Public Private Partnerships in Research: Organization, Accountability and Results

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The Netherlands

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Dutch Innovation Paradox

Source:

OEDC-report *Strengthening innovation in The Netherlands: making better use of knowledge creation in innovation activities*

Country	Scientific publications per million inhabitants	EIS Summary Innovation Index	Difference in ranking
Austria	12	15	-3
Belgium	9	10	-1
Denmark	4	7	-3
Finland	3	3	0
France	11	11	0
Germany	10	6	4
Greece	18	16	2
Iceland	13	8	5
Ireland	15	13	2
Italy	17	17	0
Japan	14	1	13
Luxembourg	20	20	0
Netherlands	**6**	**12**	**-6**
Norway	8	14	-6
Portugal	19	19	0
Spain	16	18	-2
Sweden	2	2	0
Switzerland	1	5	-4
U.K.	5	9	-4
U.S.	7	4	3

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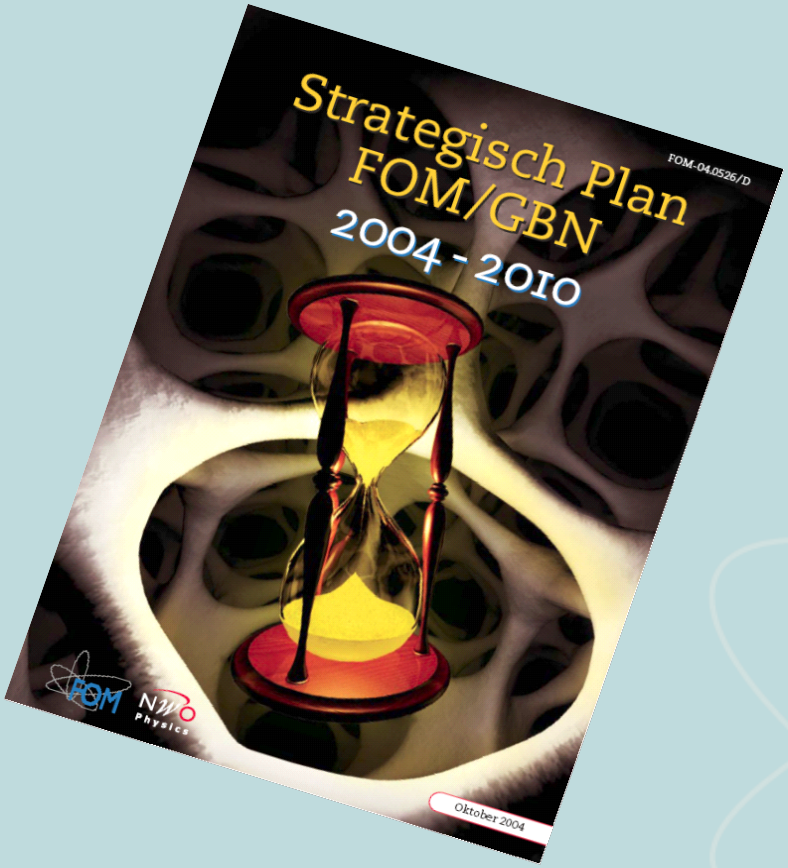
FOM: introduction

- FOM was established in 1946
- Mission:
  - ► to perform and coordinate fundamental physics research
  - ► to generate new knowledge
  - ► to train PhD students and technicians
  - – for the benefit of Dutch society, and in particular higher education and industry
- FOM is combination of
  - – organisation of research institutes
  - – research council

FOM in Action

Strategy FOM 2004 - 2010



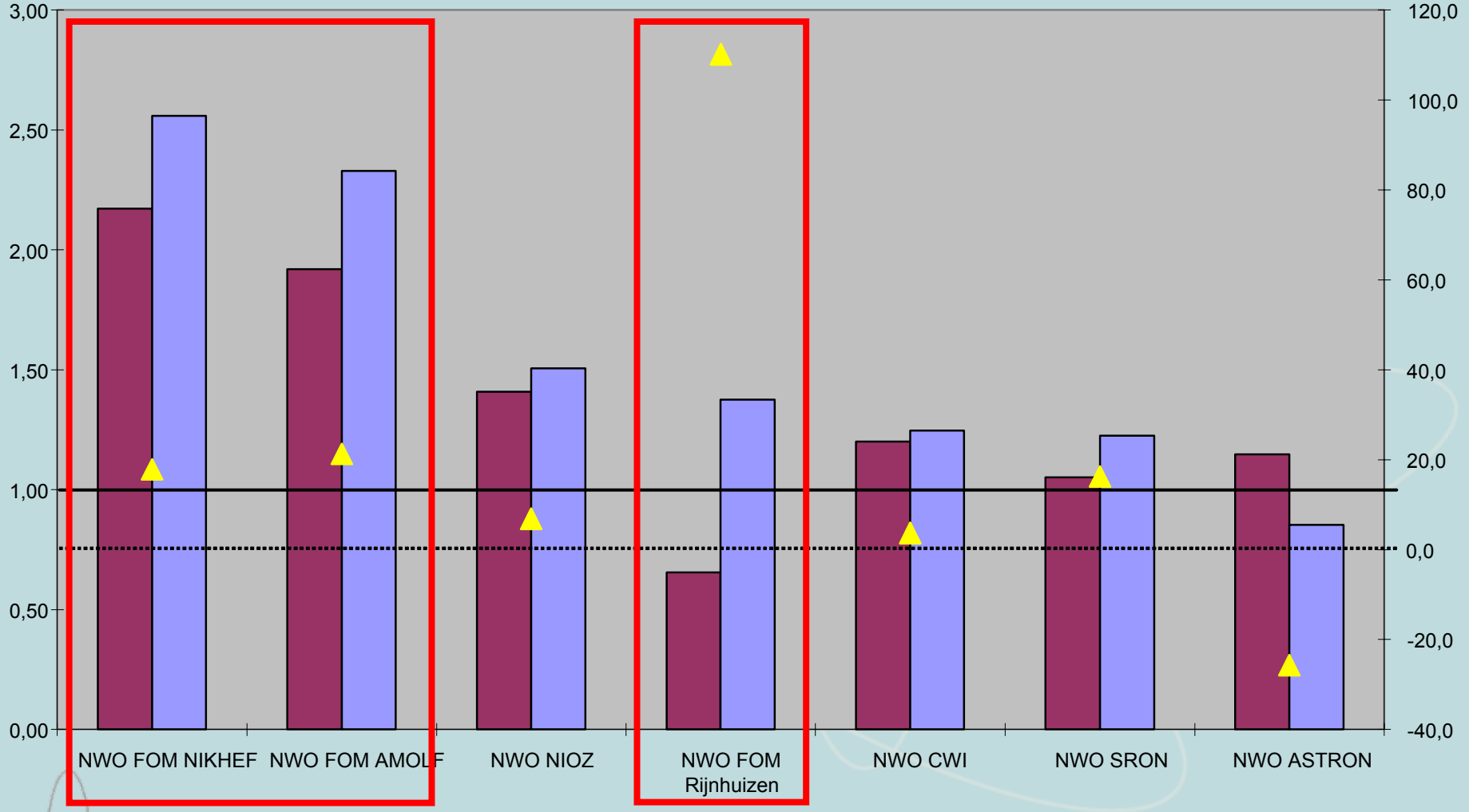
- Maintain and, when possible, reinforce the international quality of Dutch physics
- Increase the contribution of FOM to the Dutch knowledge-based economy

International Quality Dutch Research

Citation impact (CI score*)	Share of the Netherlands in worldwide publication output (OSI score**) Below average (OSI ≤0.9)	Average (0.9 < OSI <1.1)	Above average (OSI ≥1.1)
Very high (CI≥1.4)	Chemistry and chemical engineering Physics and material science Information and communication science Arts, culture and music Literature		
High (1.2<CI<1.4)	Electronics and Electrical Engineering Civil engineering Instruments and instrumentation	Earth science and technology Computer science Environmental science and technology	Agricultural and food science Clinical medicine
Above average (1.1<CI≤1.2)	Political science and Public administration Mathematics Mechanical engineering and aerospace Energy and fuels	General and industrial engineering Biological science Fundamental life science Educational science Biomedical science	Astronomy and Astrophysics

International Quality Large NWO Institutes

Citation impact of large NWO institutes (1993-1996 compared to 2003-2006)

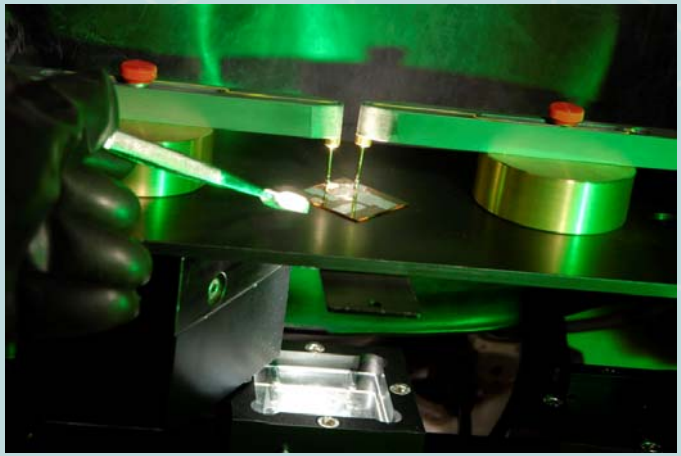


Increase Contribution to Dutch Economy

- New instrument:
  Industrial Partnership Programme's (IPP)
  (budget reserved: M€ 3 per year)
- Characteristics IPP:
  - research programme (size > M€ 1, duration > 4 years)
  - fundamental research of FOM-employees in close contact with industrial researchers
  - research in areas with a great innovation potential and challenging scientific questions
  - research objectives jointly formulated by academia and industry
  - at least 50% in-cash financing by industry
  - clear agreement about intellectual property rights (IPR) and disclosure of the scientific results

IPP: example 1

Title:	Joint Solar Programme
Partner:	Shell
Description:	Research projects selected through an open call for proposals
Total budget:	M€ 3.2 (2004 – 2010)
Funding:	Projects are either funded by FOM or by Shell
Management:	Steering Committee and Programme Committee
IPR:	FOM-funded projects: IPR owned by FOM Shell has right of first refusal
	Shell-funded projects: IPR owned by Shell FOM receives fee for patents



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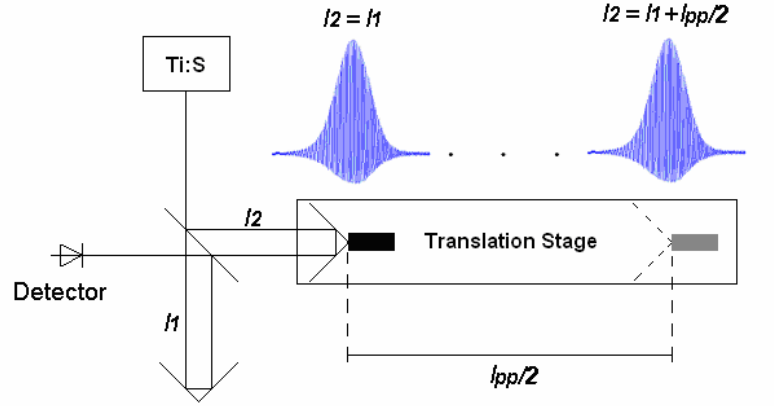
IPP: example 2

Title:	Metrology with frequency comb lasers	
Partners:	NMi, TNO, ASML	
Description:	Predefined research programme	
Total budget:	M€ 1.1 (2006 – 2010)	
Funding:	Projects are either funded by FOM or by NMi/TNO/ASML	
Management:	Programme Manager	
IPR:	FOM-funded projects:	IPR owned by FOM Partners get licences for fee
	Industry-funded projects:	IPR owned by Industry FOM receives fee for patents



IPP: example 3

Title: Microphotonic light sources

Partner: Philips

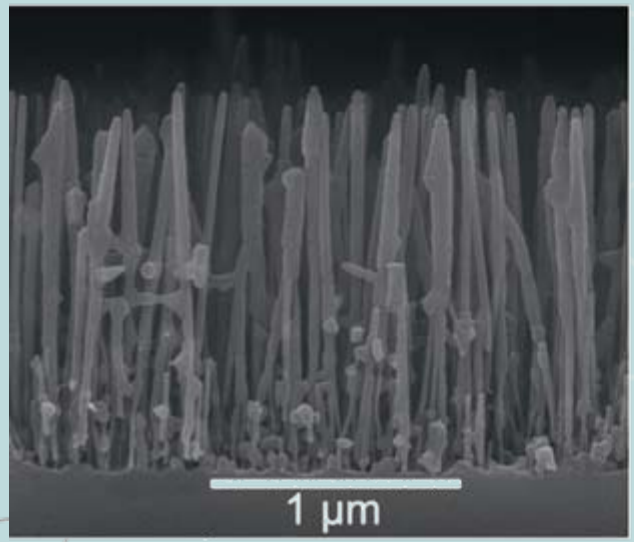
Description: FOM-group based at the High Tech Campus of Philips

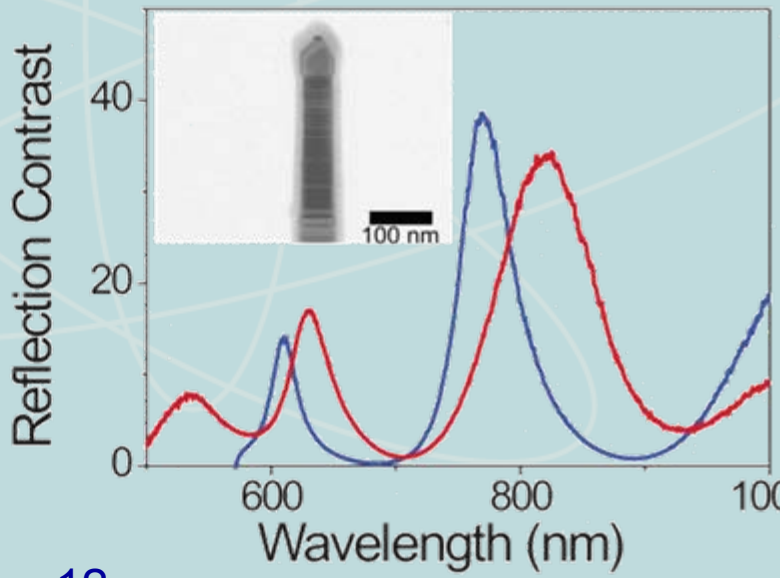
Total budget: M€ 1.7 (2005 – 2010)

Funding: FOM funds research group, Philips the infrastructure

Management: Supervising Board and Scientific Advisory Board

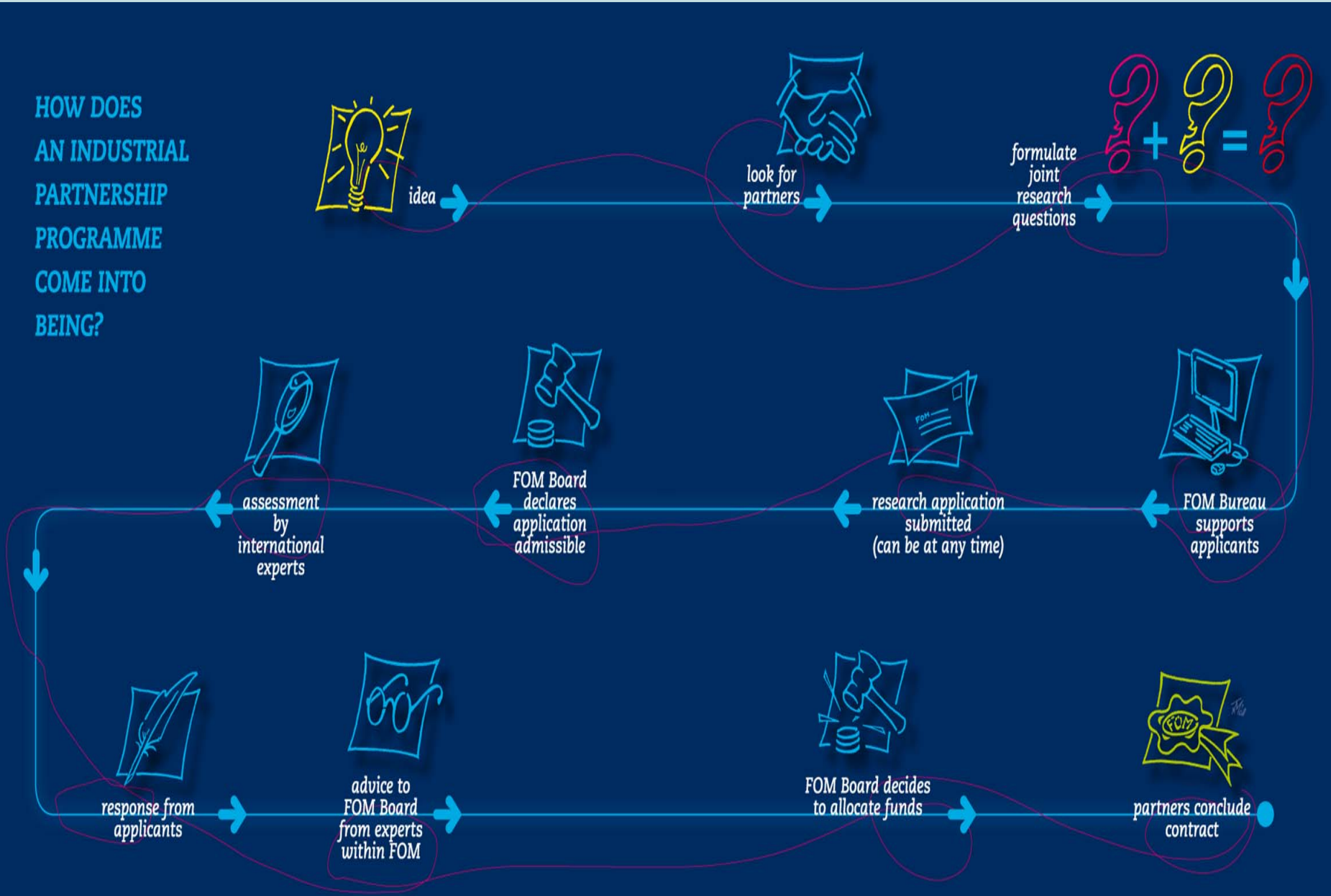
IPR: IPR owned by Philips
FOM receives fee for each patent application






The IPP's demonstrate that it is perfectly possible to consolidate strengths.
Dr. Peter Wierenga
(CEO, Philips Research)

Application Procedure



Why Participate in IPP?

Academic partners

- to perform research that benefits society
- to increase budget for fundamental research
- to come into contact with challenging scientific problems from industry
- to enrich the training of doctoral researchers and students
- to lay a foundation for further application-driven research, for which a lot of government subsidies are available

Industrial partners

- to gain access to top level knowledge and research instruments
- to tackle practical problems at a fundamental level
- to perform research of an outstanding level for far lower costs than in-house research
- to come into contact with potential new employees
- to get access to an active network of physicists through a single point of contact
- to strengthen the company's visibility and reputation

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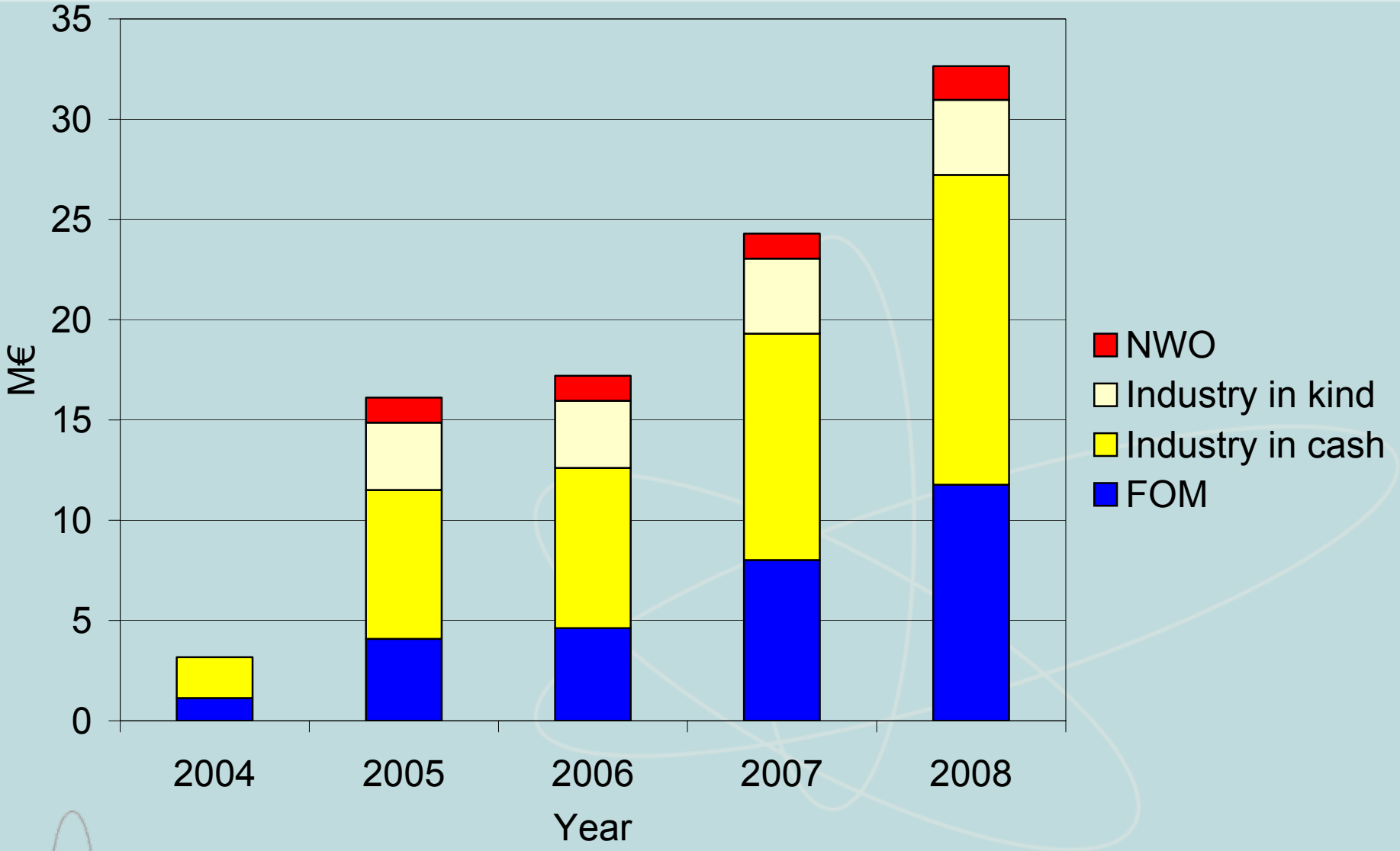
As a high-tech company you cannot permit yourself just to do things you know will succeed.
Dr. Frank de Jong
(Advanced Technology manager, FEI Company)

Current IPP's

Title	Industrial Partners	Budget
Microphotonic light sources	Philips	M€ 1.7
Joint Solar Programme	Shell	M€ 3.2
Extreme UV multilayer optics	Carl Zeiss	M€ 7.9
Metrology with frequency comb lasers	NMi, TNO, ASML	M€ 1.1
Fundamentals of heterogeneous bubbly flow	Shell, AkzoNobel, Corus, DSM	M€ 1.0
Microscopy and modification of nano-structures with focused electron and ion beams	FEI Electron Optics	M€ 2.7
Size dependent material properties	M2i (ASML, Corus, FEI, Fuji, Nedal, NLR, NXP, Philips, SKF, Stork, TNO, ...)	M€ 2.0
Innovative physics for oil and gas	Shell	M€ 3.0
Magnetocaloric materials not only for cooling	BASF	M€ 1.4
Bio(-related) materials	DPI, TIFN	M€ 5.0

Cumulative Commitments for IPP's



Conclusions and discussion

- The IPP-instrument is very successful: FOM-board recently decided to continue
- All IPP's are custom-made
- An IPP requires intensive support activities (e.g. a special IPP-department is needed)
- Important aspects to be considered:
  - VAT-position
  - EU-rules concerning state aid for research and development and innovation

Outlook

- More IPP's
- Model is copied by Technology Foundation STW
- Intensification of valorisation activities:
  - target Physics for Society/Physics for Physics: 50/50
  - increase cooperation with industry
  - stimulate entrepreneurship
  - promote cultural change
  - protect and capitalize knowledge

We would like to apply this model more often. Everyone is enthusiastic about it.

The FOM Bureau gives Shell access to the entire physics community in the Netherlands.

Dr. Alexander van der Made
(manager external research, Shell)