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**« THE FUTURE OF SCIENCE
and TECHNOLOGY in EU »**

Increasing Private Investment in R&D: few comments from Chemical Industry (personal View)

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OUTLINE



- **1. Introduction**
- **2. Present situation**
- **3. Impact of R&D on growth/financial return and performances (“return of Chemical Industry”)**
- **4. Development and future changes for EU chemical industry: higher productivity, more advanced materials/services & sustainable chemistry**
- **5. Conclusion**

1. Introduction



- Innovation and creativity= key challenges for EU for all industries.
- Innovation is not only the task of R&D but of the all organization.....but R&D is a major partner (time to time forgotten)



Response Strategies :

(added by Porter and others)

Key challenges for industry

GROWTH

Increasing market share,
acquiring more customers or
selling more products

IMPROVE INTERNAL EFFICIENCY

To improve employee and
customer satisfaction

ALLIANCES

Working with business
partners to create synergy &
provide opportunities for
growth

CRM

Customer-oriented
approaches, e.g. the
customer is king (queen)

INNOVATION

Developing new products & services



■ Question:

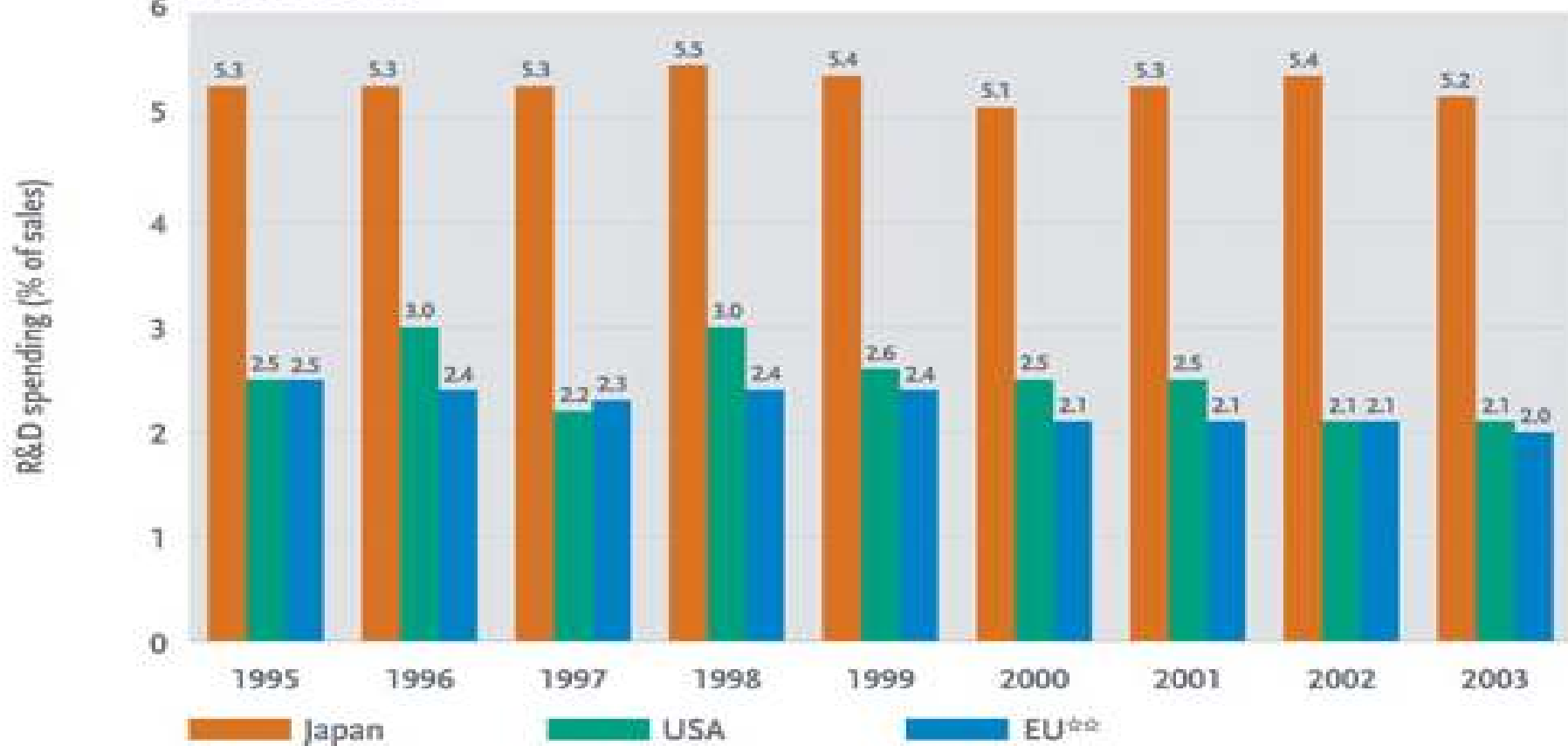
Is there increasing private investment in R&D / chemical industry?

2. Present situation



- In relation to specific companies: more profitable companies have been increasing R&D in the last years.
- but in over all , R&D intensity (R&D/sales %)in EU & USA has been **slightly decreasing**:

1995-2003



Sources: Cefic and OECD

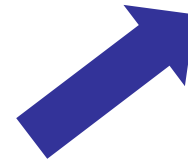
* Excluding pharmaceuticals

** EU11 covering Germany, France, UK, Italy, Belgium, Netherlands, Ireland, Spain, Sweden, Finland and Denmark

% of total sales	1995	1996	1997	1998	1999	2000	2001	2002	2003
Japan	5.3	5.3	5.3	5.5	5.4	5.1	5.3	5.4	5.2
USA	2.5	3.0	2.2	3.0	2.6	2.5	2.5	2.1	2.1
EU**	2.5	2.4	2.3	2.4	2.4	2.1	2.1	2.1	2.0



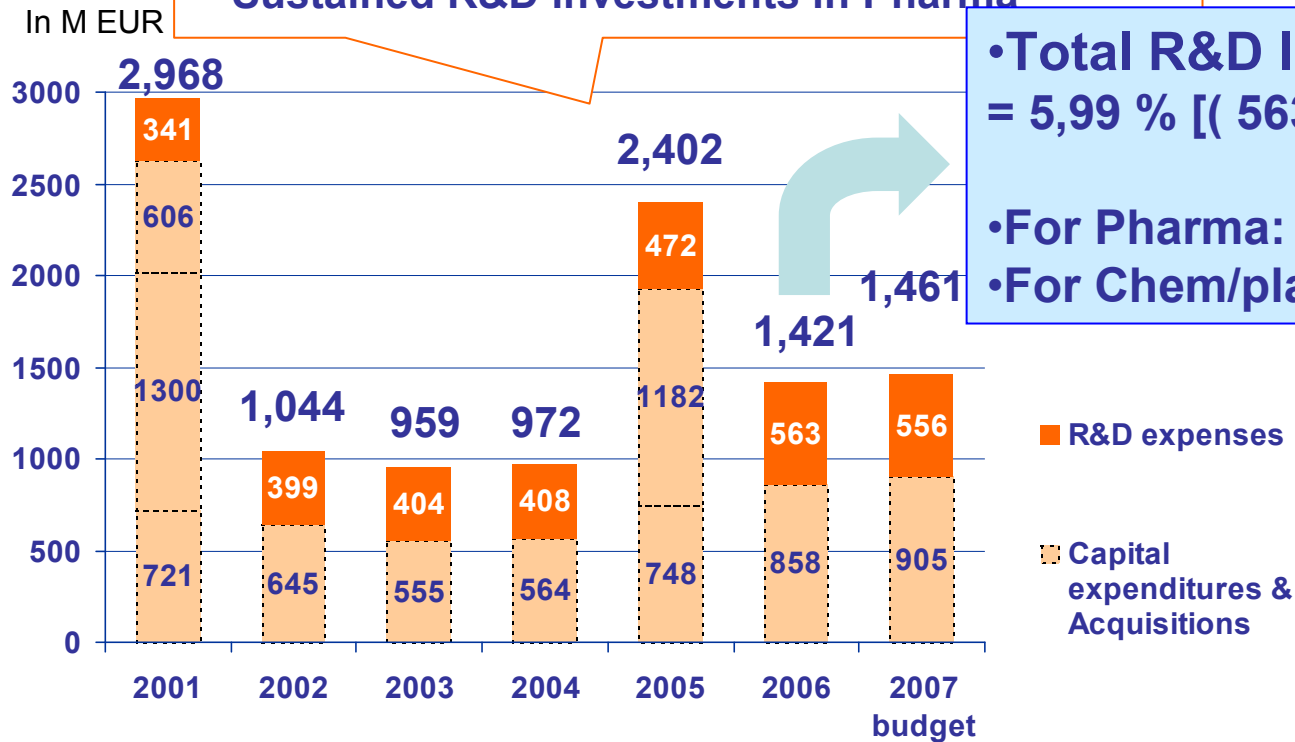
- In SOLVAY : R&D has been increased



CAPEX & R&D INVESTMENTS TO SUPPORT GROWTH



- Major strategic initiatives
 - 2001 : Ausimont/BP high performance polymers
 - 2005 : Fournier Pharma (EUR 1.2 Bn)
- Sustained R&D investments in Pharma



- Total R&D Intensity: R&D/sale = 5,99 % $[(563/9,399) \cdot 100]$
- For Pharma: 16% (424/2,601)
- For Chem/plast: 2% (139/6,798)

3. Impact of R&D on growth/financial return and performances



- **Growth & return in relation with R&D expenses ?**
 - A lot of confusion : even in some « consulting group »

 - More R&D = more innovation ? More growth/return?
 - Need to take care of « time frame » in addition to other parameters :effectiveness/efficiency ,.....

 - Easy to see the relation in Pharma...more difficult in Chemicals→ see graphs

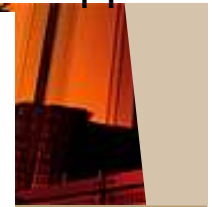
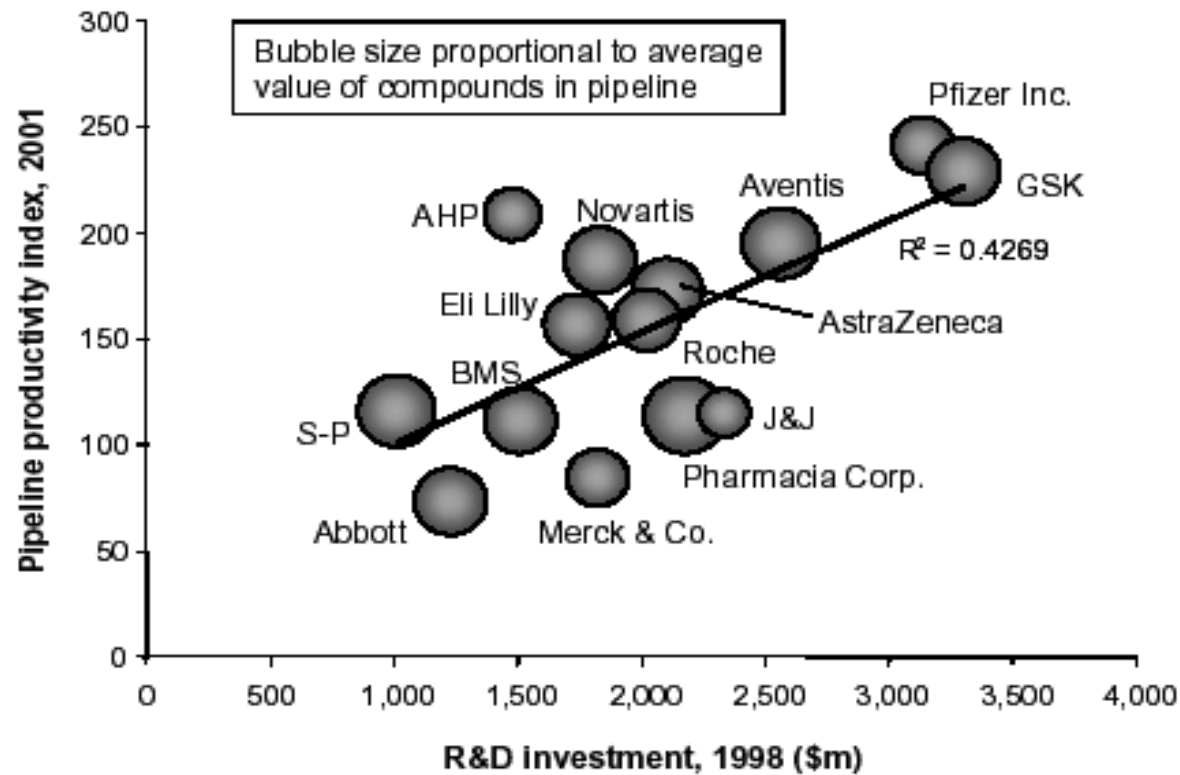


Figure 1.3: The commercial value of leading companies' late stage pipelines is directly proportional to their R&D spend



AHP = American Home Products BMS = Bristol-Myers Squibb
 GSK = GlaxoSmithKline J&J = Johnson & Johnson
 S-P = Schering Plough

Source: Author's research and analysis

Reuters Business Insight

In Measuring Up ref. :

<http://www.ccrhq.org/CCRNET/index.html>



: Research & Development Counts in the Chemical Industry, the critical role of R&D to the chemical industry is quantified for the first time. With economic, bibliometric, and historical analysis, this study demonstrates that R&D has helped the chemical industry become a major building block of the U.S. economy, growing steadily and becoming a world leader in scientific advances even in the face of increasing global competition.

Key findings of this new study include:

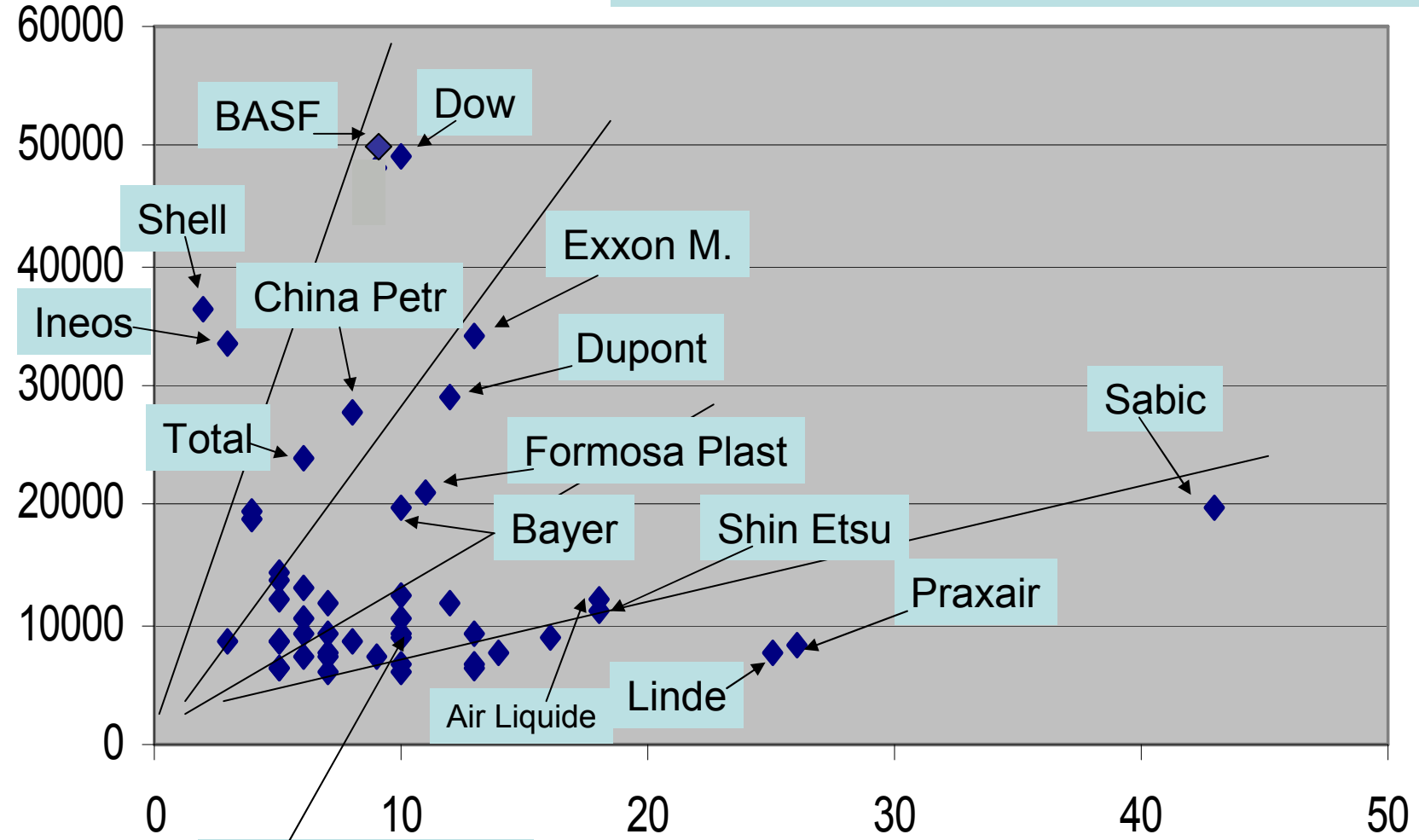
- ➔ **On average, every dollar invested in chemical R&D today produces \$2 in corporate operating income over six years – an average annual return of 17% after taxes.**
- Business performs better when public policy, including government funding of R&D, is consistent.
- Publicly funded science makes significant contributions to new technologies in the chemical industry.

....etc....

Total Chem Sales versus Operating margin (Brut)(*) (*)= sales-administ.expenses & cost of sales)

Chem.Sales (M \$)

Chemical Industry 2006 results/first 50th



Solvay
Chem Plast

% Operating margin (brut)

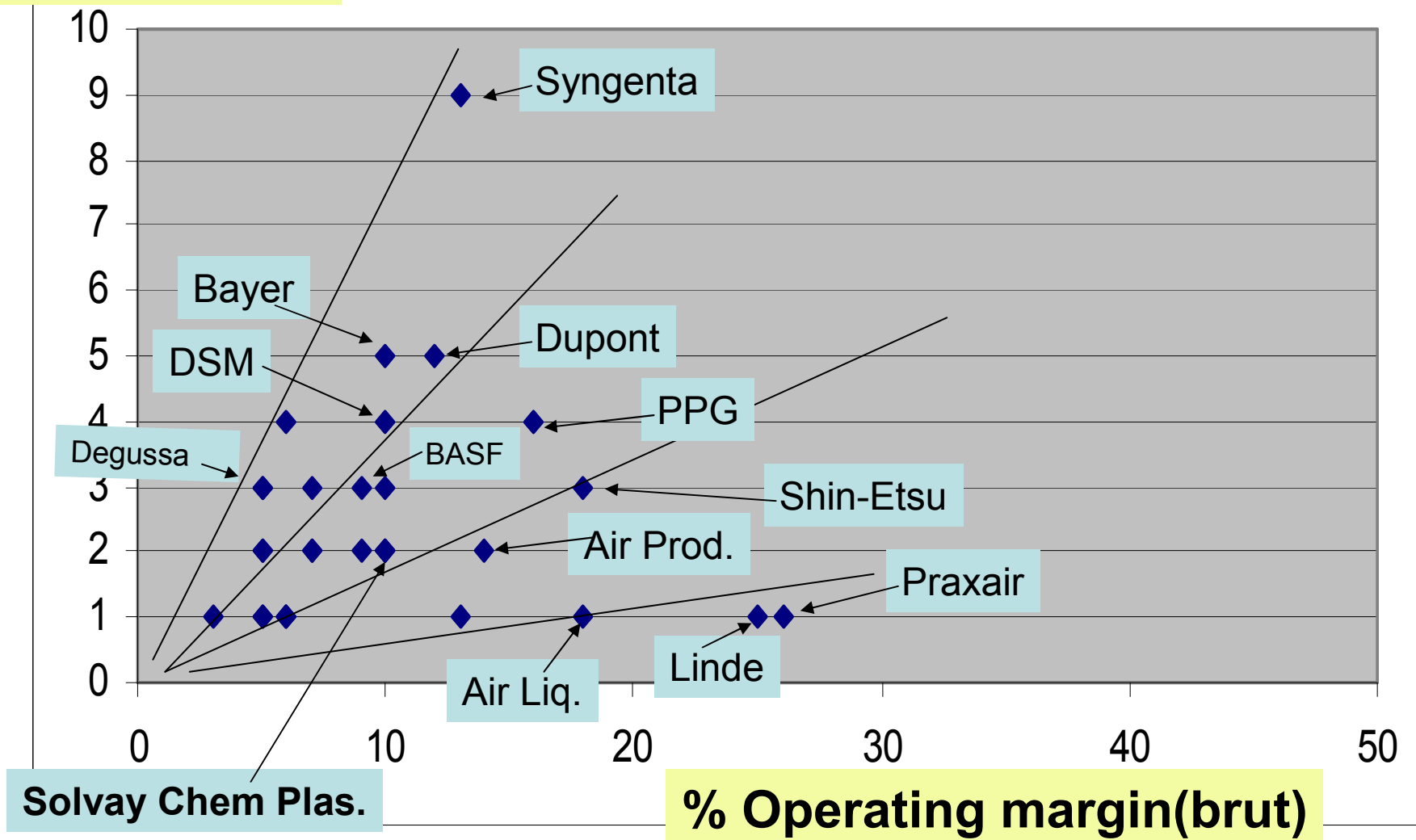


Chemical Industry- 2006 results

Relation « R&D intensity » versus « Operating margin »(brut)



% R&D/sales



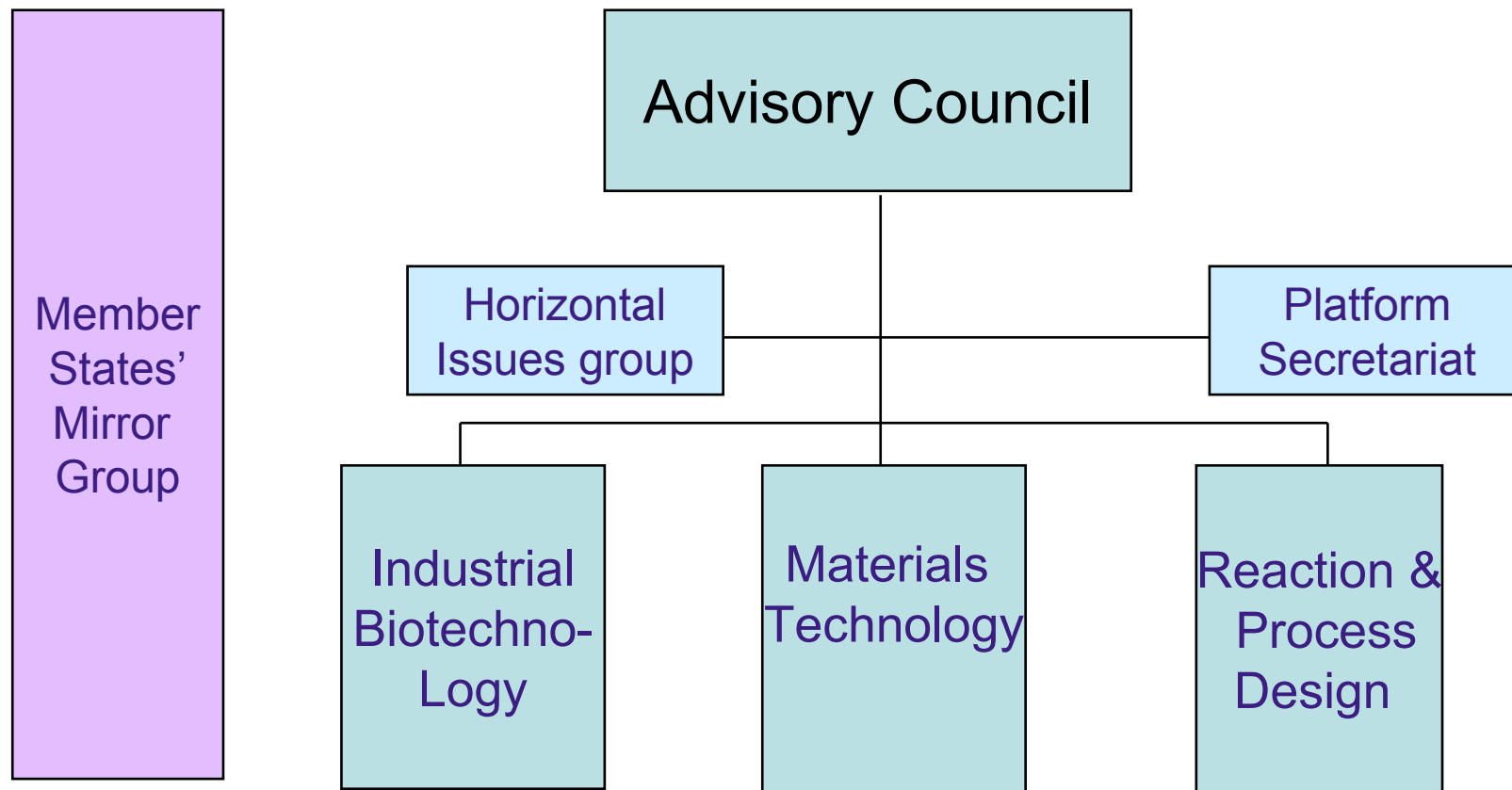
4. Development and future changes for EU chemical industry



- Ref: DG-enterprise/DG-research : HLG on « Competitiveness », on « Innovation ».....
- Key challenges:
 - ➔ Higher Productivity and lower costs (energy, raw materials,....larger plants... « Integrated platforms »....Cleaner... REACH compliance ...scavenging CO2 .e.g.)
 - ➔ Going to more « advanced products & quality »
 - ➔ for future development : « Sustainable chemistry »
 - see « **SusChem** » (CEFIC)(<http://www.suschem.org>)



EU Technology Platform « SUSCHEM » SUSTAINABLE CHEMISTRY



SusChem : key themes



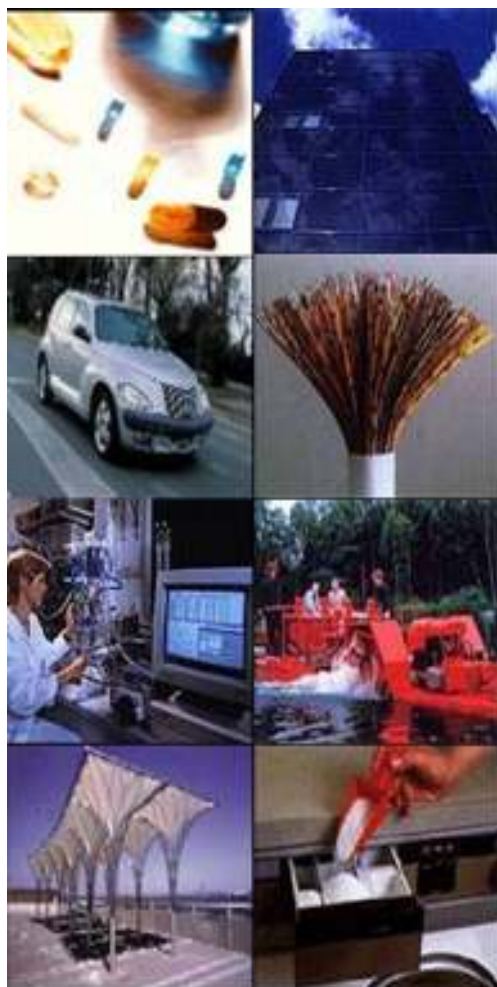
- Bio-based economy
- Energy
- Healthcare
- Information & Communication Technologies
- Nanotechnologies
- Sustainable quality of life
- Sustainable product & Process design
- Transport

Going to new management models



- for « Production/manufacturing »:
 - Large unit in JV with competitors (e.g.: HPPO unit in Antwerp : SOLVAY for H2O2 with BASF/Dow for PO)
 - « Satellites units in competitors plants and customers
- for New topics:
 - more Research with universities , +FP7, with ventures
 - more « networking/ consortium », « Technology Platforms »
 - « Corporate venturing », NBD, « Future business » organization

5. CONCLUSIONS



- « EU Chemical Industry », key sector of EU...need to receive more attention ...& « competitive » regulations ...to **increase « competitiveness » and « profitability »**
- in order to increase « R&D » ...going to more « Competitive plants », more **« advanced materials/quality »....**
- **with new management models** (large units in JV, R&D with universities, ventures, corporate venturing, NBD, Future Business...)

THANK YOU



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