

# **Action Plan Process Intensification (APPI) – Starting the first part**

Information session for Call for Project Proposals

Jaarbeurs Utrecht, August 18, 2009

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## Introduction – the Taskforce APPI

- Hans de Wit – APPI Focal Point
- Arend de Groot (ECN)
- Jan Janssen (SenterNovem)
- John Stooker (Stooker Interim Management)
- Maarten de Vries / Jaron Weishut (Roland Berger)

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## Agenda

- 1. Review PI Roadmap and Action Plan PI – Hans de Wit**
- 2. Presentation of the 3 Program Lines – Arend de Groot**
- 3. Organization of APPI within DSTI – Maarten de Vries**
- 4. Call for Project Proposals – Maarten de Vries / John Stoker**

# The APPI program has reached the point where it can start the first part with total budget of EUR 14 m

## Background

### PAST

#### May 2008

Roadmap and Action Plan PI completed – total budget EUR 100 m

#### Summer 2008

First mention of "Institute for Sustainable Process Technology"

#### September 2008

Decision to launch first part (four program lines without overlap with DSTI activities)

### PRESENT

#### August 2009

Organizational set-up within DSTI concluded

EUR 7 m funding reserved by the government

### FUTURE

#### Early 2010

Anticipated start of program activities with total budget of EUR 14 m

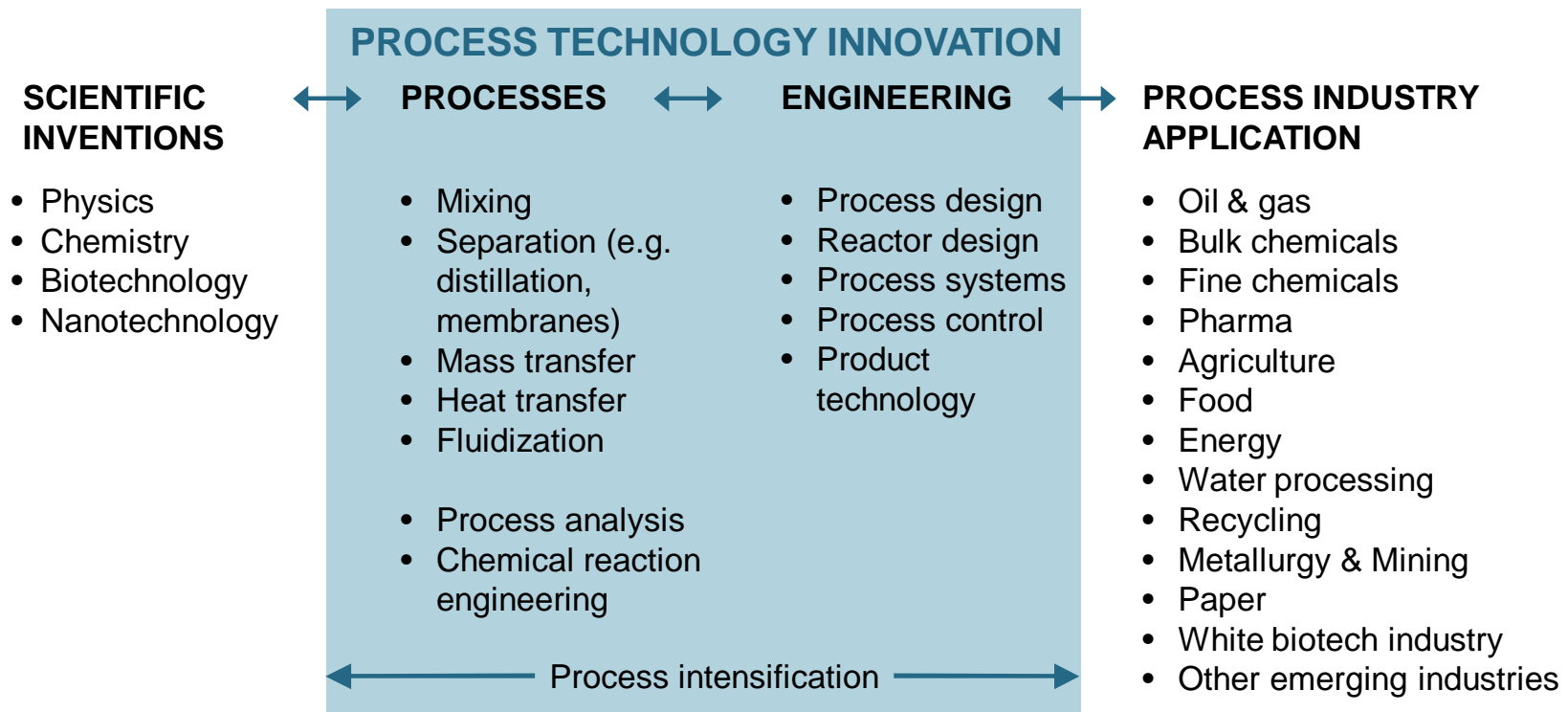


## **PI contributes to the aims of Energy Transition and Regiegroep Chemie for a sustainable and competitive process industry**

- Process Intensification (PI) provides radically innovative principles (“paradigm shift”) in process and equipment design which can benefit (often with more than a factor two) process and chain efficiency, capital and operating expenses, quality, wastes, process safety and more
- PI is a transition path of the Platform Chain Efficiency that aims to realize a 20% reduction in energy consumption by the process industry by 2050 through PI implementation alone
- PI is part of the Business Plan for Innovation of the Chemical Industry, presented by the “Regiegroep Chemie”, that aims to double the chemical sector's contribution to Dutch GDP in 10 years and halve the chemical sector's use of fossil raw materials within 25 years

# Process technology innovation is indispensable in bringing scientific inventions into application in the process industry

From scientific invention to application in the process industry



## The Action Plan PI is based on extensive preparation: gathering facts & figures, performing quick scans and developing the PI Roadmap

### Preparation for the Action Plan PI

- 1. Gathering Facts & Figures:** Collecting and evaluating data from experts and vendors on what is happening, from businesses on what is needed
- 2. Performing Quick Scans:** Helping industry identify PI opportunities in their processes, with a focus on SMEs
- 3. Developing the European Roadmap for PI<sup>1)</sup>:** Identifying potential of PI technologies, the barriers for implementation, designing development routes



1) PI Roadmap can be downloaded at: <http://dsti.nl/appi>

## Process Intensification can significantly benefit each industry sector

### Potential benefits from PI

	<b>Benefits from PI</b>	<b>Short/mid-term potential</b>	<b>Long-term potential</b>
<b>PETCHEM</b>	<ul style="list-style-type: none"> <li>• Overall higher energy efficiency</li> </ul>	5% (10-20 years)	20% (30-40 years)
<b>FINEPHARM</b>	<ul style="list-style-type: none"> <li>• Overall cost reduction from higher selectivity and process step integration</li> </ul>	20% (5-10 years)	50% (10-15 years)
<b>INFOOD</b>	<ul style="list-style-type: none"> <li>• Higher energy efficiency in water removal</li> <li>• Lower costs through PI along the value chain</li> </ul>	<p>5% (10-20 years)</p> <p>30% (10 years)</p>	<p>75% (10-15 years)</p> <p>60% (30-40 years)</p>
<b>CONFOOD</b>	<ul style="list-style-type: none"> <li>• Higher energy efficiency:                             <ul style="list-style-type: none"> <li>– In preservation process</li> <li>– Through capacity increase</li> <li>– Through batch to continuous</li> </ul> </li> </ul>	10-15% (10 years)	<p>30-40% (40 years)</p> <p>60% (40 years)</p> <p>30% (40 years)</p>

# Process technology specialists from both industry and academia have developed the PI Roadmap and Action Plan PI

Main contributors to the PI Roadmap and Action Plan PI

## Review Panel

Jacob Moulijn - ex TU Delft

Fons Meijs - ex DSM

Ben Stouthamer - ex Shell

## Sector team PETCHEM

Hans Feenstra	- Akzo Nobel
Peter Arnoldy	- Shell
Michiel Schenk	- Dow
Frits Hesselink	- Lyondell
Jacob Moulijn	- TU Delft
Peter Alderliesten	- ECN
Hans Veenenbos	- VNCI

## Sector team INFOOD

Marco Giuseppin	- Avebe
Jan Maarten de Bruin / Edwin Poiesz	- COSUN
Gabrie Meesters	- DSM
Andor Hendriks	- DMV International
Johan Sanders	- WUR

## Sector team FINEPHARM

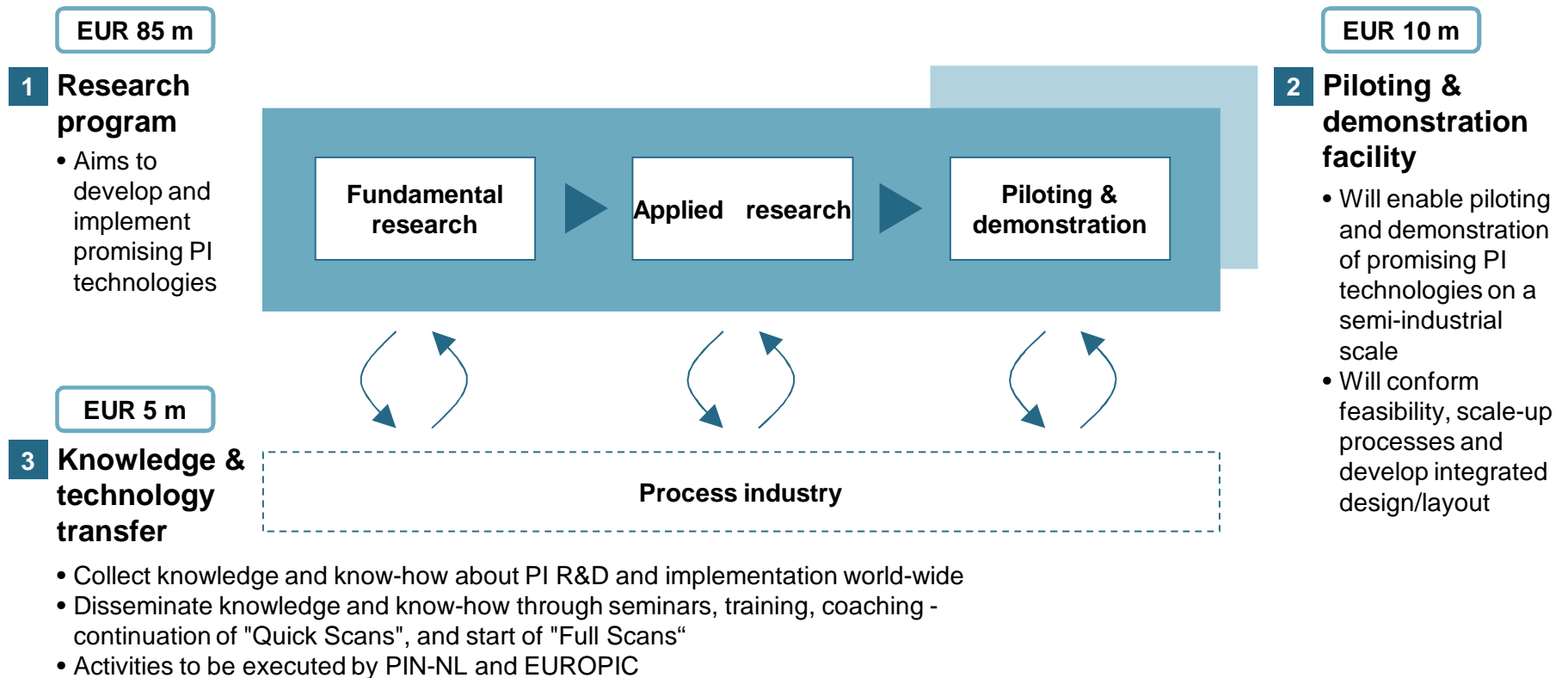
Raf Reintjes	- DSM
Frans Kaspersen	- Organon
Gert Lagerweij	- Solvay
Arij van Berkel	- TNO
Jaap Schouten / John van der Schaaf	- TUE

## Sector team CONFOOD

Ardjan Krijgsman	- Unilever
Ruud Verdurmen	- Numico
Tom van Hengstum / Albert van der Padt	- FrieslandFoods
Caroline van der Horst / Peter de Jong	- NIZO

# The Action Plan PI will consist of a research program, a piloting & demonstration facility and knowledge & technology transfer

Activities of the Action Plan PI <sup>1)</sup>



Total funding required for 5 year Action Plan

1) Overhead has been allocated to the research program for simplification

# The research program is organized into 11 program lines – PI thrust areas, PI enabling technologies and PI special themes

Program lines

**PI THRUST AREAS**

- 1. Alternative energy- based operations
- 2. Membrane-based hybrid separation or chemical conversion
- 3. Integration of separation and chemical conversion (non-membrane based)
- 4. Transport-limited processes
- 5. Preservation
- 6. Energy efficient separations (incl. water)

**PI ENABLING TECHNOLOGIES**

	7. PI process analysis tools	8. PI process modeling & control	9. PI manufacturing tech. & piloting
1. Alternative energy- based operations			
2. Membrane-based hybrid separation or chemical conversion			
3. Integration of separation and chemical conversion (non-membrane based)			
4. Transport-limited processes			
5. Preservation			
6. Energy efficient separations (incl. water)			

<b>PI SPECIAL THEMES</b>	
10. Open theme	11. Skyline theme

# First part of the research program will be started with program lines 1, 4, 7 and 11, with a total funding of 14 m EUR

Program lines

**PI ENABLING TECHNOLOGIES**

**PI THRUST AREAS**

7. PI process analysis tools

8. PI process modeling & control

9. PI manufacturing tech. & piloting

1. Alternative energy- based operations			EUR 4 m	
2. Membrane-based hybrid separation or chemical conversion				
3. Integration of separation and chemical conversion (non-membrane based)				
4. Transport-limited processes			EUR 6.5 m	
5. Preservation				
6. Energy efficient separations (incl. water)	EUR 3 m			

**PI SPECIAL THEMES**

10. Open theme

11. Skyline theme

EUR 0.5 m

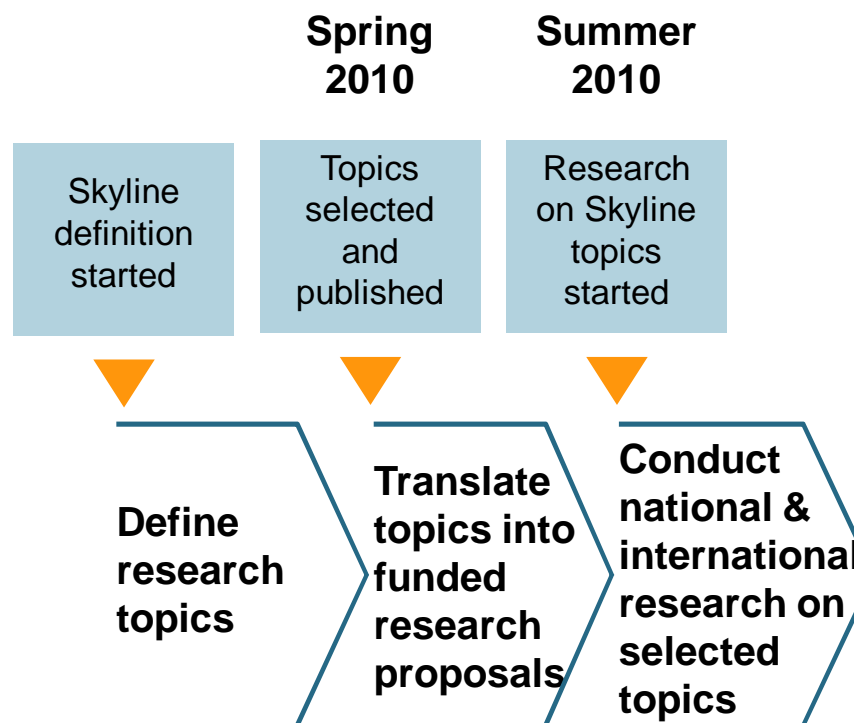
# The Skyline theme is not open for project proposals – it creates a vision of process technology in 2050 to give direction to research

Program line 11 – Skyline theme

## Objectives and characteristics

- The Skyline Theme will **inspire a vision of new developments in process technology** that can be translated into scientific projects.
- The process will include the **analysis of developments in disciplines outside chemical and process engineering** – e.g. applied physics, electronics, (bio)chemistry and nanotechnology – and the **identification of areas where interdisciplinary collaboration will be beneficial** to the development of intensified processes.

## High-level timetable



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## Alternative energy-based operations

### Problem statement

- Alternative energy based operations must achieve the following prerequisites for successful implementation:
  - Provide evidence for advantages claimed in terms of technical and economical feasibility
  - Determine the range of application where advantages can meet potential
  - Develop equipment and methods meeting industrial standards (e.g. robustness, scale, economy)




## **Promising technologies that could reach industrial demonstration in <5 years will be targeted, others will be actively monitored**

### Approach

- Range of technological maturity, uniform approach cannot be adopted for all alternative energy technologies
- Status of the different alternative energy technologies could be determined within program
- Target technologies which could reach industrial demonstration (i.e. pilot) in the near future (<5 years)
- Other technologies that can not reach industrial demonstration in the near future could be actively monitored

# In 5 years we will have drawn conceptual pilot designs for three promising technologies and have demonstrate one of them

Milestones and deliverables (example project)

Activity	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Fundamental research</b>					
<b>Applied research</b>					
<b>Piloting &amp; demonstration</b>					

Milestone	Deliverable
A	Position paper on status of pre-selected alternative energy-based technologies
B	Updated position paper on status of all alternative energy-based technologies

Milestone	Deliverable
C	Conceptual design for a demonstration pilot for the three most promising technologies
D	Demonstration of one technology in an industrial pilot (in cooperation with equipment supplier)

## Mass and Heat transfer limits versus ideal reaction conditions

### Problem statement

#### **Fine chemicals and pharmaceutical :**

- Batch processes dominate (small volume products, many synthesis steps, development time)
- PI should lead to reduced development time, production cost, improve yields and safety but maintain flexibility
- Multipurpose production facility (controlled residence time distribution)

#### **Petrochemical industry**

- Optimum conditions will create narrow deviations in temperature and mass rates ranges
- Need for full temperature control to enhance safety, efficiency and selectivity and should lead to lower Capex, running cost, energy costs and less fouling and longer catalyst life
- Controlled mass transfer will yield better product quality, reduced Capex, more stable process i.e. safer operation

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## Structured- and micro-reactors demonstrated within 5 years

### Approach

- Develop structured reactors including micro reactors
- Catalyst selection, operating window
- Evaluate different reactor concepts (e.g. pipe, multi-tube and loop reactors)
- Design of multi dispersion/ injection systems
- Assess use unconventional means to improve mass and heat transfer
- Design and construct mini plants

# In 5 years we will have demonstrated one or two technologies in an industrial pilot

Milestones and deliverables (example project)

Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Fundamental research					
Applied research					
Piloting & demonstration					

Milestone	Deliverable
A	Position paper on selection of 3-5 promising devices
B	Development of 3-5 promising candidates towards industrial demonstration, with selection of one or two most promising in three years
C	Conceptual design of demonstration pilot for the most promising technologies

Milestone	Deliverable
D	Demonstration of one or two technologies in an industrial pilot (in cooperation with equipment suppliers)
E	Updated position paper on status of all structured devices

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## **Optimal design and operation of processes requires sensory systems that are faster, more accurate and robust**

Problem statement

**Many production processes in the process industry operate sub-optimally**

- Decreased capacity utilization (10-20%)
- End-product outside of specifications (10-20%)
- Costs 1-2% of total turnover (EUR 100-200 m per year in Dutch dairy industry)

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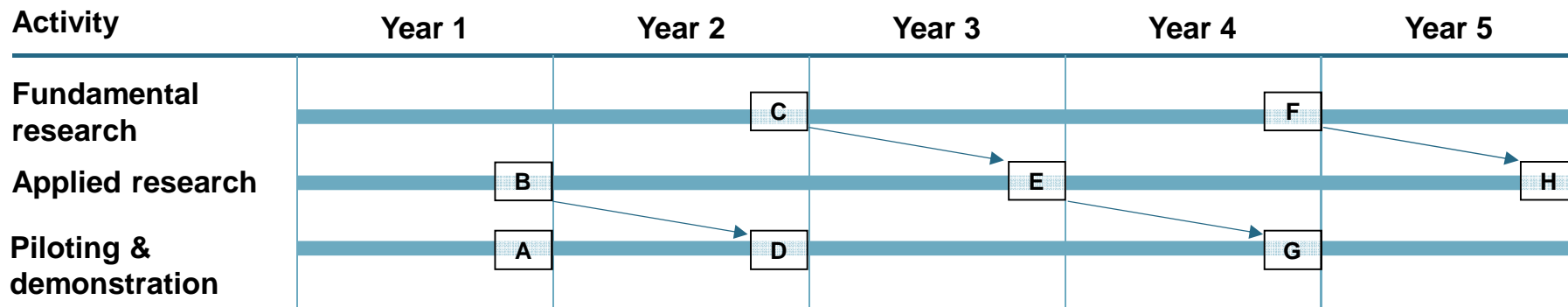
## **Industrial development and application of new sensor technologies and fundamental research of new sensor concepts**

### Approach

- Spectroscopic techniques seem promising
- Academic institutes develop fundamental knowledge in close cooperation with sensor manufacturing companies to ensure the valorization
- Development of sensors in functionality and performance, integration of extra novel functions to increase functionality for specific applications
- Development of prototype after proof-of-concept of new sensor technique, testing on 'real' reactions and systems under industrial conditions ultimately leading to piloting of the prototype

# In 5 years we will have demonstrated several new sensor technologies

Milestones and deliverables (example project)



Milestone	Deliverable
A	Evaluation of currently available sensory systems with or without improved sensory capacity
B	Industrial pilot sensor available based on currently available new sensory system
C	<b>First</b> new sensory system from fundamental research
D	Evaluation of existing pilot sensor system (milestone B)

Milestone	Deliverable
E	<b>First</b> new industrial pilot sensor available (based on deliverable C)
F	<b>Second</b> new sensory system from fundamental research
G	Evaluation of <b>first</b> new pilot sensor system (milestone E)
H	<b>Second</b> new industrial pilot sensor available (based on deliverable F)

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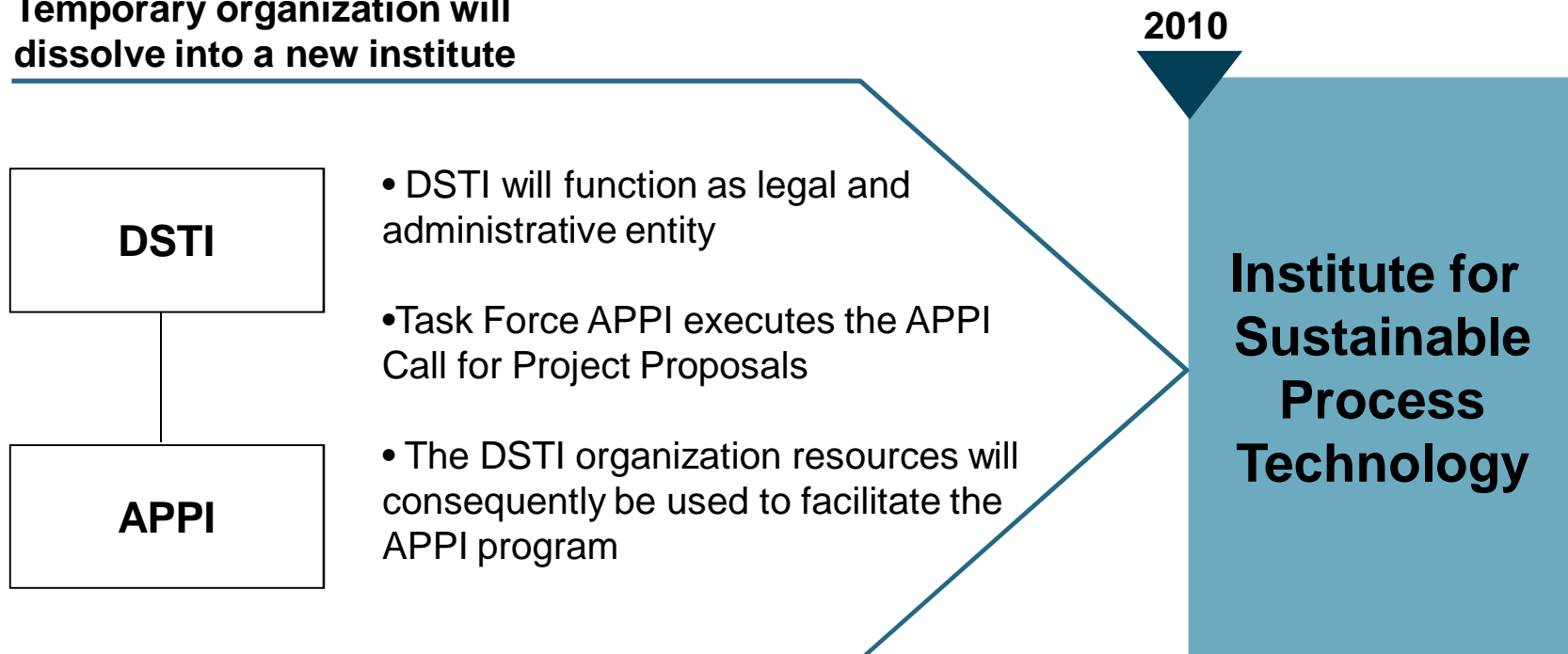
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# The Action Plan PI will become part of the DSTI organization, and both will dissolve into a new institute

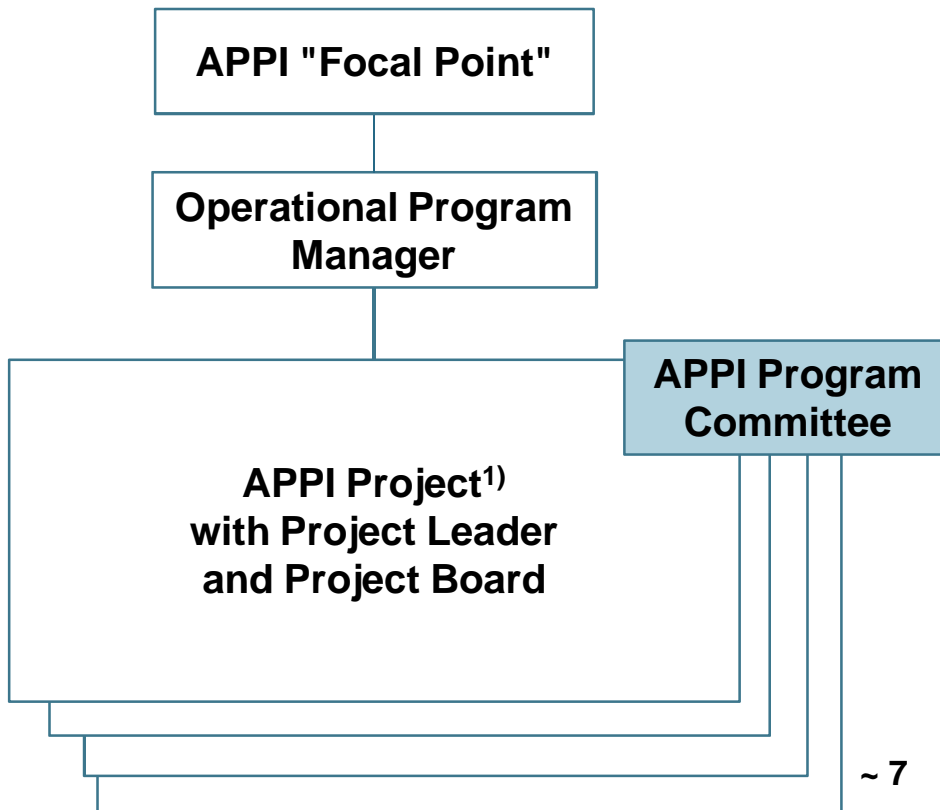
Temporary organization of the Action Plan PI

**Temporary organization will dissolve into a new institute**



# APPI will have a lean program organization

APPI program organization



## Main roles and tasks

- Leads the APPI program
- Member of DSTI Executive Committee

- Facilitates project reporting

- For information exchange between APPI Project Leaders, 6 monthly

- Project Leader manages the project
- Project Board consist of project consortium members, reviews and steers project

1) Each project is treated as an "Industrial Sector" within DSTI

## **The intellectual property policies of DSTI will apply – project consortia have possibility to develop own IP arrangement**

### Intellectual property

- Projects will need to comply with DSTI's policies related to knowledge transfer and intellectual property rights
- Each project within APPI will be treated as an independent industrial sector according to DSTI's policies
- Project consortia may choose to deviate from these policies – as long as they adhere to (European) regulation, and obtain approval from the Ministry of Economic Affairs

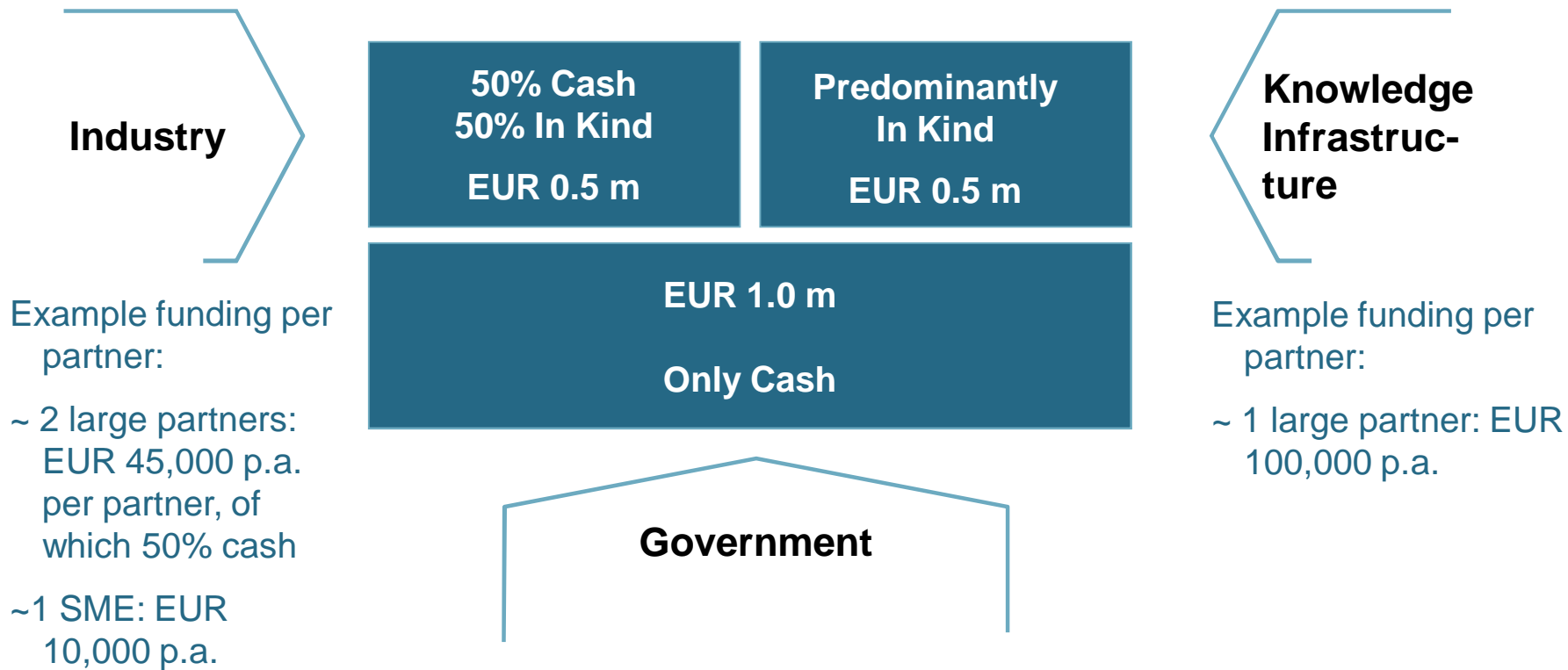
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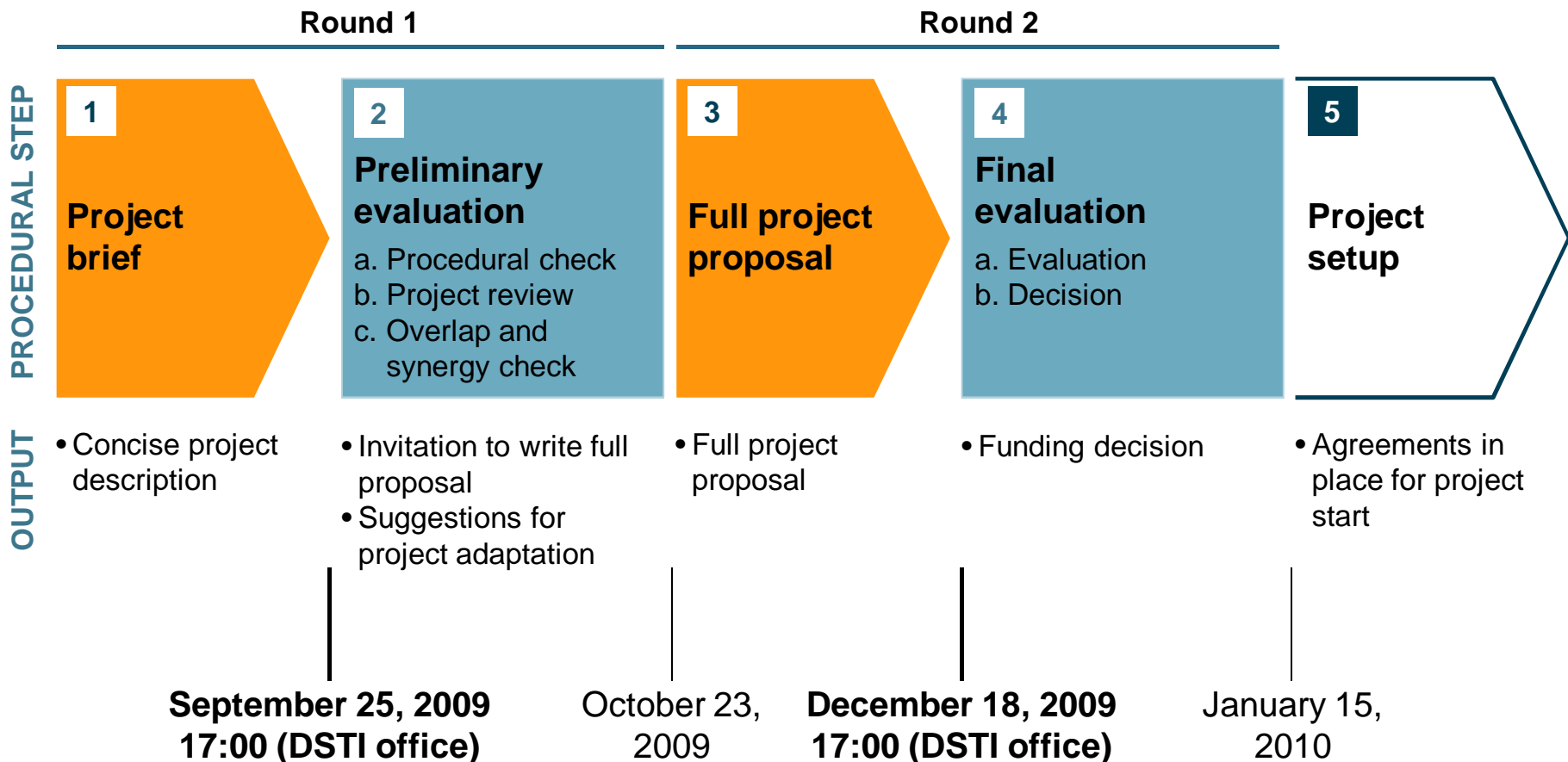
# APPI's first phase will include roughly seven projects of EUR 2 m – funded by industry, knowledge infrastructure and government

Indicative total funding of a project



# The application procedure consists of a two-tiered evaluation

## Application procedure overview



**Besides having a direct fit with one of the open program lines, each project must meet a set of eligibility criteria**

Eligibility criteria

<b>Criteria</b>	<b>Details</b>
<b>Partnership</b>	<ul style="list-style-type: none"> <li>• Minimum three different partners                             <ul style="list-style-type: none"> <li>– At least one knowledge infrastructure partner</li> <li>– At least one industrial partner that conducts R&amp;D and/or manufacturing in the Netherlands</li> </ul> </li> <li>• Letters of Intent must be available</li> </ul>
<b>International partners</b>	<ul style="list-style-type: none"> <li>• Foreign (non-Dutch) partners may participate at their own expense</li> <li>• Contributions are eligible for APPI funding if shown to be essential for the project</li> </ul>
<b>Financial contributions</b>	<ul style="list-style-type: none"> <li>• Ratio of contributions of industry:knowledge infrastructure should be 1:1 (cash plus in-kind)</li> <li>• Total subsidy request cannot be more than 50% of the total project funding</li> </ul>
<b>Critical mass</b>	<ul style="list-style-type: none"> <li>• Projects need to be at least EUR 2 m in size, over a period of five years</li> </ul>

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## The project review is in the hands of an evaluation committee that consists of acclaimed experts in the field of process technology

Evaluation Committee (to be confirmed)

### Evaluation Committee characteristics

- Independent members
- Diverse backgrounds (academics and industry)
- The evaluation committee prepares advice for DSTI's Executive Committee, who will make final decisions

### Members

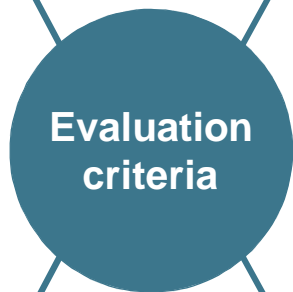
- Prof.dr.ir. W.P.M. van Swaaij (ex UTwente)
- Prof.dr.J.A. Moulijn (ex TUDelft)
- Ir. H.N. Akse (Traxxys)
- Dr. H. Schoenmakers (ex BASF)
- One member from AkzoNobel
- One member from DSM

# All proposals must score at least "good" on scientific quality and deployment potential

Evaluation criteria

## SCIENTIFIC QUALITY

- **Innovativeness**
- **Research method** of indisputable scientific nature
- **Coherence** within the project and with respect to other (research) projects
- **Scientific excellence** of the knowledge infrastructure consortium partners



## DEPLOYMENT POTENTIAL

- **R&D value chain planning** from fundamental research (if necessary) to piloting/ demonstration of the novel PI technology
- **Prospective commercial valorization** (e.g. through IP or cost savings)
- **Involvement of equipment supplier(s)**
- **Entrepreneurial track records** of consortium partners

## PROJECT EVALUATION SCALE

Excellent (5)	Very good	Good (3)	Below average	Poor (1)
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- Projects need to score 3 on each criteria
- Minimum total of 28 (3.5 average)

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## The APPI will follow the financial model already in use at DSTI

Financial model

### **APPI adopted DSTI financial model**

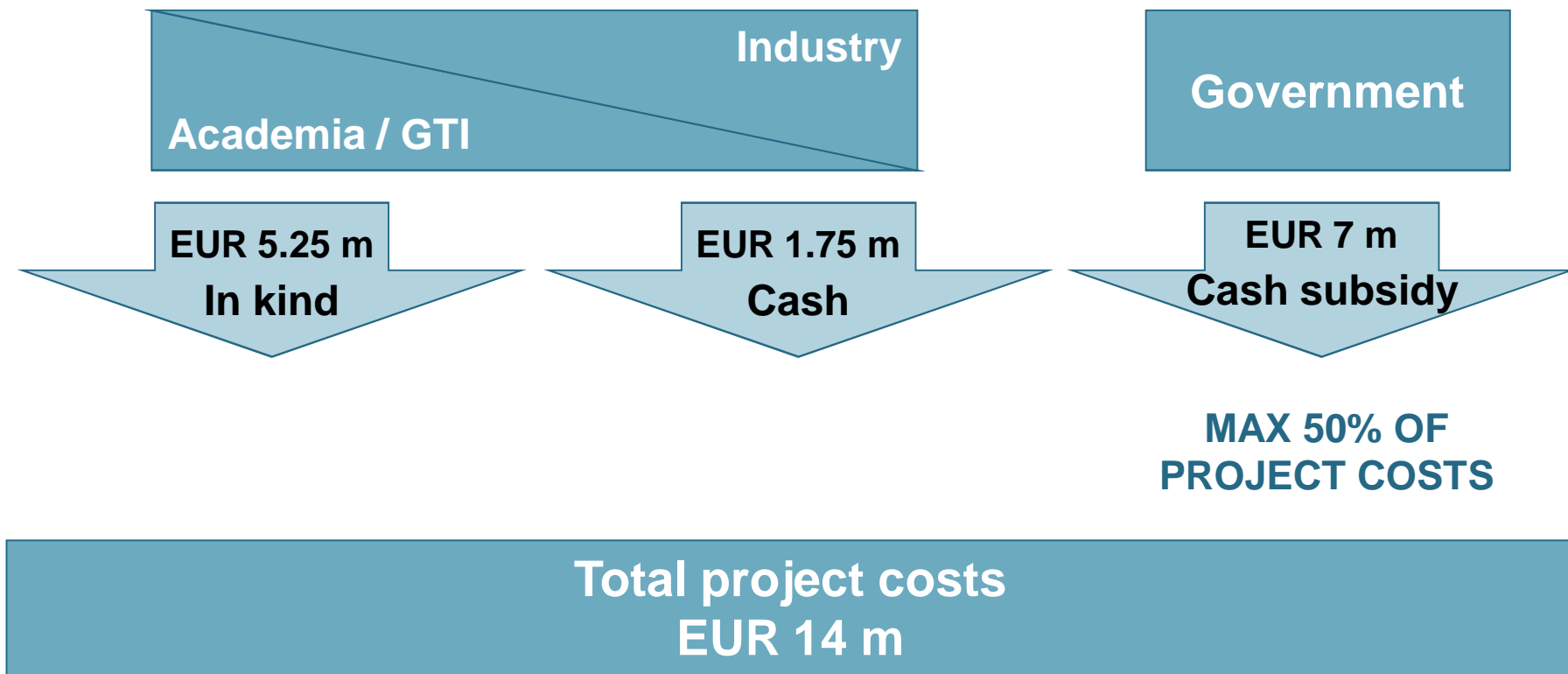
- Partners pay contribution to APPI (Cash and in kind)
- APPI reimburses the integral research cost to partners (Calculation terms)

### **APPI Internal budget restrictions**

- 92% project cost
  - Mainly hiring from partners (Industry, Academia, GTI)
- 8% communication, ICT, office, management

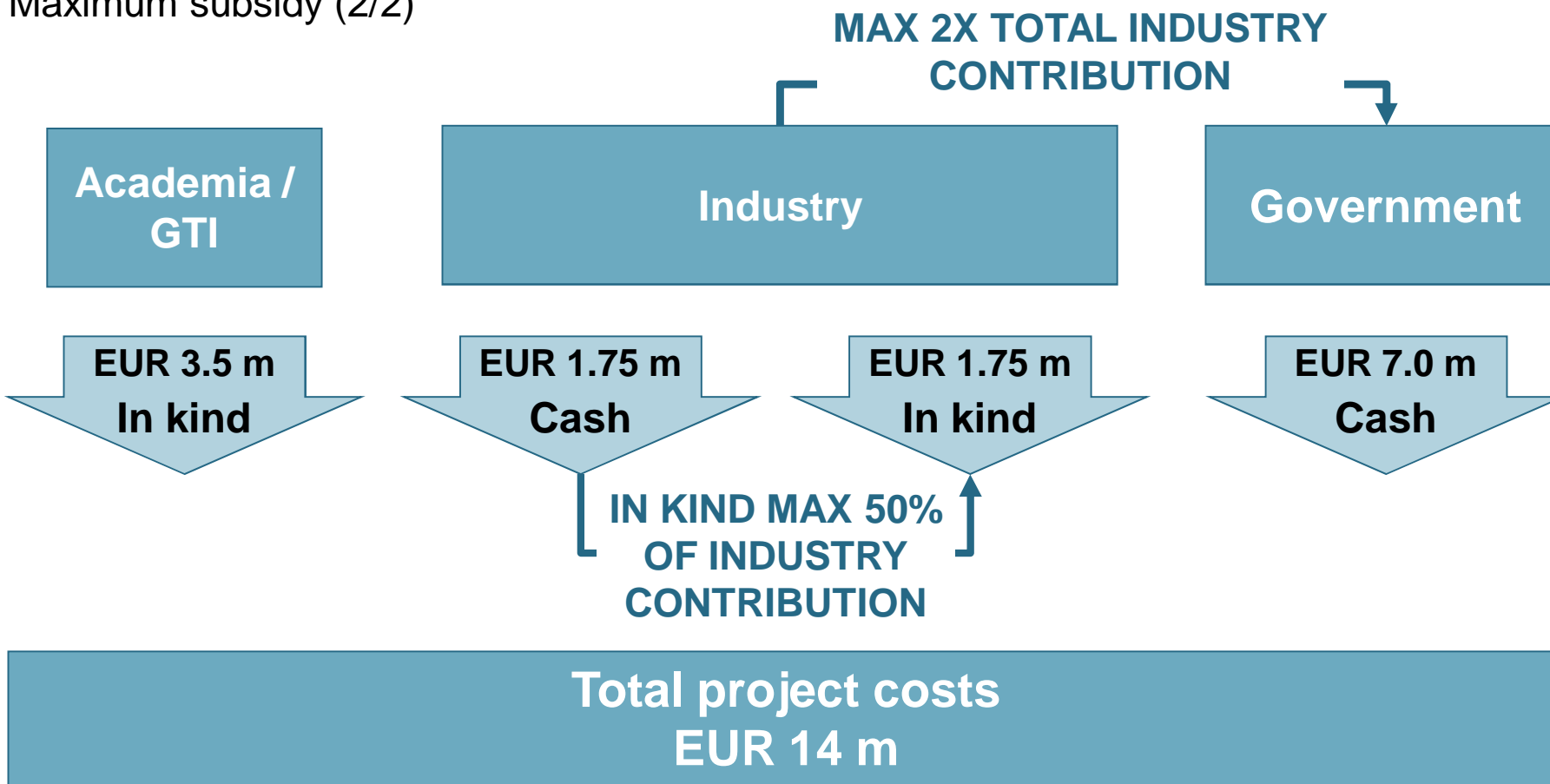
## Subsidies will cover up to 50% of the project budget

Maximum subsidy (1/2)



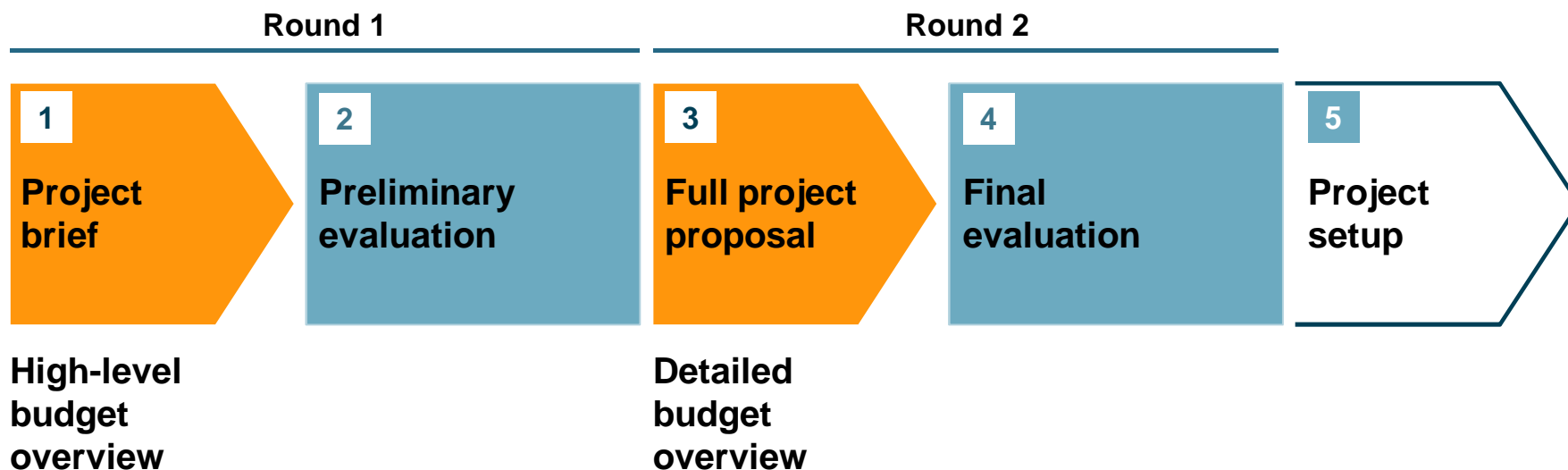
# Subsidies will cover not more than twice industrial contributions, and in-kind industry contributions are capped at 50%

Maximum subsidy (2/2)



# Project proposals require a high-level budget overview in the first round and detailed budgets in round 2 – templates will be available

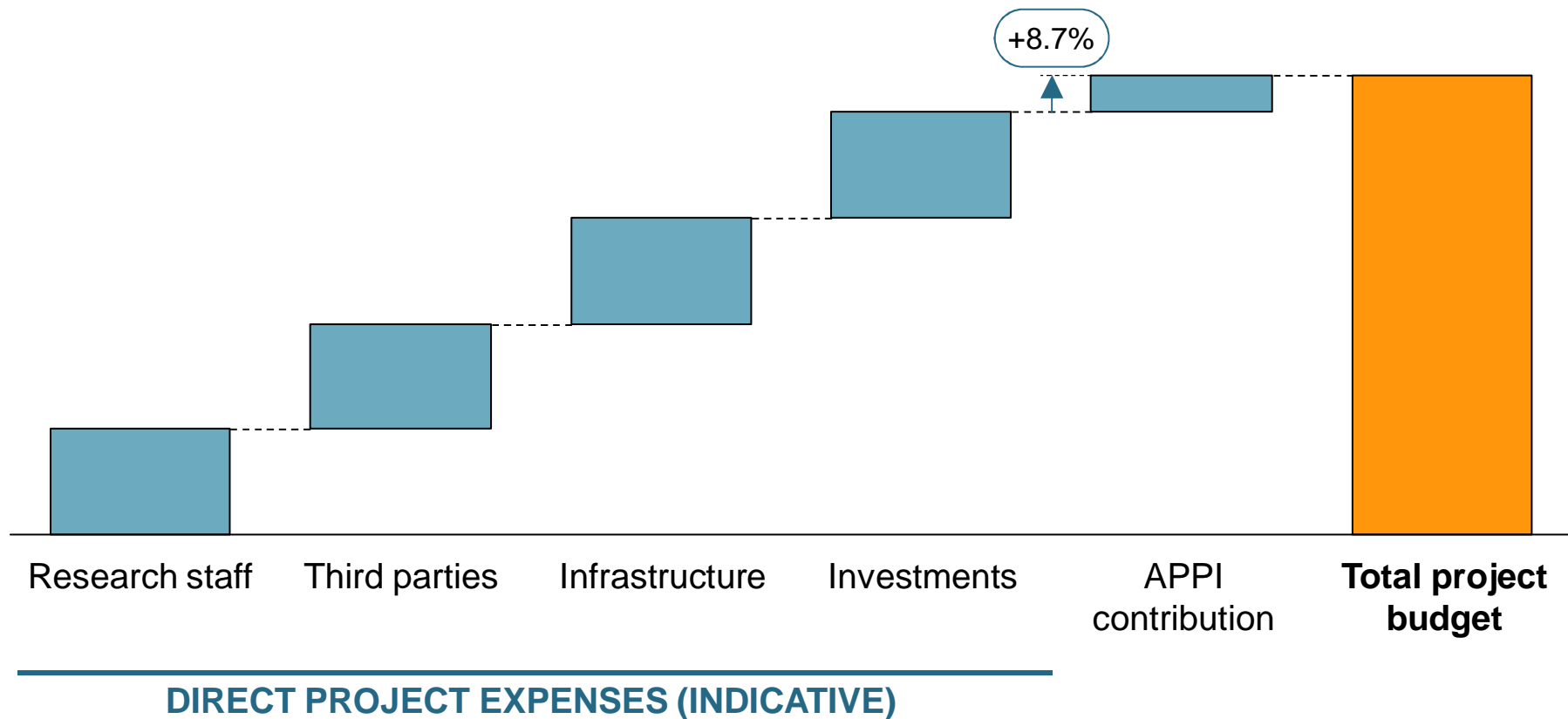
Budget overviews



- Compulsory templates (Excel) will facilitate calculation of project cost and funding
- 1 template for each project proposal to be filled out by each project coordinator

## Project expenditure includes several cost components each with their own rules for calculations

Calculation overview (indicative)



## The calculation method for expenses on research staff depends on the type of employer and the type of contract

Research staff

### INDUSTRIAL PARTNERS AND PARTNERS FROM UNIVERSITIES

- Permanent staff: wage cost increased with a 50% mark-up
- Temporary staff: wage costs increased with bench fee (EUR 25,000 from 2011)
- All staff should be accounted for as far as they are directly involved in the project
- Supervision and support are covered by the mark-up / bench fee

	Temporary staff	Permanent staff
Wage costs	Yes	Yes
50% markup on wage costs	No	Yes
Bench fee	Yes	No

### TECHNOLOGICAL INSTITUTES (GTIs)

- GTIs use full cost tariff ("integrale kostprijs")
- 50% in kind contribution

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## Material costs and expenses at third parties can be accounted for without additional mark-ups

Third parties

- **Full cost of 3rd parties should be accounted for in the budget**
  - Market price, but no additional internal mark-ups
- **Notice the difference between Partners and 3rd parties**
  - Partner: every organization with a Partner contract with APPI
  - Financial implication: partners should use tariffs without gross margins

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## **Use of existing equipment at the partner sites that is not considered "standard" will be reimbursed at internal rates**

### Infrastructure

- **Usage of infrastructure / equipment already available at the partner sites**
  - On top of the bench fee in de personnel tariffs
  - Only if not “standard” available in a normal lab
- **Partners can use their internal tariffs**
  - Tariffs should internally be used in the partner organization on a regular basis
  - Sound economical calculation method
  - (Government) Accountants will audit these tariffs

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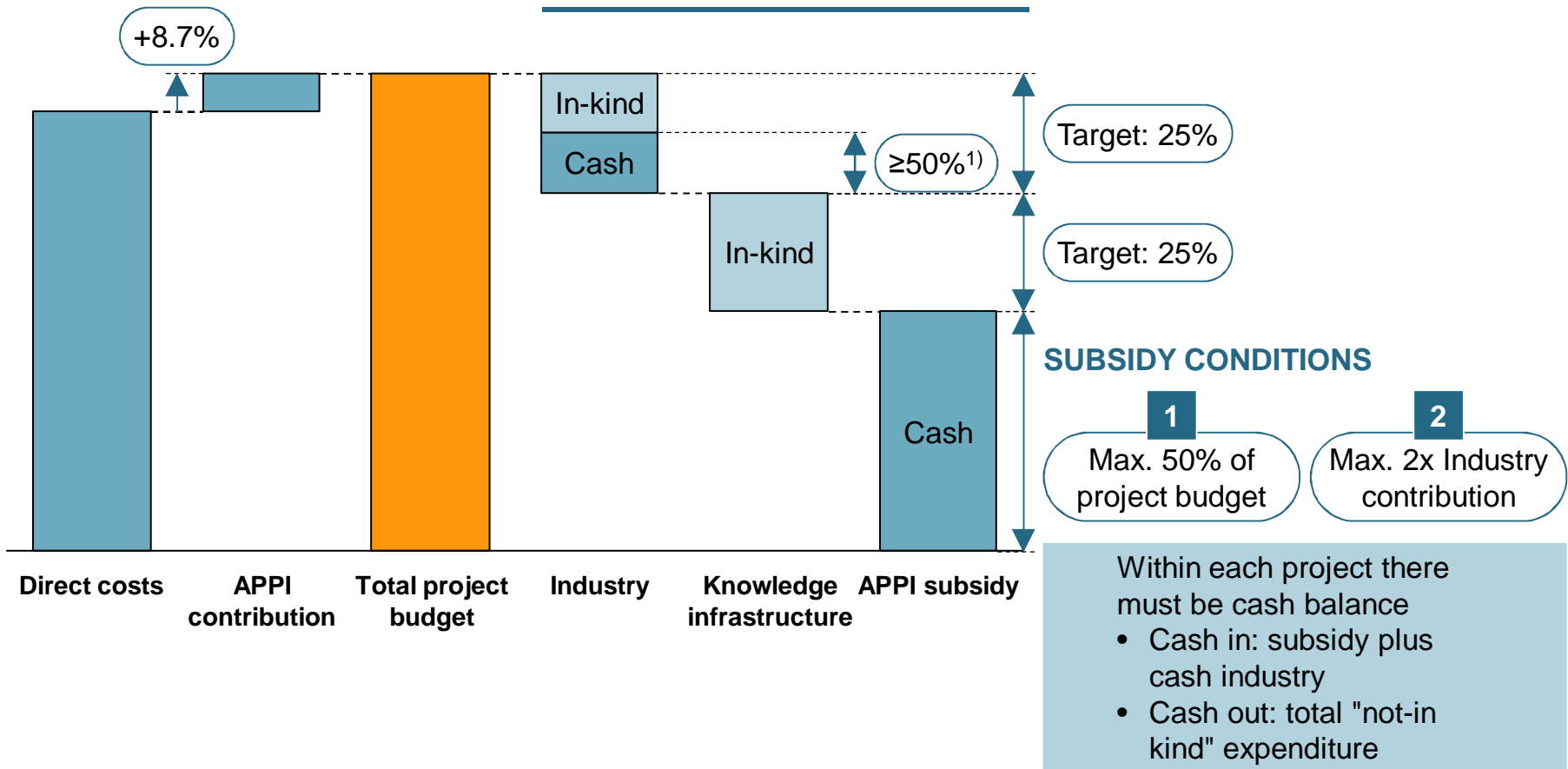
## **Investments into new equipment will be an integral part of the project budget and will thus be subsidized**

### Investments

- Partners purchase the equipment to be installed within the existing infrastructure
- Investments form an integral part of the project budget and are subsidized by 50% (full amount year of investment)
- Equipment financed by APPI is available ("free of charge") for usage by all partners in the project (consortium)

# Subsidies will cover up to 50% of the project budget, and not more than twice industrial contributions – cash balance is required

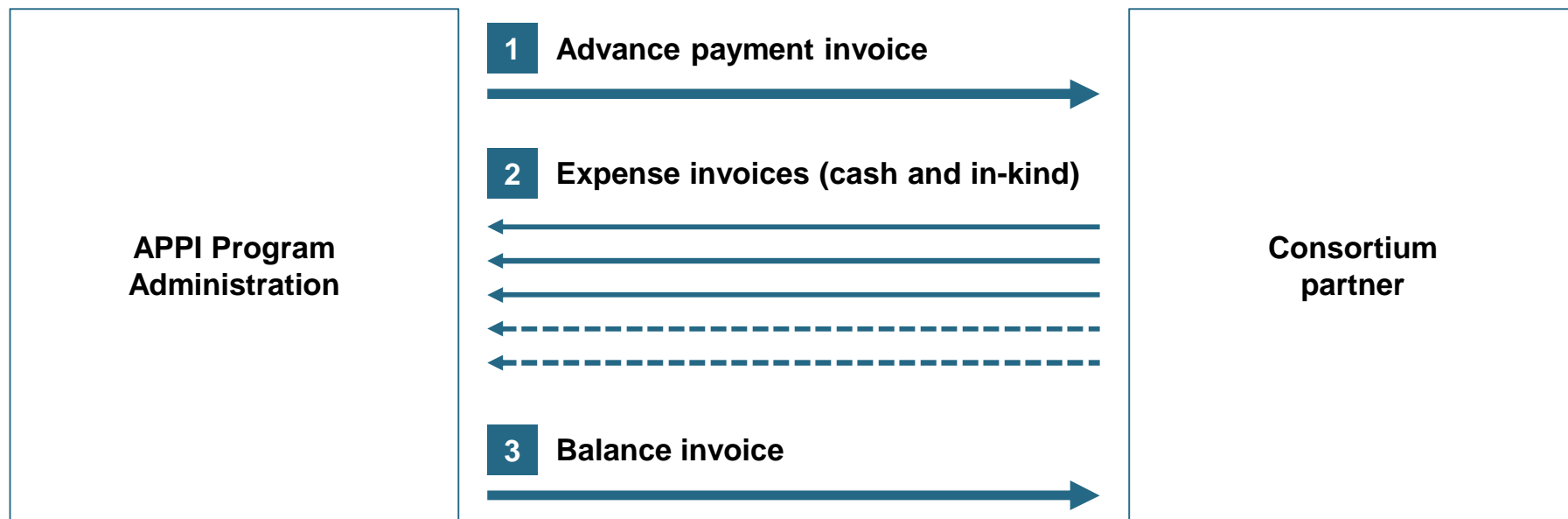
## Funding details



1) Small and medium enterprises (SMEs or "MKB" in Dutch) may have a higher in-kind contribution

## Invoices from and to APPI are set off against each other to minimize administrative burden

### Invoicing and VAT



### APPI/DSTI acts like "a company" regarding VAT

- Partners invoice project expenses to APPI including VAT (as required by law)
- VAT is reimbursed from tax authorities
- Therefore project budget should be calculated excluding VAT

# Use the Excel template to calculate and present project budgets – start by filling out project details

GENERAL INFORMATION			
<b>Project title</b>	Sample Project 1		
<b>Project acronym</b>	Sample		
<b>Project duration</b>	Expected start date	1-1-2010	
	Expected end date	31-12-2014	
<b>Project coordinator<sup>(1)</sup></b>	Name	Mr. Sample	
	Organization	Organization	
	Business unit/department		
	Street & number		
	Postcode		
	City		
	Country		
	Telephone		
	Fax		
E-mail			
<b>Industrial partners</b>	<b>Partner</b>	<b>Country</b>	<b>Contact person</b>
	1 Large industrial partner		
	2 Small industrial partner (SME)		
	3		
	4		
<b>Academic partners</b>	<b>Partner</b>	<b>Country</b>	<b>Contact person</b>
	5 University 1		
	6		
	7		
	8		
<b>GTI partners</b>	<b>Partner</b>	<b>Country</b>	<b>Contact person</b>
	9 GTI 1		
	10		

## Detail the FTEs per partner and per type of contract (permanent or temporary)

**RESEARCHERS** *Project: Sample*  
*All amounts in [EUR '000]*

Industrial partner	Permanent employees					Temporary employees					Totals		
	Total FTE <sup>(1)</sup>	Of which in-kind contribution	Avg. annual wage rate <sup>(2)</sup>	Total wages	50% mark up	Total FTE <sup>(1)</sup>	Of which in-kind contribution	Avg. annual wage rate <sup>(2)</sup>	Total wages	Bench fee <sup>(3)</sup>	Total FTEs	Total costs	Of which contributed in-kind
Large industrial partner	2.0	1.0	70.0	140	70				0	0	2.0	210	105
Small industrial partner (SME)	1.0	1.0	60.0	60	30				0	0	1.0	90	90
				0	0				0	0	0.0	0	0
				0	0				0	0	0.0	0	0
<b>Subtotal</b>	<b>3.0</b>	<b>2.0</b>		<b>200</b>	<b>100</b>	<b>0.0</b>	<b>0.0</b>		<b>0</b>	<b>0</b>	<b>3.0</b>	<b>300</b>	<b>195</b>

Academic partner	Permanent employees					Temporary employees					Totals		
	Total FTE <sup>(1)</sup>	Of which in-kind contribution	Avg. annual wage rate <sup>(2)</sup>	Total wages	50% mark up	Total FTE <sup>(1)</sup>	Of which in-kind contribution	Avg. annual wage rate <sup>(2)</sup>	Total wages	Bench fee <sup>(3)</sup>	Total FTEs	Total costs	Of which contributed in-kind
University 1	6.0	2.5	50.0	300	150	2.0	1.5	50.0	100	50	8.0	600	300
				0	0				0	0	0.0	0	0
				0	0				0	0	0.0	0	0
				0	0				0	0	0.0	0	0
<b>Subtotal</b>	<b>6.0</b>	<b>2.5</b>		<b>300</b>	<b>150</b>	<b>2.0</b>	<b>1.5</b>		<b>100</b>	<b>50</b>	<b>8.0</b>	<b>600</b>	<b>300</b>

GTI partner	Permanent and temporary employees				Totals		
	Total FTE <sup>(1)</sup>	Of which in-kind contribution <sup>(4)</sup>	Avg. annual integrated fee	Total fees	Total FTEs	Total costs	Of which contributed in-kind
GTI 1	4.0	2.0	100.0	400	4.0	400	200
		0.0		0	0.0	0	0
<b>Subtotal</b>	<b>4.0</b>	<b>2.0</b>		<b>400</b>	<b>4.0</b>	<b>400</b>	<b>200</b>

Total	13.0	6.5		900	250	2.0	1.5		100	50	15.0	1,300	695
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**Note:** record 1 full-time employee for four years as 4 FTE

## Expenses to third parties and use of infrastructure is recorded on dedicated tabs

EXPENSES TO THIRD PARTIES (including materials)			Project: Sample	
All amounts in [EUR '000]				
Description of expenses <sup>(1)</sup>	Partner	Total costs	Of which contributed in-kind	
Materials	Small industrial partner (SME)		40	
Third party services	GTI 1		20	

USE OF PARTNER'S INFRASTRUCTURE			Project: Sample	
All amounts in [EUR '000]				
Description of infrastructure <sup>(1)</sup>	Partner	Total costs	Of which contributed in-kind	
Use of equipment XXX	Large industrial partner		200	68
Use of equipment YYY	Small industrial partner (SME)		100	
<b>Total</b>			<b>300</b>	<b>68</b>



## The template will present an overview of total project costs, including the compulsory 8.7% APPI contribution

PROJECT COST OVERVIEW					Project: Sample	
All amounts in [EUR '000]						
	Expenses				Total	
	Researchers	Third parties	Infrastructure	Investment		
<b>Industrial partner</b>						
Large industrial partner		210		200	<b>410</b>	
Small industrial partner (SME)		90	40	100	<b>230</b>	
<b>Subtotal</b>		<b>300</b>	<b>40</b>	<b>300</b>	<b>0</b>	<b>640</b>
<b>Academic partner</b>						
University 1		600			300	<b>900</b>
<b>Subtotal</b>		<b>600</b>	<b>0</b>	<b>0</b>	<b>300</b>	<b>900</b>
<b>GTI partner</b>						
GTI 1		400	20			<b>420</b>
<b>Subtotal</b>		<b>400</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>420</b>
<b>Total direct costs</b>		<b>1,300</b>	<b>60</b>	<b>300</b>	<b>300</b>	<b>1,960</b>
Contribution to APPI (8.7%)						<b>170</b>
<b>Total project cost</b>						<b>2,130</b>
Expected subsidy (50% of total project cost, if industry matches at least 25% of project costs)					1,065	

## Industrial cash contributions need to be specified – indicators will signal whether funding adheres to budgeting and subsidy rules

FUNDING							Project: Sample			
All amounts in [EUR '000]										
	In-kind contributions				Total in-kind	Cash contributions		Total contributions		% of project
	Researchers	Third parties	Infrastructure	Investment		Total cash		Total		
<b>Subsidy (50% of total project costs, but not more than 2x industrial contribution)</b>						<b>1,065</b>	<b>100%</b>	<b>1,065</b>	<b>50%</b>	
<b>Industrial partner</b>						<i>Compulsory</i>				
Large industrial partner	105	0	68	0	<b>173</b>	250	59%	423	20%	
Small industrial partner (SME)	90	0	0	0	<b>90</b>	20	18%	110	5%	
	0	0	0	0	<b>0</b>					
	0	0	0	0	<b>0</b>					
<b>Subtotal</b>	<b>195</b>	<b>0</b>	<b>68</b>	<b>0</b>	<b>263</b>	<b>270</b>	<b>51%</b>	<b>533</b>	<b>25%</b>	
<b>Academic partner</b>						<i>Optional</i>				
University 1	300	0	0	32	<b>332</b>		0%	332	16%	
	0	0	0	0	<b>0</b>					
	0	0	0	0	<b>0</b>					
	0	0	0	0	<b>0</b>					
<b>Subtotal</b>	<b>300</b>	<b>0</b>	<b>0</b>	<b>32</b>	<b>332</b>	<b>0</b>	<b>0%</b>	<b>332</b>	<b>16%</b>	
<b>GTI partner</b>						<i>Optional</i>				
GTI 1	200	0	0	0	<b>200</b>		0%	200	9%	
	0	0	0	0	<b>0</b>					
<b>Subtotal</b>	<b>200</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>200</b>	<b>0</b>	<b>0%</b>	<b>200</b>	<b>9%</b>	
<b>Total funding from consortium partner</b>	<b>695</b>	<b>0</b>	<b>68</b>	<b>32</b>	<b>795</b>	<b>270</b>	<b>25%</b>	<b>1,065</b>	<b>50%</b>	
<b>Total funding</b>	<b>695</b>	<b>0</b>	<b>68</b>	<b>32</b>	<b>795</b>	<b>1,335</b>	<b>63%</b>	<b>2,130</b>	<b>100%</b>	

## The template will check if the project achieves cash balance

<b>CASH BALANCE</b>					<i>Project: Sample</i>
<i>All amounts in [EUR '000]</i>					
	<b>Expenses</b>	<b>In-kind contributions</b>	<b>Cash out (reimbursements)</b>	<b>Cash in</b>	
			<small>Expenses minus in-kind contributions</small>	<small>Cash contributions plus subsidy</small>	
<b>Subsidy</b>					<b>1,065</b>
<b>Industrial partner</b>					
Large industrial partner	410	173	237		250
Small industrial partner (SME)	230	90	140		20
	0	0	0		0
	0	0	0		0
<b>Subtotal</b>	<b>640</b>	<b>263</b>	<b>377</b>		<b>270</b>
<b>Academic partner</b>					
University 1	900	332	568		0
	0	0	0		0
	0	0	0		0
	0	0	0		0
<b>Subtotal</b>	<b>900</b>	<b>332</b>	<b>568</b>		<b>0</b>
<b>GTI partner</b>					
GTI 1	420	200	220		0
	0	0	0		0
<b>Subtotal</b>	<b>420</b>	<b>200</b>	<b>220</b>		<b>0</b>
<b>Total from consortium partners</b>	<b>1,960</b>	<b>795</b>	<b>1,165</b>		<b>270</b>
APPI (8.7% project contribution)	170		170		
<b>Totals</b>	<b>2,130</b>	<b>795</b>	<b>1,335</b>		<b>1,335</b>

*Total cash contributions must equal or exceed total cash reimbursements.*

***This project has enough cash to cover reimbursements.***

## The road to APPI funding starts with concrete next steps

### STEPS

- **Build** a consortium
  - Contact the Taskforce APPI if you are looking for a consortium to join
  - Ask the Taskforce APPI for an overview of interested organizations
- **Appoint** a project coordinator (contact person for Taskforce APPI)
- **Check** your project's fit with the APPI program line objectives and eligibility criteria
- **Notify** the Taskforce APPI of your intent to submit a project – the Taskforce will keep you informed
- **Write** the project brief – include a preliminary budget and Letters of Intent
- **Submit** all documents in hardcopy no later than September 25, 17:00 hours to the Taskforce APPI at DSTI i/z APPI, Stationsstraat 77, 3811 MH Amersfoort
- **Send** the same documents in an e-mail to [appi@dsti.nl](mailto:appi@dsti.nl) – for efficiency purposes only

### AFTER ROUND 1 SUBMISSION

- You may be contacted by the Evaluation Committee or the Taskforce APPI for additional information or possible project adaptations
- Round 1 feedback will be communicated no later than October 23, 2009