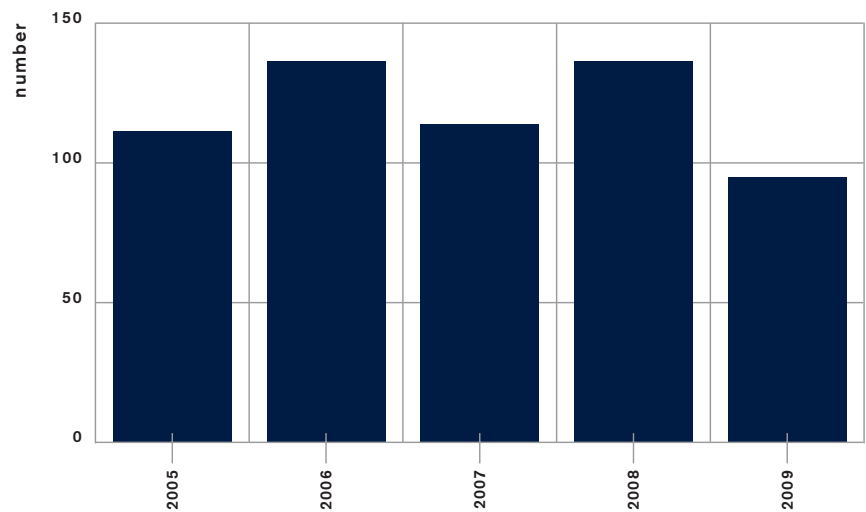
figure 5 Contracts

- other agreements
- materials transfer agreement
- letter of intent
- confidentiality
- patent transfer
- knowledge transfer
- collaborative research
- option and licence
- option
- licence
- distribution of incomes
- assignment



Number of post-doctorate researchers who entered the labour market through STW.

figure 6 Number of post-doctorate researchers

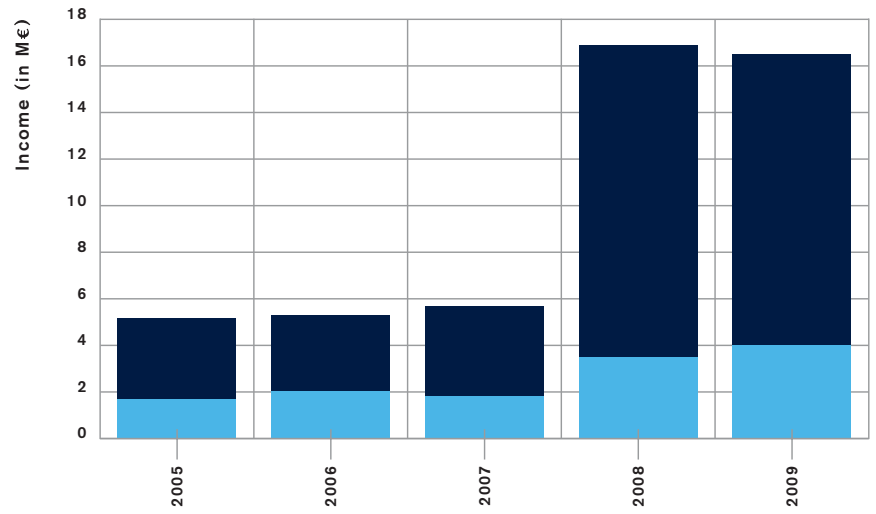


- non-monetary contribution
- monetary contribution

Total contribution to STW projects. 'Monetary contribution' means income that had been invoiced and received by STW. 'Non-monetary contribution' means all other contributions.

The large increase in 2008 and 2009 is due to include results from starting Perspective programmes which require 25% financing.

figure 22 User contributions to STW projects





The purpose of the Technology Foundation STW is described in its articles as: to promote science and technology research and its practical application for the general good and for that of scientific education. This purpose is pursued by stimulating and supporting science and technology research particularly in the various institutions for scientific education, using funding made available by NWO, the Netherlands Organisation for Scientific Research, (Ministry of Education, Culture and Science), and the Ministry of Ministry of Economic Affairs, Agriculture and Innovation. Furthermore, the foundation contributes to the promotion of research coordination and putting the results to practical use.

The Technology Foundation STW funds research that is selected on the grounds of scientific quality and utilisation. This latter term refers to the likelihood of users actually applying the results of the research. The likelihood of use can be large in two ways. Firstly, when users can be identified at the start who are genuinely interested, and secondly when the results indicate a probable wide range of applications, even though definite users may not yet be indicated.

STW will at the same time act to stimulate and initiate in priority areas where, on the grounds of social and/or scientific developments, there is a clear indication of (para)academic research potential.

