

Open partnership in public-private R&D

The Open Technology approach of STW

Technology Foundation ST

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Training Program for Research and Innovation Evaluation

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The Dutch R&D Funding System

Research in the Netherlands



- Total R&D expenditure (2007): 9 billio
- Percentage of GNP:
- R&D personnel:
- Scientific publications:

9 billion euro
2 %
90.000 (fte)
2,6 % of world total

Technology Foundation STW

comparison Japan - Netherlands

	Japan	Netherlands	factor
Inhabitants (millions)	128	17	8
Surface area (km2)	380000	42000	9
Gross Expenditure in R&D 2006 (M\$ ppp)	130000	10000	13
idem per capita (\$ ppp)	1016	602	
% of GERD funded by Government	17	36	
R&D funding Government (M\$ ppp)	22000	3620	6
idem per capita (\$ ppp)	172	218	
R&D spending Higher Education Sector (M\$ ppp)	17000	2800	6
R&D spending Governmental Sector (M\$ ppp)	11000	1500	7
Triadic patents 2005 (USPTO, EPO, JPO)	15000	1200	13
PCTpatents 2006	27000	4400	6

source: OECD

Technologiestichting STW

Public R&D funding in the Netherlands (simplified)





R&D in the Netherlands









From abroad 4%

Private companies 7%

NWO (incl. STW) 12% Private non profit funds 2%

1st flow of funds 75%

Total € 2.5 billion 2005

main instruments of STW



- Open Technology Program (OTP): new technology projects
 - 45 % of STW budget
 - projects up to 1.5 M euro
- 'Perspectief' Programs: focussed technology networks
 - 40% of STW budget
 - programs ≤ 10 M euro; 25% contribution of users
- 'Partnership' Programs: user initiated programs
 - $\geq 5\%$ of STW budget
 - programs ≥ 3 M euro; 50% (cash) contribution of users
- Valorisation Grant: start up company
 - 2.5% of STW budget
 - 3 stage grant according to SBIR formula

STW's Open Technology Program*



- Funds for academic research projects with potential utility (~ 25 M€ p.a.)
- Multidisciplinary
- Open (no thematic areas)
- No deadlines
- Utilisation plan requested
- Project management with user committees



OTP is a radar for new technology

* STW is funded bij NWO and the Ministry of Economic Affairs

- General universities (9x)
- Technical universities (3x)
- Agricultural universities (1x)

the OTP philosopy

Stw

- challenges and creativity are everywhere:
 Innovation can't be planned.
- all disciplines may contribute:

No boundaries between disciplines.

• independent anonymous jury:

▶ No old boys network. Jury \neq scientific peers.

• let users choose what is relevant:

Commitment, not reports or rethoric.

• watch & manage your investment:

Money is not enough.



An example: dredging

Cutter suction dredging





cutterhead technology





Cutter teeth:

- more than 10 kg each
- 10 > 100 teeth per cutterhead
- sometimes change of teeth after one hour use



"Changing the cutter teeth is by far the most regular cause of downtime in the operation of a cutter suction dredge, in particular when rock and other hard soil has to be dredged.

Cutter teeth used to be locked to adapters on the cutter body by means of sandwich pins, which needed to be mounted and dismounted by making use of big sledgehammers. This is a tough and time consuming job with a relatively high risk of injuries caused by the hammers themselves and by steel splinters." (website Vosta LMG)

how snails feed





"Enzyklopädie der Natur", Munich 2000.



A limpet's (Patella rustica) radula. picture: Salzburg university.

artis natura magistra







from morphology ...

... to mechanical design

the dinosaur option ?



The present trend:

 investment in bigger teeth (>32 kg) and robotization

The alternative:

superior, free technology

The problem:

- vested interests,
- lack of competition and
- conservatism ("I know your concept is better")



Er dient ook een nieuw platform (draagkracht 75 ton) ontwikkeld te worden om de 2 robots een plaats te geven.





How STW selects OTP project proposals

Selecting the best





Scientific challenge

Utility

= Quality

Selection procedure OTP





Board of STW grants best 30% of proposals

Selection procedure - Jury



- For each group of 20 proposals (different disciplines !) a new jury is invited
- 12 non-experts recruited from universities, industry and other organisations
- Independent, anonymous and written procedure



OTP portfolio by discipline (2004)





□ chemistry ■ life sciences medical science electronics physics □ information sc. mechanical eng. mathematics civil engineering earth sciences





Project management and user committees

User committees



Every STW project is advised by its own committee of interested users.

Objectives:

- Knowlegde transfer
- New social networks between researchers and user organisations.
- Keeping focus on application
- Sharing awareness of state of the art technology.
- Platform for establishing IPR and (patent) exploitation.

Rule of discipline: publication of results only after approval of users' committee and STW.

opposing values- common interest



knowlegde trade policy

Starting points

- joint ownership STW and university, including IPR
- all publications are submitted for approval
- publications can be postponed max. 1 year
- a member of the User Committee will have a preferential treatment, but no right to the results
- user exclusivity only in exchange for a substantial contribution, option agreement required

Exploitation rights

- license or transfer agreement required Issues involved:
 - (non) exclusivity
 - confidentiality/secrecy
 - market conformity consideration (royalty, lump-sum)
 - royalty free license back for education and research purposes
 - no defensive use of results

Revenues

- shared between STW and university (and inventor)
- university's share channeled directly to the group that generated profitable knowledge
- income for group is with 'no strings attached'



