Research and Technology Policy in the European Union

A Bottom-up Contribution to European Integration

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Research Policy is one of the largest single expenditure items in the EU budget. In 2009, the largest share of the budget (45% or €60 billion) goes to sustainable growth, which includes:

- research,
- innovation,
- employment,
- and regional development programs.
Of these € 60 billion, € 7.1 billion is the EC 2009 contribution to R&D programs for competitiveness within FP7.
Research, with education and innovation, is meant to form the ‘knowledge triangle’, which would allow Europe to maintain her economic dynamism and social model.
Qualified competitiveness

Compatible with the values that characterize and unite European citizens:
- Quality of life
- Welfare
- Respect of workers' rights
- Sustainable development
- Environmental protection
- Integration, not assimilation
- Negotiated conflicts resolution
To notch up market shares with the view of attaining sustainable development.

Competitiveness is linked to economic development and wealth creation.
Where does wealth come from?
Wealth in Europe (GDP p.c) (€ 000) from year 0001 to year 2000

... then an exponential growth with two discontinuities
~1500
~1800

~1000 € / year during 18 centuries ...
Wealth in Europe (GDP p.c) (€ 000)
from year 0001 to year 2000

Knowledge + Technology

Innovation + Growth
Wealth distribution in the world is changing
High tech trade increase in 1980-2003

EU stays behind in high-tech trade
High tech sectors: percent added value relative to total manufacturing

EU stays behind in high-tech manufacturing
Trade performance in high tech products

(trade balance as % of total exports, 1966).
R&D Expenditure (%GDP)

Best EU performers

- USA
- JP
- EU
- B
- DK
- D
- EL
- E
- F
- IRL
- I
- NL
- A
- P
- FIN
- S
- UK

- Industry
- Government
- Higher education

‘Industry’ includes the private non-profit sector.
The EU is a region with high labor and social costs.
EU cannot compete on price.
EU, in order to compete, should demonstrate the superiority of her products and services with reference to:
- quality
- design
- innovativeness
- ability to satisfy an ever-changing demand
Quality and Competitiveness in the 21st Century come from investments in education, lifelong learning, technological infrastructures research, and innovation.
How is the EU positioned in terms of competitiveness and innovation?
IT IS not difficult to be pessimistic about the future of European business. Compared with the awesome strength of America and the raw power of emerging Asia, Europe is sometimes portrayed as a has-been, excelling in luxury goods, fine food, wines and fashion but weighed down by too many old industries and old ideas. From microchips to microbes, poor old Europe seems to trail in America’s and Asia’s wake.

America enjoys awesome advantages over Europe. It is a huge, truly single market with a relatively youthful, growing population. Europe still has a market of 450 million consumers, but it is divided into 27 countries and 27 different cultures. Europe’s dealings with America are mediated through the World Trade Organisation. America’s are not. Europe’s financial market has been severely disrupted by subprime mortgages. America’s has not.

Europe’s political institutions are all powerful. America’s are not. Europe’s constitution is getting worse. America’s is getting better.

Don’t cry for Europe. It is home to the world’s fifth richest country, and the world’s best health service (at least if you live in France). Europe is the only continental power with both the will and the means to challenge America’s global dominance. It also has a creative spirit and a rare talent for turning what is not to its advantage. And it is the world’s most important democratic institution. America has to live with it, Europe does not have to live with America.
..if we looked beyond R&D spending to analyze the ability to transform research into marketable products - and therefore into jobs and growth
Aerospace

Airbus 380: the challenge of civil air transport has taken off
28 April 2005
BIG PLANE, BIG PROBLEMS

The largest passenger airliner ever built, the **AIRBUS A380**
has been a huge headache for its European manufacturer—
a $6 billion headache, measured by the expected loss in earnings
from production delays. Now the company is scrambling to keep
its customers onboard. **BY NELSON D. SCHWARTZ**

SOMETIMES IN LATE MARCH a giant will make its first
appearance in the skies over the U.S. The Airbus A380,
the largest passenger plane ever built, will touch down at John F.
Kennedy International Airport in New York City before heading
to Chicago’s O’Hare. While plane spotters and other aviation
enthusiasts eagerly await their first sighting of the 239-foot-long
monster, another group will be watching even more closely—
long-suffering A380 customers who have endured one delay after
another and are now wrestling with whether to stick with the
Cars
Cars, South Korea
Fashion
Good enough is better than best
PREMI LEONARDO QUALITA' ITALIA 2006

What is perceived as Quality in Europe?
Luganega sausage
In some areas it is simply synonymous with "sausage", but "luganega" is a typical peasant product >>

Tortiglioni with red chicory and sausage

The tastes of Italy
Italian Cooking
The Country of Flavours
Pleasure & Well-being
Getting together

RecipeFinder
Find the recipe you prefer>>

NEWSLETTER
Just for you, our secrets of fine eating and living revealed!
PREMI LEONARDO QUALITA' ITALIA 2006
Where is high tech?

In Asia!
Audiovisual and electronics  PRC & Taiwan
Also traditional products and services are at risk because not only products and services, but also processes to manufacture and service them should be high-tech.
Innovative technological content must be integrated in traditional products to allow extending the customer base beyond the reach of the marketing and service staff, enabling SMEs to take advantage of a globalized market.
Strategies for competitiveness
Les priorités de la nouvelle présidente du CNRS

S
ecoué depuis plusieurs mois par une crise qui a conduit à la
démission de son président,
Bernard Meunier, et au limogeage
de son directeur général, Bernard
Larrouetrou, le CNRS reprend ses
marques avec l’arrivée à sa tête de
Catherine Bréchignac.

Dans un entretien au Monde,
cette physicienne, qui a déjà dirigé
le CNRS de 1997 à 2000, déclare
vouloir « remettre la science au pre-
mière plan ». Ses priorités budgétai-
res : les sciences du vivant et de l’en-
vironnement, bien sûr, mais aussi,
de façon moins attendue, les mathé-
matiques, dont la dotation sera dès
 cette année augmentée de 4 %. Cet
engagement, qui est une manière de
saluer l’excellence de l’école
française de mathématiques, est à
rapprocher de celui annoncé, le
2 février, par le président George
Bush dans son discours sur l’état
de l’Union. La décision du prê-
dent américain est une initiative
que la National Science Foundation
(NSF) appelle depuis plusieurs
années de ses vœux, martelant que
la recherche fondamentale et les
mathématiques sont les nerfs de la
guerre économique de demain.
Brown hails 'Budget for schools'

A large increase in funding for schools in England was the centre-piece of Chancellor Gordon Brown's 10th Budget.

Mr Brown said his long-term aim was for state school pupils to get the same quality of education as private pupils.

Other measures saw road tax on "gas guzzling" cars but no repeat of last year's pensioners council tax rebate.
The EU answer to the competitiveness challenge

Year 2000: to build in Europe the most competitive economy of the world in the knowledge-based society.
Research Policy

- Research policy is enshrined in the Treaty on EU
- It is playing a very important role over and above the institutional objective of competitiveness by contributing to:
  - the achievement of the political union
  - the implementation of other policies
  - the irradiation of European values
EU research and technology policy were formalized in the mid-1980s by Etienne Davignon, Commissioner for Industry. His vision started a synergic process at the intersection between research and industrial policy and generated a new spirit of participation and cooperation within Europe.
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<th>Davignon entered into negotiations with the “Big 12 European ICT companies” to ensure a world market share and competitiveness for the European ICT industry</th>
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<td>AEG Electrolux</td>
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<td>Alcatel-Lucent</td>
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<td>FEDERATION DES ÉQUIPES BULL</td>
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<td>WINCOR NIXDORF</td>
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<td>PLESSEY Electronics</td>
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<td>THOMSON images &amp; beyond</td>
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The research strategy is built bottom-up

industries unite their research efforts

with the view to facing the long term technological challenges

while currently competing in the marketplace

and independently industrializing the research results into their individual product lines
Planning Research with Industry

the role of the Commission

Cookies worth € 7.1 billion
European Strategic Programme for R&D in Information Technology

The secret for success:

international structure of its consortia
involvement of all actors in its planning
focused funding on strategic priorities
effective monitoring of execution
exploitation of results
Soon, consultation and planning involved other actors in addition to the Big 12, so that the number of subjects involved grew to some thousands: researchers, SMEs, technology providers, users, system integrators, service providers, and public administrations.
The current EU answer to the competitiveness challenge

Year 2000: to build in Europe the most competitive economy of the world in the knowledge-based society

Development Policies
Information Society
Competitiveness
Education
Energy
Research
Lifelong Learning
Innovation
High Tech Infrastructures
Environment
The Lisbon Strategy

A challenging and evocative mission that might mobilize energies and consolidate the enlarging EU

Year 2000: to build in Europe the most competitive economy of the world in the knowledge-based society
However, major weaknesses affect the Lisbon Strategy

- lack of involvement of all stakeholders
- lack of a feeling of ownerships
- lack of consideration of the EU East-West gap
- lack of rewards and sanctions

The Lisbon Strategy might end up being only a recommendation without power of enforcement.
Nevertheless, the Lisbon Strategy put R&D center stage in EU strategic planning and created the conditions for a major increase of spending on R&D.
Framework Program, R&D, GDP
€ billion / year – EU27

FP  R&D  GDP
7   200  10000
Lisbon Target: R&D up to 3% of GDP

2/3 from private firms

FP  R&D  GDP

7    300  10000
Open systems
overcoming the dependence

Standards
Building the base for big business

Supporting SMEs
Access to finance
Administrative regulations

Interoperability
of multivendor systems

New ideas
moving towards the market

Supporting other
EU policies

Bridging the tech gap with the US

Networking the industrial R&D community

Best practice
Sharing the experience with best performers

New processes

Industrial alliances
beyond country borders

New patents

New materials
The results of EU-funded research are beyond counting and of very different nature.

Among intangible results: the impact of EU R&D on other EU policies beyond competitiveness.
EU research programs have facilitated mobility of scientists, researchers, industrialists and students. They have also promoted industrial partnerships and mergers between European companies.
Impact of R&D Policy on Internal Market and Competition Policy
Impact of R&D Policy on Internal Market and Competition Policy
R&D helps **Internal Market and Competition** by:

- overhauling the national champions policy,
- networking people and businesses,
- harmonizing standards
R&D helps the Enlargement policy by associating candidate countries to R&D programs, creating scientific as well as business links, and preparing for further integration.
R&D helps the Employment policy by creating new businesses that **generate jobs by the million**, e.g. in mobile, content industry, and multimedia.
Impact of R&D Policy on Environment

R&D helps the Environment policy by supporting the EU and the member states in taking informed decisions on ways to preserve the environment and protect human and animal health.
R&D helps the **Energy** policy with long-term project for preparing the future
- Energy saving
- Renewable energy sources
- New energy sources
R&D supports the **Transport** policy by helping Europe in developing a smarter, safer, cheaper, and greener multimodal transportation system.
R&D supports the **Consumer Protection** policy improving the health and wellbeing of European citizens.
R&D supports the Enterprise policy by enhancing competitiveness in the industrial and services sectors.
The ICT sector is worth well beyond its GDP share because of the ubiquitous presence of I&C technology in all economic activities.

Research on Information Society Technologies contribute to:

- meeting the globalization challenge by boosting innovation, creativity and competitiveness
- making Europe’s large public sector more efficient
- modernizing sectors ranging from education to energy
- tackling social challenges, improving quality of life and meeting the challenge of an ageing society

R&D supports the **Information Society** policy by delivering cutting-edge science and technology in all areas of society.
R&D in the Health sector includes research aimed at combating diseases and improving health and well-being. R&D helps the Health policy exploring new avenues in curing and preventing human illness and diseases and identifying health hazards at work and sources of danger to human health.
R&D helps the **Perception of the Value of Community Actions** by creating an awareness of what science and research funded by the EU can really bring to European citizens.
Research policy strengthens the scientific and technological base of EU productive activities. Its results are beyond counting and not limited to competitiveness: R&D also contributes to the realization of other EU policies. Changes are bottom up and affect people: researchers, industrialists, students, citizens. Changes affect enterprises as well. This bottom-up action builds a community united in diversity capable of facing the challenges of the globalized world.