



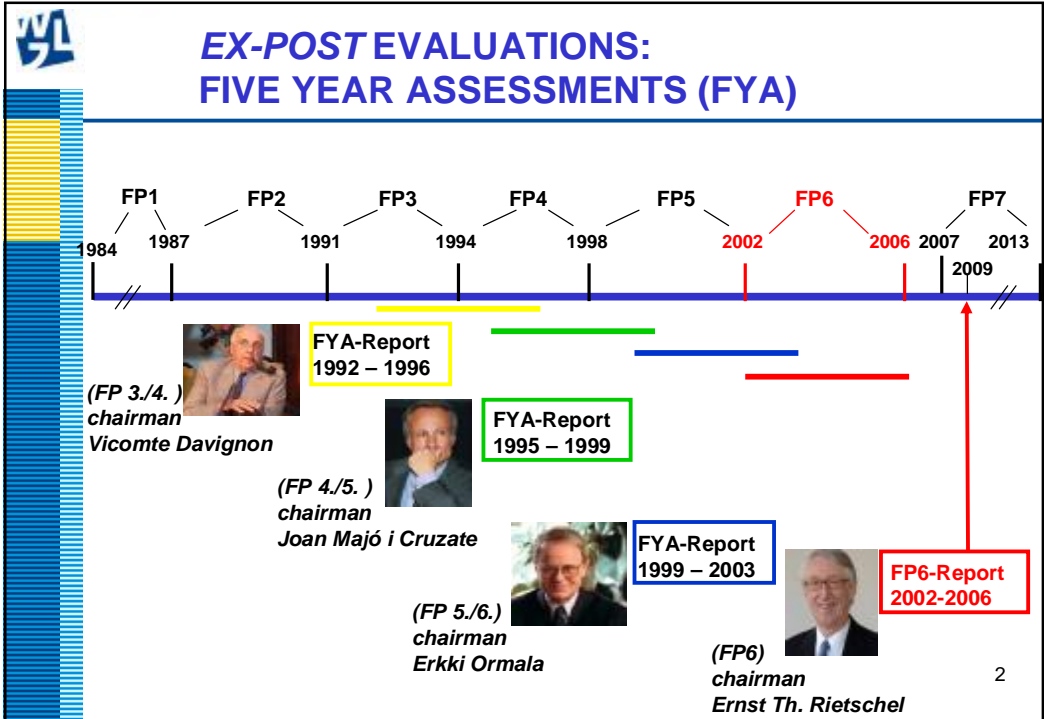
**FP  Ex-Post Evaluation:**

**Report on Findings of the Expert Group**

Prof. Dr. Dr. h. c. Ernst Th. Rietschel  
Leibniz Association

EUFORDIA Conference  
Prague, 24-25 February 2009

Chair of the FP6 Expert Group





## FP6 EX-POST EVALUATION

### GENERAL ASPECTS

- For the first time: comprehensive evaluation of a single FP
- The first FP intended to contribute to policy initiatives (ERA, Lisbon goal)
- Evaluation panels became more diverse (scientists, science policy experts)
- Evidence base was good.....

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## FP6 EXTERNAL EXPERTS



**Jakob Edler**  
*International Dimension*



**Philippe Laredo**  
*ERA*



**Tarmo Lemola**  
*Simplification*



**Michael Stampfer**  
*EAV*



**Nick Vonortas**  
*Statistical Analysis*

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## FP6 EX-POST EVALUATION

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- For the first time: comprehensive evaluation of a single FP
- The first FP intended to contribute to policy initiatives (ERA, Lisbon goal)
- Evaluation panels became more diverse (scientists, science policy experts)
- Evidence base was good.....but needs improvement
- Particular context of FP6

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## CONTEXT OF FP6 (2002 – 2006)

- Withdrawal of companies from fundamental research
- Reforms in national universities/research institutes (DE: Clusters of Excellence)
- The „Triad“ (Europe, USA, Japan) has lost its quasi-monopole of RTD (China, India, Brazil!)
- Social priorities such as climate change and security (post 9/11) play a growing role for non-economic criteria in European RTD
- New Member States (10 in 2004, 2 in 2007)
- FP6 budget: only 4% of EU Member States' combined public R&D budgets

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## CONTEXT OF EVALUATION (2008)

- **Global Financial Crisis: problem and opportunity**
- **FP7 underway: midterm evaluation topics**
- **Planning of FP8 envisaged**

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## FP6 EVALUATION ISSUES

### Rationale

- Why intervention in RTD?
- Policy objectives?
- Appropriate way to tackle objectives
- Right goals and scope

### Implementation

- **Design and goal setting**
- **New instruments**
- **Participation**
- Suitability and sustainability of instruments
- **Assessment of proposals**
- **Ex-post evaluation**
- **Administration - Simplification**
- Knowledge dissemination of RTD results

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## FP6 EVALUATION ISSUES

### Achievements

- Contribution to ERA
- Quality of research results
- Effects of FP6 on research and industrial competitiveness
- Other goals (e. g. SME's, gender...)

### Conclusions

### Recommendations

### Vision for Europe

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## RATIONALE OF FP6

### Problems

- Market failures
- Systems failures  
(push-, pull-, linear models)
  - policy mix
  - focussing devices
- Relationship  
academia – industry –government

### Solution

- ERA, a new policy dynamic
- **FP6 as a means**
  - to focus and integrate European research thereby structuring ERA and strengthening its foundations

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## HIGH-LEVEL PROGRAMMATIC GOALS OF FP6

....Knowledge ecology.....

Strengthening the scientific and technological basis of community industry and encouraging it to become more competitive while promoting all the research activities claimed necessary by other chapters of this Treaty.

.....innovation systems.....

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## PROBLEMS WITH GOALS OF FP6

• Jump to detailed work programmes with little consideration of the adequacy of these programmes and their budget for reaching goals.

- Only few of FP6 goals were:
  - Specific
  - Measurable
  - Attainable
  - Realistic
  - Timely

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## PROBLEMS WITH SUBGOALS OF FP6

### Non-SMART

- Support development of ERA
- Counterbalance weakness of European research and innovation
- Make a tangible improvement in Europe's innovation performance

### SMARTer

- Promote researcher mobility
- Develop common infrastructures
- Set standards for the wider safe use of radioactive materials

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## IMPLEMENTATION

- Design process
  - FP draft discussed by MS, EP, DG, council of ministers (co-decision)
  - Process not well documented
  - Logic and final choice remain opaque
  - Decentralized process would require strong coordination
- Recommendation
  - Transparency and Documentation
  - Development of programme logic (targets, SMART subgoals, strategy, instruments, adequate budget etc....)

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## STRUCTURE AND BUDGET OF FP6

<b>FP6 for RTD and Demonstration Activities</b>	<b>17,883 (€m)</b>
1. <i>Focusing and Integrating Community Research (7 Thematic Priorities; specific activities; horizontal research incl. SMEs; JRC)</i>	14,682
2. <i>Structuring ERA</i>	2,854
3. <i>Strengthening ERA</i>	347
<b>EURATOM</b>	<b>1,352 (€m)</b>
• <i>Priority thematic areas</i>	978
• <i>Other activities</i>	55
• <i>JRC</i>	319
<b>Grand Total:</b>	<b>19,235 (€m)</b>

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## OVERVIEW OF FP6 PARTICIPATION

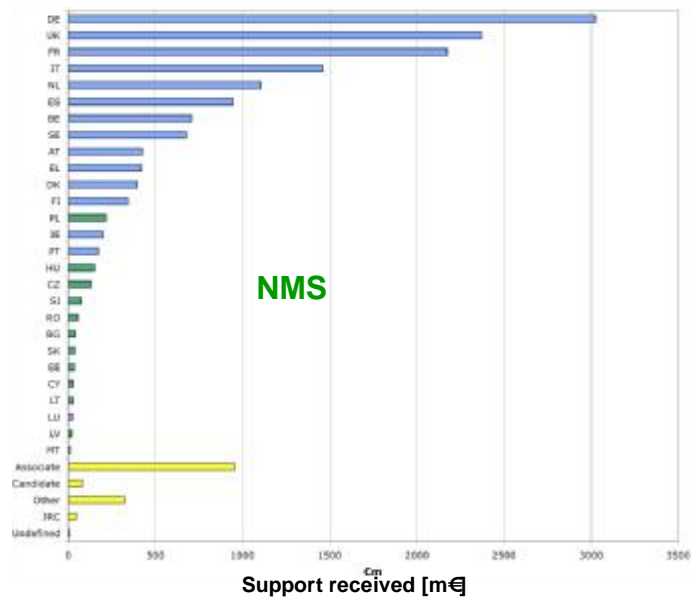
- 213 Calls for proposals
- Attraction of 56,000 proposals (390,000 potential participations)
- 23,000 Marie Curie actions

	FP5	FP6	FP5 excluding HRM	FP6 excluding HRM
Total number of contracts	16,553	10,058	12,391	5,485
Total number of participants	84,267	74,400	75,046	65,960
Ø number participants per contract	5.1	7.4	6.1	12.0
Total EC financial contribution (€m)	13,065	16,669	11,808	14,952

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## COMMUNITY CONTRIBUTION IN FP6 BY COUNTRY

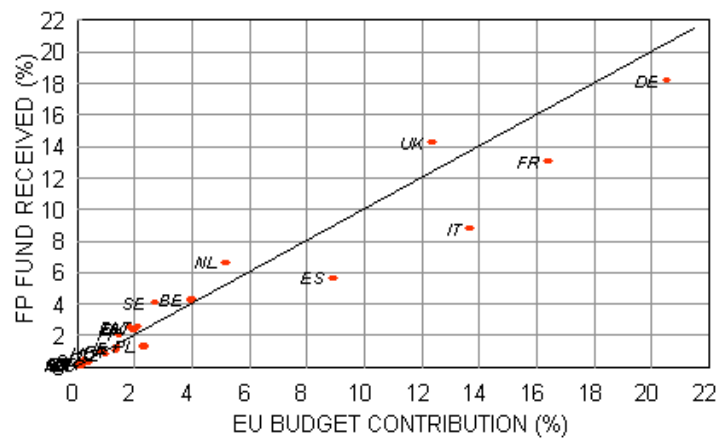


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## SHARES OF EU GDP AND RETOUR IN FP6

### Larger Member States

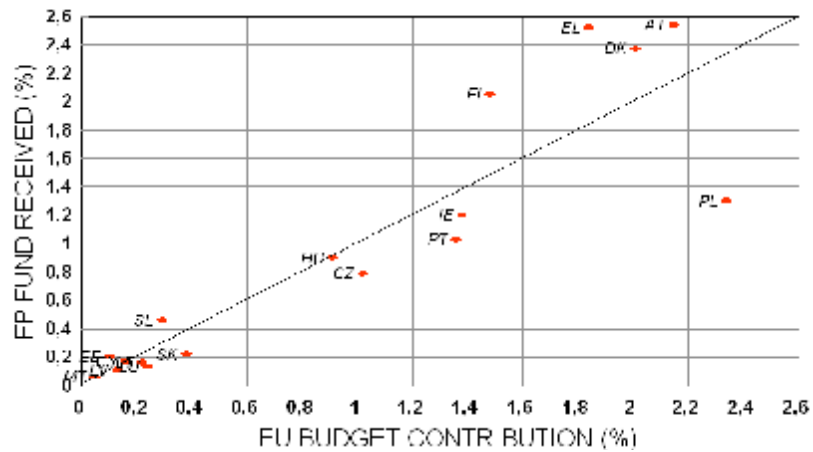


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## SHARES OF EU GDP AND RETOUR IN FP6

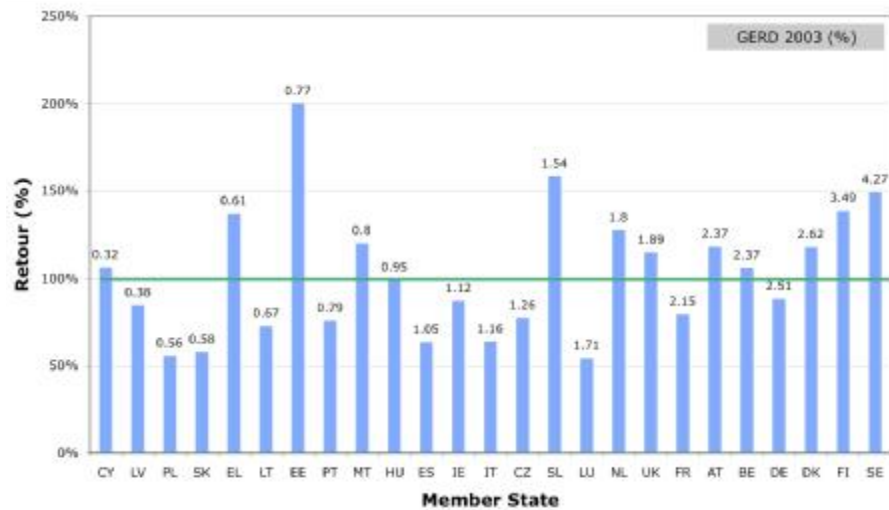
### Smaller and Medium Member States



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## RETOUR IN FP vs. INCREASING MS GERD LEVEL

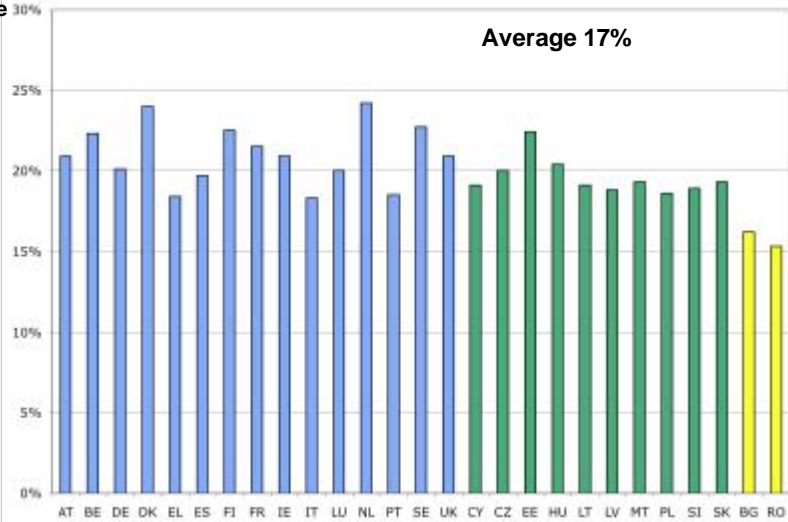


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## SUCCESS RATES FOR PROPOSALS BY COUNTRY

Average  
Success  
Rate

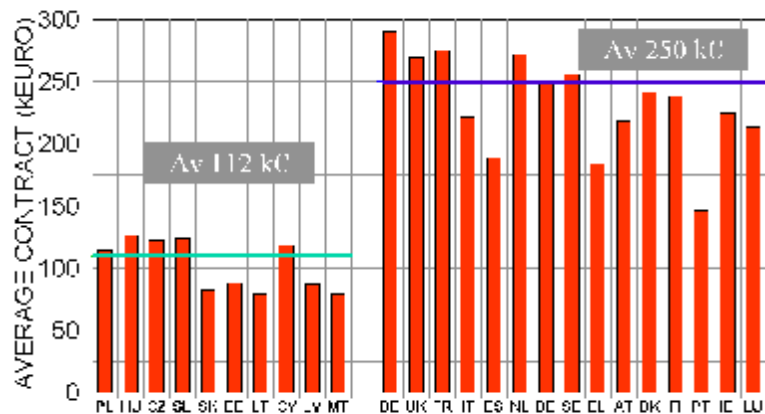


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## AVERAGE PARTICIPATION CONTRACT

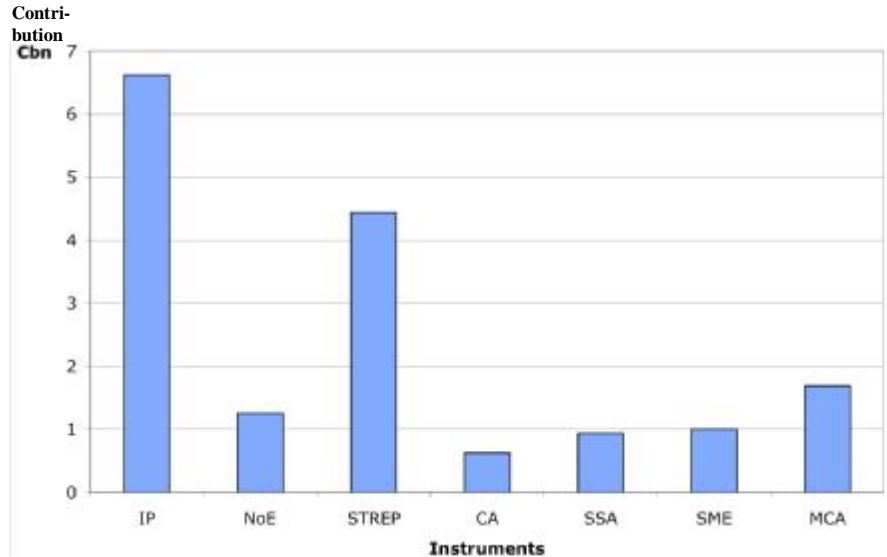
NMS vs. EU-15



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## FINANCIAL CONTRIBUTION BY INSTRUMENT IN FP6



## NEW INSTRUMENTS OF FP6: INTEGRATED PROJECTS (IPs)

**Goals** Assemble major players from industry and academia in a specific area to build critical mass  
® ERA structuring effect

**Observations**

- Established industry dominating
- Network size, diversity and internationality
- Successful example: Aerospace
- Germany, France, UK, Netherlands dominating: 68%
- NMS only 13%
- Patent question unsolved
- Administrative burden excessive

**Conclusion** Difficult instrument

**Results**

- Network size should match needs
- Fused with STREPs in FP7

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## NEW INSTRUMENTS OF FP6: NETWORKS OF EXCELLENCE (NoEs)

<b>Goals</b>	To overcome fragmentation of European research in specific fields in order to strengthen scientific and technological excellence ® ERA structuring and strengthening effect ® become world force
<b>Observations</b>	- France, Italy coordinated 48% - Industry participation only 7.6 % (4% of funding) - Concept changing several times - Little sustainability achieved
<b>Conclusion</b>	Most NoEs missed the target (sustainable structuring)
<b>Results</b>	- Only few NoE continued in FP7 - New follow-up instrument: Joint Research Initiatives (JRI) <sup>25</sup>



## COMPLEXITY OF ADMINISTRATION (I)



- Most cited disincentive to participate – together with low success rates
- Burden to New Member States
- Tends to exclude industry
- Auditing criteria problematic
- Commission staff rotation disrupts funding process

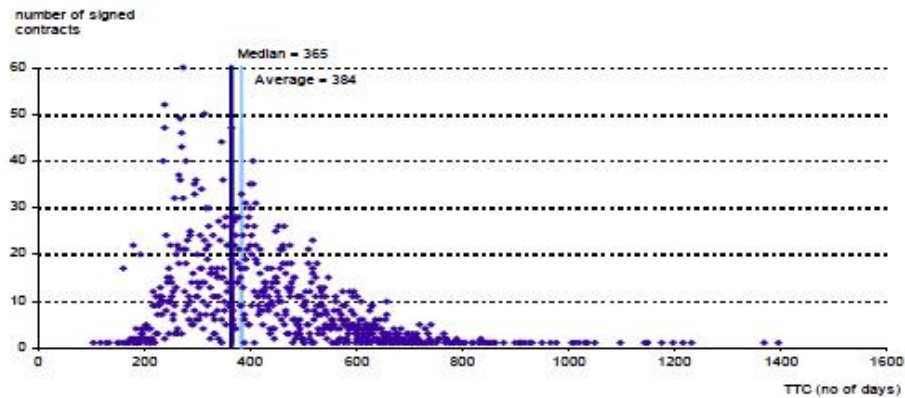
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## TIME TO CONTRACT



Sample of 5377 FP6 Projects



## COMPLEXITY OF ADMINISTRATION (II)



### CONCLUSIONS:

- **Radical overhaul and a new basis of thinking is required**
- **Radical simplification of administrative performance**
- **Highest political priority (MS Council, European Parliament, Commission)**



## COMPLEXITY OF ADMINISTRATION (III)



### Main Recommendations

- Scientific projects in general:  
change from contract to grant system
- Industrial projects in general:  
change from a cost to a price system

### Additional Recommendations

- More operational autonomy for consortia
- Time to contract: reduce to half
- Apply unitary IT tools across DGs in implementing FPs
- Use empowered agency for implementation of programmes
- Learn from Member States

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## EX-ANTE ASSESSMENT OF PROPOSALS

- Improved considerably from FP5 to FP6
- Further amelioration possible by using e.g.
  - Two-step application system (30 – 50% success rate at step two) for larger instruments
  - New scientific council (peer reviewers selection, research qualities, relevance impact)
  - Peer panels over a longer time period (5 years)
  - Overarching committee of panel chairs
  - More nuanced criteria in bottom-up (quality and originality) and top-down (quality and originality plus relevance) approaches
  - Of MS organisations' expertise and database

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## EX-POST EVALUATION OF FPs

- Evaluation procedures improved in recent years
- Further amelioration possible by e.g.
  - Introduction of an evaluation culture reaching beyond most recent programmes.
  - Better and more timely availability of evidence base (e.g. improved statistics on PIs: gender, age, institution, country)
  - Definition of adequate evaluation budget and timetable (1 year)
  - Definition of common core questions for each FP evaluation
  - Learning from good Member State practices
  - Choosing panel members by the Chairperson (Commission designates Chairperson)

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## ACHIEVEMENTS OF FP6

**RTD Quality:** of 24 Commission research areas, independent evidence says:  
33% are of international standard  
29% are at least to 2/3 of international standard

**Based on Self-assessments:**

- 25%: their area had significantly moved forward the research frontier
- 42%: their area had moved the research frontier in most areas
- 33%: their area had moved the research frontier in some areas

**Some of the best researchers in Europe have been attracted to participate in FP6**

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## THEMATIC PRIORITIES – NUGGETS

1. Life sciences, genomics and biotechnology for health 
2. Information Society Technologies (NanoCMOS, IP)
3. Nanotechnologies, materials, new production processes and products  

4. Aerospace (FANTASIA)
5. Food quality and safety 
6. Sustainable development (RENEW, IP)
7. Citizens and governance in a knowledge based society (European Social Survey, ESS) 

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## A PROJECT BUILT ON THE LEADER POSITION OF THE EUROPEAN TEAM FORMED IN FP5



10 countries

22 laboratories and 3 SMEs

250 scientists



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Excerpts from the talk by Professor Cristine Petit



## CONTEXT OF THE PROJECT



More than 40 millions of people are hearing impaired, in the EU (10%)

Deafness is the most frequent sensory defect.  
It may occur at any age with any degree of severity.

- More than 1 child out of 1000 is severely or profoundly deaf at birth. In these children, speech acquisition and learning to read are considerably hindered
- Over 65, a third of the population is suffering from hearing loss impeding conversation. This results in major impediment to daily life and threatens personal autonomy and finally in social isolation and often in depression

### HEARING IS THE SENSE OF THE COMMUNICATION

- There is no treatment (only protheses)
- Costs are over 90 billion € annually in EU

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## OBJECTIVES AND RESULTS

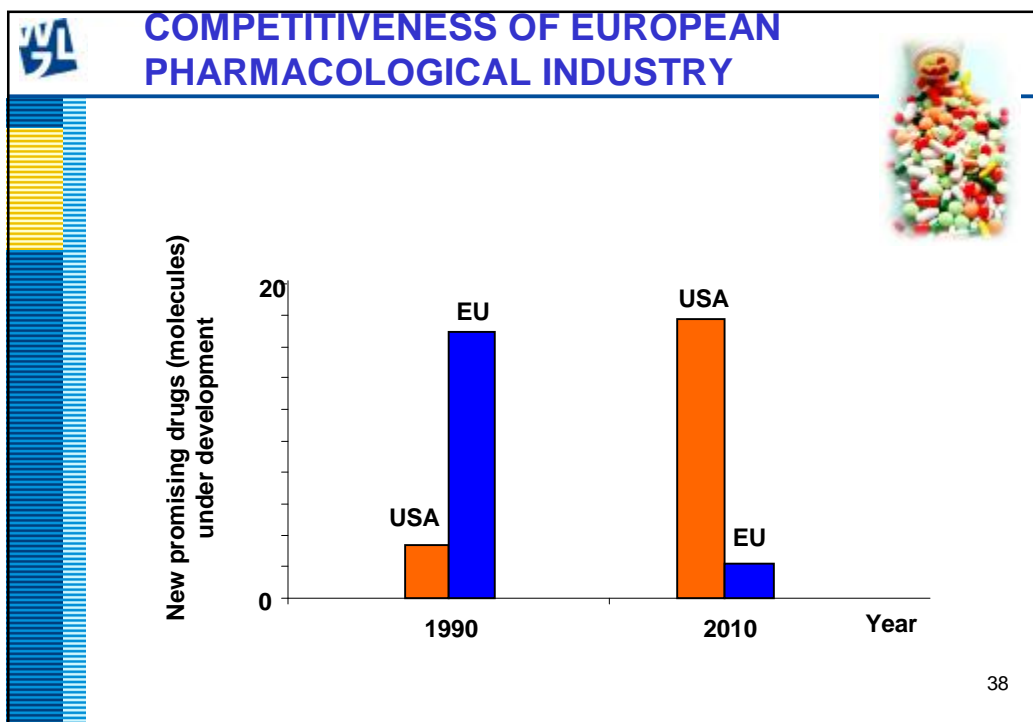
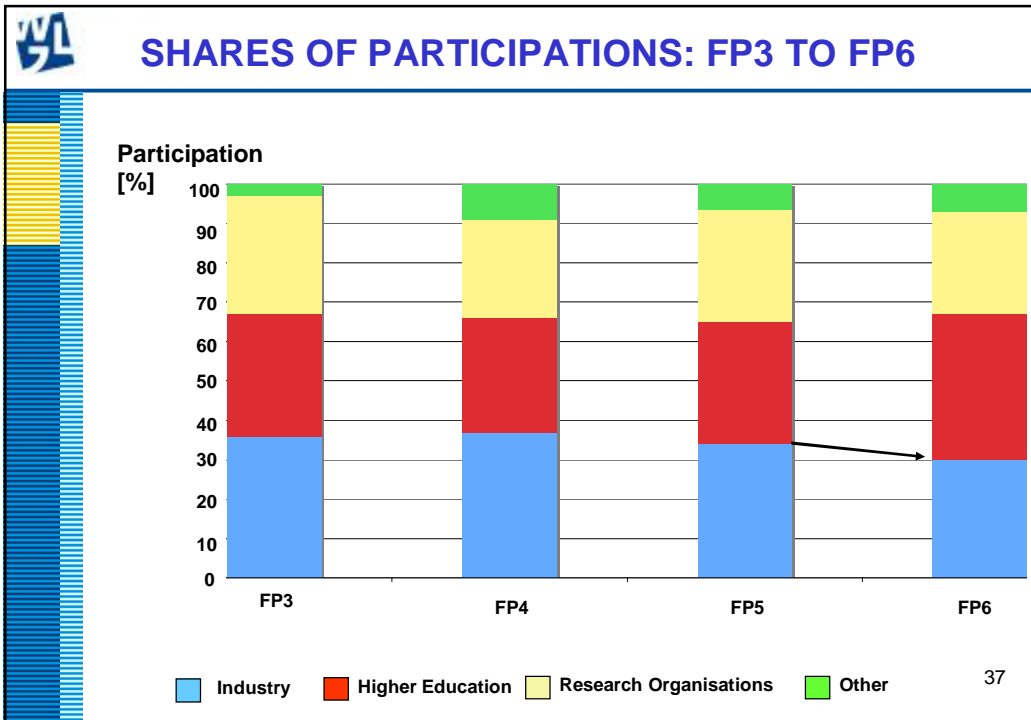


EuroHear has three closely related objectives:

- To identify the genes causative for sensorineural hearing impairment: early and late onset forms
- To understand the mechanisms underlying normal and impaired hearing
- To develop tools to prevent and to cure of hearing impairment

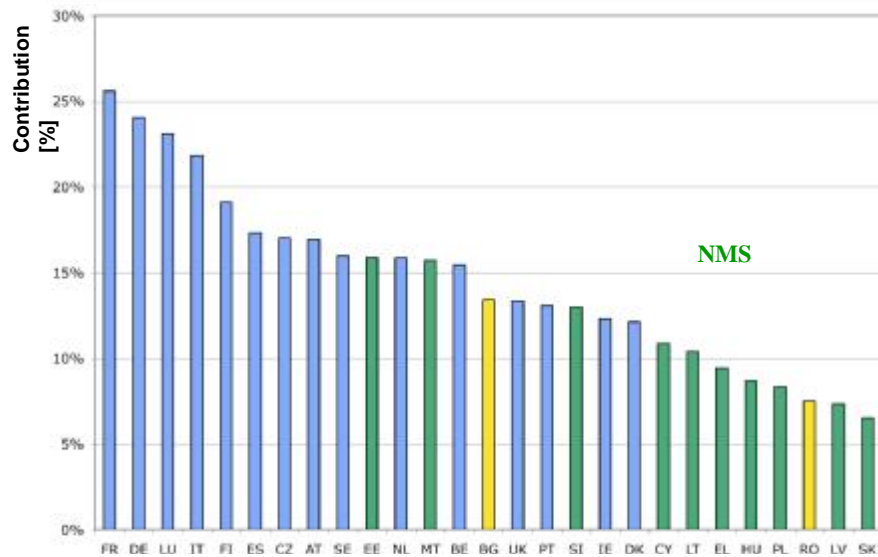
15 new loci identified and 12 new genes discovered  
Mechanism of impaired hearing better understood  
New targets for drugs against deafness defined

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## PROPORTIONS OF COMMISSION CONTRIBUTION GOING TO INDUSTRY BY COUNTRY



## FP6 AND INDUSTRY



- In some MS, FP participation increased productivity
- Participation of industry is insignificant in life sciences but high in ICT
- Large firms use FP as means of networking
- Big companies influence the design of FP
- FP6 did not address areas relevant to large firms (focussing on high tech excludes classical branches)
- Many firms did not participate because EC administration is too bureaucratic



## FP6 AND INDUSTRY



### CONCLUSIONS

- **FP6 had positive influence on industrial competitiveness of established actors**
- **Participation must become more attractive for industry**

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## FP6 AND THE KNOWLEDGE INFRASTRUCTURE



- **Universities (37%) and Research Institutes (31%) dominate participation**

### Universities

- FP have little effect on strategies
- Research groups in thematic priorities
- FP funds are regarded as additional
- **But FP funding is considered prestigious and helps internationalisation**
- **Prestige is the main incentive to apply**

### Research Institutes

- **FPs have a more pronounced effect on strategies of**
- **Demand driven (Fraunhofer Institutes), serve as key nodes**
- **Little internationalisation, since main incentives are national**

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## CONCLUSIONS



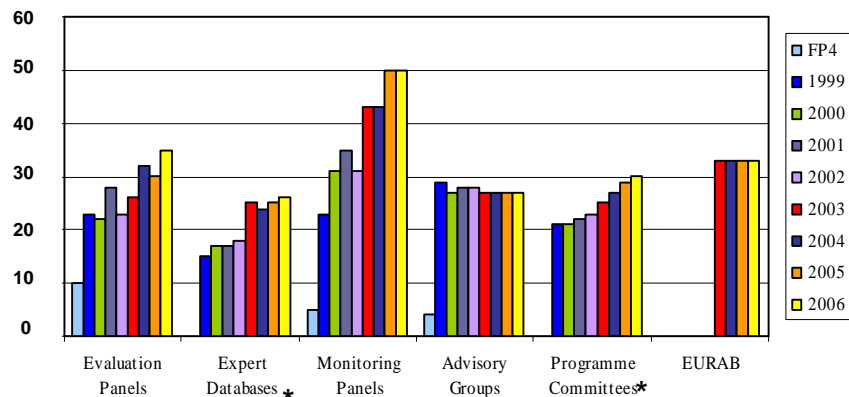
- **FP6 catalysed networking but had little physical influence on research capacities in Europe**
- **Participation of knowledge infrastructure must better advance innovation**

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## FEMALE RESEARCHERS IN FP COMMITTEES

Female Participation [%]

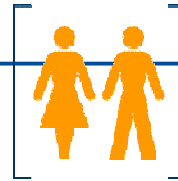


\* Outside of Commission control

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## FP6 AND GENDER



- Female researcher's participation is increasing, but still has much room for improvement
- The introduction of Gender Action Plans (GAPs) in NoEs and IPs had a very limited success
- There is need for a stronger focus on GAPs
- The abolition of GAPs in FP7 is an unfortunate example of simplification
- There is need for valid and high quality statistics on participation in FP7 by female researchers

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## ACHIEVEMENTS OF FP6 (I)

- **FP6 included first rate**
  - projects
  - researchers
  - consortia
- **Contributed to improved mobility and internationalisation**
- **Helped Europe to perform internationally competitive research at the frontier of science**

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## ACHIEVEMENTS OF FP6 (II)

- **FP6 was a powerful mechanism catalysing RTD in Europe**
- **Key instrument in tackling subcriticality**
- **Increased industrial competitiveness**
- **Generated networks**
- **Strengthened Knowledge Infrastructure**

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## ACHIEVEMENTS OF FP6 (III)

- **Overall achievements of FP6 were substantial**
- **No evidence that plausible alternative approaches would have been more successful**
- **FPs are also needed in the future to integrate the European research ecology and innovation system**

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## TEN RECOMMENDATIONS: A LOOK TO FUTURE FPs

1. **Develop programme logic, define SMART goals, design FP accordingly in a transparent and documented way**
2. **Define essence of FP in synchrony with MS. EC must avoid monopoly position, MS must present their own concepts**
3. **Eliminate „Third Country“ terminology. Budget for major developed and emerging economies should be dramatically increased. Collaboration with developing countries should concentrate on topics and methodologies where EU is globally leading.**

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## TEN RECOMMENDATIONS: A LOOK TO FUTURE FPs

4. **Strengthen Industry and SME participation, however, not by %-targets but rather by measures in line with industrial dynamics.**
5. **Install new bottom up NEST-like format (cooperation) and strengthen ERC (individual)**
6. **Continue the ESFRI (roadmap) process**
7. **Increase substantially the participation of female researchers by proactive approaches and specific gender actions (e.g. heterogenicity as a quality criterium)**

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## TEN RECOMMENDATIONS: A LOOK TO FUTURE FPs

8. **Enhance visibility and attractiveness of science and technology for young people.** Promote their mobility, invite young researchers and students from other countries to Europe.
9. **Radically simplify FP administration, stop incremental tinkering.** Move from contract to grant and from contract to price basis, respectively.
10. **Introduce an evaluation culture** aiming at a broad understanding of the outcome and long term effects of FPs.

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## OPPORTUNITIES OF THE FINANCIAL CRISIS

- **Better understanding and acceptance of RTD contributing to Europe's economical, political and social well being**
- **Investments in education, science and technology as the best response**
- **Reshaping of the relationship: academia – industry – government**

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## A VISION FOR EUROPE (I)



- **New thinking of MS**
  - Application of „true common pot“
  - Abandonment of „juste retour“
- **New meaning of subsidiarity**
  - European projects are „MS-projects“
  - ERA has overcome subsidiarity
- **New interpretation of EAV**
  - Each European project possesses EAV
  - Each European project, independent of its geographical origin, is fundable by Europe

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## A VISION FOR EUROPE (II)



- **It is time for a confident, scientifically capable, innovative European Knowledge Society to engage with the rest of the world**
- **Move FP from incremental addition of national resources to a Game Changing instrument**
- **Increase FP budget 2 – 3 times**

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## A VISION FOR EUROPE (III)



- **Stop navelgazing**
- **Seek global competition**
- **Act as a Union**
- **Be proud to be part of this Union**
- **Enjoy a bright future**

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## TWO PILLARS OF EUROPE'S SCIENCE & TECHNOLOGY WITHIN ERA

- **Grand Challenges**
  - Large programmes
  - Problem-driven
  - Top-down approach
  - Quality and originality prominent, but relevance is an equally important criterium
- **Great Ideas**
  - Individual projects
  - Investigator-driven
  - Bottom-up approach
  - Quality and originality are the only criteria



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## GRAND CHALLENGES



- European Commission topics
- Innovative approach involving academia and industry
- Single MS cannot tackle topic
  - too expensive
  - too risky
- Follow subsidiarity principle
- Classical EAV (cooperation)

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## GREAT IDEAS



- Endogenous value of research
- Inventive approach
- Subsidiarity insignificant
- New EAV (competition, mobility)
- ERC: individual research
- NEST: cooperative research

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## TWO PILLARS OF ERA

### Grand Challenges

- Definition of Targets and Objectives is a central matter of Commission RTD-policy and decision making
- Persuing relevant goals through FP instruments is core business of the EC



### Great Ideas

- Management through ERC and NEST-like formats by a Pan-European Agency not dependent on the Commission
- Agency needs strong political mandate, financial independence and organisational freedom



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## EUROPE'S MOTIVE FOR FP8 AND BEYOND

**„EUROPEAN  
EXCELLENCE  
THROUGH  
GLOBAL  
COOPERATION  
AND  
COMPETITION“**



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## THANKS TO THE FP6 EXPERT GROUP .....



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***Mili cesti kolegove,***

***My, 6FP skupina expertu vam prejeme hodne stesti a  
uspechu pri vedeni Evropy v pristich mesicich.***

***Dekujeme vam za prevzeti teto zodpovedne ulohy.***