Is Cooperation with the Private Sector a Challenge?
The Perspective of Academia

Dr. Stella Bezergianni

Chemical Engineer, PhD – Principal Researcher
Chemical Engineering Research Institute (CPERI)
Centre for Research & Technology Hellas (CERTH)

Friday, March 16, 2012

CERTH

R&D and Growth

- Increased R&D leads to growth
  - Countries with high R&D funding have significant economic growth
- R&D funding can be driven by
  - Industry and/or government
- R&D can be executed by
  - Industry and/or academia

CERTH

Funding R&D

			Funded by (%)		Executed by (%)		
	M$	% GDP	Industry	Government	Industry	Academia	Other
United States	312535.4	2.68	63.7	31	70.1	13.6	12.2
Japan	118026.3	3.13	74.8	18.1	75.2	13.4	9.5
China	93992	1.23	65.7	26.6	66.8	10.2	23
Germany	59115	2.49	67.1	30.4	70.4	16.3	13.2
France	38985	2.16	50.8	39	62.9	19.1	16.7
United Kingdom	33231.2	1.88	43.8	31.4	65.7	21.4	9.7
Korea	28288.3	2.85	75	23.1	76.7	9.9	12.1
Canada	21047.6	1.99	47.1	34.1	52.7	37.5	9.5
Italy	17505.5	1.11	43	50.8	47.3	33.9	17.5
Russia	16669.7	1.15	31.4	60.6	69.1	5.5	25.3
Taiwan	14951	2.56	64.4	33.9	64.4	11.6	23.4
Spain	11801.9	1.07	48	41	54.4	29.5	16
Sweden	10440.9	3.95	65	23.5	74.1	22	3.5
EU-25	210167.9	1.81	53.7	35	63.3	22.1	13.4

Based on 2006 data

CERTH

Industry & Academia Cooperation

- Large corporations contribute towards funding over general research areas
- Industrial sector funds directly academia
  - Service contracts
- Industrial sector collaborates with academic institutions via government (co-)funded programs
- Basis of cooperation involves 3 steps

❶ Problem definition
❷ Research & Development
❸ Implementation

CERTH

❶ Problem Identification

- Industry faces daily technological problems
  - Some can not be solved internally
- Industry is required to abide by new regulations and/or markets
  - Ex. introduction of biofuels (2005), carbon footprint certifications etc
- The better a technological problem is defined, the easier the solution
  - Requires trustworthy relationship between industry and academia

❷ Research & Development

- Applied research requires
  - Focus
  - Expertise (manpower, know-how)
  - Infrastructure
  - Funding
- Development results
  - New products
  - New technologies (patents, publications)
  - Profit increase

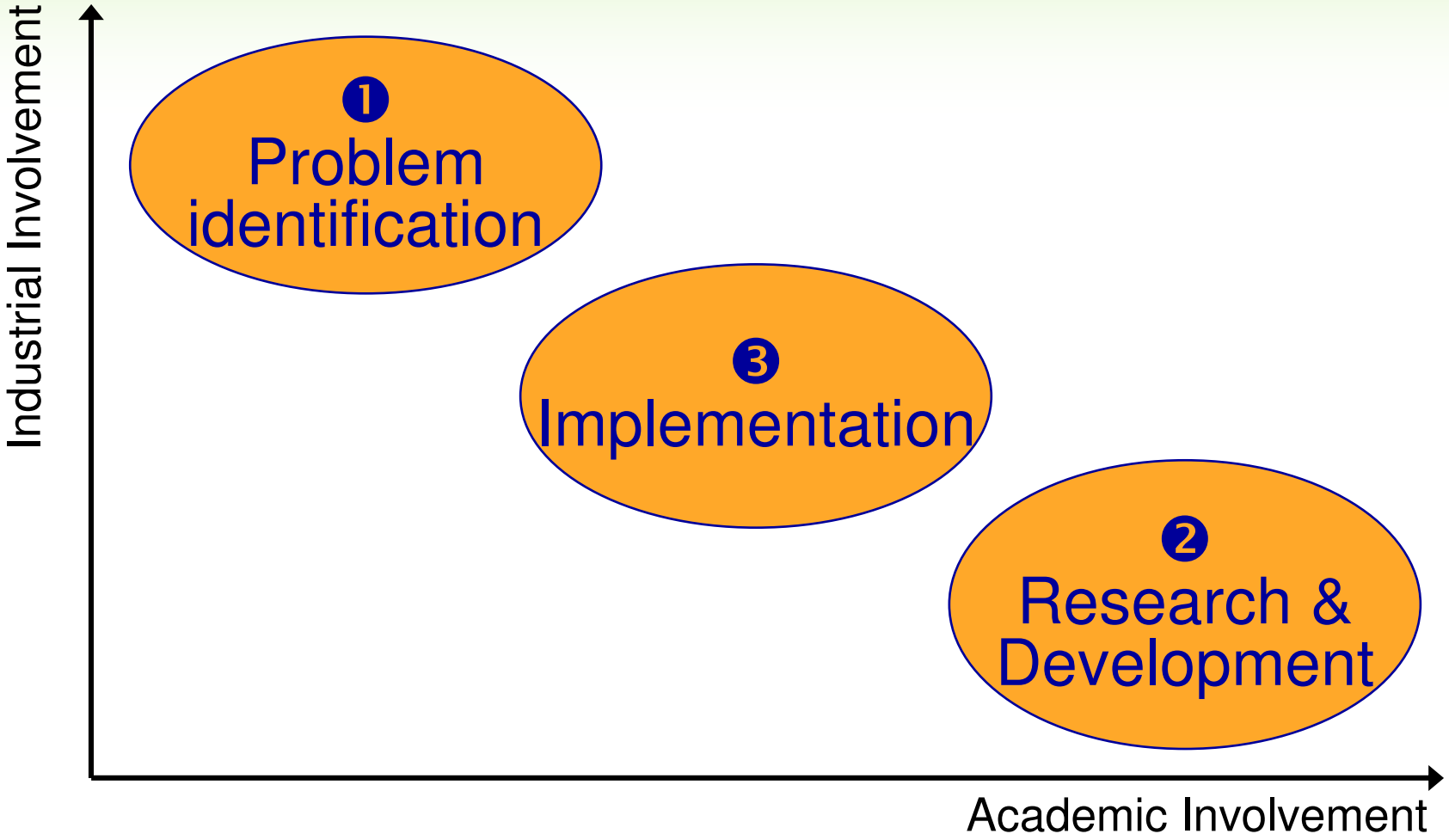
CERTH

❸ Implementation

- Will transubstantiate R&D outcomes into successful business step-forward
- Guarantees competitiveness
- Requires
  - Careful business planning
  - Technology licenses, patents etc
- Must involve both industrial and academic/research partners for optimum results

CERTH

Basis of Industrial & Academic Cooperation



CERTH

Forms of Cooperation in EU

- Direct funding by industry
- EU-funded grants
  - Large scale collaboration projects
  - Development projects
- Government funded grants
  - Collaboration projects

CERTH

Direct Funding by Industry

- Well defined projects / service contracts
  - Problem / idea clearly stated
  - Research activities are specific (nature/duration)
- Results owned by industry
  - Permission/agreement for publication/patents
- Academic/Research organization benefits
  - Experience / know-how
  - Link with actual and practical problems
  - Direct funding source ⇒ minimum bureaucracy
- Industry benefits
  - R&D via external source of expertise and infrastructure
  - New products, technologies ⇒ profit

CERTH

EU-Funded Grants

- Large cooperation schemes
  - Several industrial and academic stakeholders
  - Questionable ability to provide concrete results
- Academic/Research organization benefits
  - Collaboration with various industrial and academic partners
  - Partial or full funding
- Industry benefits
  - R&D via external source of expertise and infrastructure
  - Funding from EU
  - New products, technologies, demo $\Rightarrow$ profit

CERTH

Government Funded Grants

- Particular research topics funded
  - Involves industrial and academic stakeholders
  - Research and/or development oriented
- Academic/Research organization benefits
  - Collaboration with industrial and academic partners
  - Full funding
- Industry benefits
  - R&D via external source of expertise and infrastructure
  - External funding
  - Explore new technologies without excessive own funding

CERTH

Cooperation Problems Industry vs. Academia

- Gap of approaches
  - Industry is market driven while academia is knowledge driven
- Limited trust
  - Fear of confidential information release
  - Theoretical perspective of academics
- Lack of successful stories
- R&D is mostly “pushed” by academia
- Industry views EU- or government grants as subsidy

CERTH

How Can We Move Forward?

- Promote “successful” stories to industrial world
  - Via industrial chamber/organizations, ministries of development etc
- Set a funding scheme for government funding programs
  - Annual, aiming to local (not EU) industry
- Encourage companies to contribute to R&D funding programs
  - Reduction of taxation or loan interest rate
- Academia must set dynamic consortiums
  - Specific focal area (ex biofuels, IT, dairy products etc)
  - Allow experience sharing and research targeting