

# **REPORT on Simplifying the Implementation of the Research Framework Programmes**

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- Science, education and innovation are pillars of economic growth and job creation
- Research and Innovation are at the heart of the European Union`s EUROPE 2020 Initiative
- Today`s economic situation is particularly difficult. In times of crisis, major demographic changes and increasing global competition, Europe`s competitiveness, the capacity to create new jobs and our future standard of living depends on our ability to drive innovation in products, services, business and social processes and models
- Research and innovation are also essential in tackling major societal challenges such as climate change, energy and resource scarcity, health and ageing

## THE PLACE OF EU IN A MULTI POLAR WORLD OF S&T

According to the STC key figures report 2008/2009:

- 80% of researchers work outside the EU
- 75% of GERD is executed in other parts of the world
- 69% of patent applications are made outside the EU
- EU's world share in GERD has diminished by 7.6% over the previous 6 years
- EU's world share of patent application has declined 14.2% over the previous 6 years
- While the ratio of the world share of patent applications/world share of GERD declined in the EU by 7%, it increased in the emerging economies of Asia by 53%
- Conclusion: Asian economies have increased their patents even more rapidly than their investments in research when compared with the EU

## THE PLACE OF EU IN A MULTI POLAR WORLD OF S&T- FUNDING

- EU is lagging behind the US, Japan and South Korea in terms of overall R&D intensity, due to the lower level of R&D funded and performed by the business sector

**2006**

**JAPAN TOTAL 3.39 PRIVATE 2.62**

**S. KOREA TOTAL 3.23 PRIVATE 2.43**

**US TOTAL 2.61 PRIVATE 1.69**

**EU-27 TOTAL 1.83 PRIVATE 1.00**

**CHINA TOTAL 1.42 PRIVATE 0.98**

**2000**

**JAPAN TOTAL 3.04 PRIVATE 2.20**

**S. KOREA TOTAL 2.39 PRIVATE 1.73**

**US TOTAL 2.73 PRIVATE 1.90**

**EU-27 TOTAL 1.86 PRIVATE 1.05**

**CHINA TOTAL 0.90 PRIVATE 0.52**

## THE PLACE OF EU IN A MULTI POLAR WORLD OF S&T- RESEARCHERS

**Since 2000 China has doubled its number of researchers and the number of researchers has grown twice as fast in the EU as in the US and Japan**

**2006**

**EU-27 1.33 million researchers**

**US TOTAL 1.39 million researchers**

**CHINA 1.22 million researchers**

**A sizeable increase in the number of researchers was observed between 2000 to 2006 – in China 9.9% per annum and in South Korea 10.5% per annum – when compared to EU-27 3.1% per annum, Japan 1.5 % per annum and US 1.5% per annum.**

## THE PLACE OF EU IN A MULTI POLAR WORLD OF S&T- PUBLICATIONS

**In 2006, EU-27 remained the largest producer of scientific publications in the world (EU 37% US 31%).**

**However the EU contributes less than the US to high impact publications (US 1.45% EU 0.97% - contribution to the 10% most cited publications)**

**China`s share of world scientific publications has more than doubled within six years and is now larger than that of the Japanese**

According to the 2009 EU Industrial R&D investment Scoreboard:

Among the top 50 R&D investors, the EU and the US account respectively for 16 and 18 companies ( for both, 2 less than the previous year) and Japan for 13 (4 more than the previous year)

In the list of top 10 R&D investors, Toyota Motors took the first place. The US still has five companies ( Microsoft, General Motors, Pfizer, Johnson & Johnson and Ford Motors). The EU has two companies Volkswagen and Nokia. The other two companies are from Switzerland: Roche and Novartis.

The companies in the EU top 50 are mainly from the Automotive (11), Pharmaceuticals (7) and IT-sectors (7) while the non-EU top 50 are mainly IT-related (20) or in the Pharmaceuticals and Biotechnology (13) sectors

Companies in the energy field also saw a sharp rise in R&D.

Companies based in emerging economies continued to show the highest R&D growth, led by China with a 40% increase, India 27.3%, Taiwan 25.1% and Brazil 18.6%.



Although there has been little development in R&D intensity at EU-27 level, R&D expenditure grew in real terms in all M. S. between 2000 and 2006 at varying rates, ranging from near 0.0% in the Netherlands and 3.4% in Belgium to 211% in Estonia.

The total real growth of R&D expenditure between 2000 and 2006 exceeds 100% in the Baltic States and in Cyprus.

It was greater than 60% in Hungary, Romania, the Czech Republic, Ireland and Spain.

The EU average real growth in R&D expenditure between 2000 and 2006 was 14.8%.

Portugal is slightly higher than the EU average (16.3%). UK (11.9%), Germany (9.3%), Italy (9.0%) and France (8.2%) are below the EU average.



R&D intensity increased in 17 M. S., in particular in the less R&D intensive M.S. between 2000 and 2006. R&D did not increase in the UK, France and Italy and increased only slightly in Germany.

The stability of EU-27 R&D intensity disguises quite different situations across M. S. and the Associated States. M.S. and A.S. can be divided into 4 groups according to the level of R&D intensity:

- Finland, Sweden, Denmark, Austria and Germany ( R&D intensity higher than 2.4%)
- France, Belgium and UK (between 1.7 and 2)
- Netherlands, Slovenia, Czech Republic, Luxembourg, Ireland, Spain, Estonia, Italy and Hungary (1% to 1.7%)
- Portugal, Lithuania, Latvia, Greece, Poland, Malta, Bulgaria, Slovakia, Romania and Cyprus ( less than 1%)

**EU-27 has 5.1 Scientists and engineers as % of labour force. However the situation varies across the M.S. with Belgium, Ireland, Finland, Sweden, Denmark, Netherlands, German with values from 8.0 and 6.0 and Bulgaria, Portugal and Slovakia around 3**

**R&D personnel account for 1.45% of total employment in EU 27. Proportions are high in Finland , Sweden, Luxembourg, Denmark and Norway (between 3.22 and 2.44).**

**In Latvia, Malta, Portugal, Poland, Cyprus, Bulgaria and Romania the R&D personnel accounts for less than 1% of the total employment**

## THE S&T PANORAMA IN THE DIFFERENT M.S.- TRAINING OF RESEARCHERS

The EU has produced more tertiary graduates and doctoral graduates than the US and Japan since 2000. Furthermore, the growth rates in the numbers of tertiary graduates and doctoral graduates were much higher in the EU than in the US.

In 2005, 1,000,000 doctoral degrees were awarded in EU-27 compared to 53,000 in the US and 15,000 in Japan.

The Nordic countries have, in general, achieved the highest growth rates for graduates, science and technology professionals, R&D personnel and researchers.

The share of population with tertiary education has increased in all EU countries

The share of adults that achieved a tertiary level of education is 22.9% in the EU. The share ranges from 33% in Finland and Denmark to 13% in Italy, Malta, Romania and Portugal and the Czech Republic.

Finland, Germany and Portugal have the highest share of doctoral graduates in the population aged 25-34 (Value higher than 2.5). Closely followed by Sweden, Austria and the UK (ratio 2 or higher) The EU-27 average is 1.4.

## THE S&T PANORAMA IN THE DIFFERENT M.S.- RESEARCHERS IN THE PRIVATE SECTOR

**EU-27 has a lower share of business researchers (49%) than the US (79%) and Japan (68%).**

**Within the EU-27, the share of researchers employed in the business sector ranges from 10.9% in Lithuania to 73.9% in Luxembourg.**

**M.S. above the level of 60% are Denmark, Germany, Luxembourg, the Netherlands, Austria and Sweden.**

**Countries below 30% are Bulgaria, Estonia, Greece, Cyprus, Latvia, Lithuania, Poland, Portugal and Slovakia.**

**Countries like Sweden, Denmark, Finland, the Netherlands, UK, Belgium, Austria, Ireland have a high scientific publications in relation to public expenditure on R&D**

**The highest number of patent application per million of population is found in Germany, followed by Finland, Luxembourg, Sweden, Netherlands, Denmark, Austria, Belgium, France, UK. The lowest numbers can be found in Portugal, Lithuania, Latvia, Slovakia, Poland, Bulgaria, and Romania.**

**In the Top 10 Companies by R&D investment , the profile of companies varies across the M.S.**

**Germany = automotive and chemical industry**

**Finland = telecommunications**

**Denmark = energy**

**France = automotive, telecommunications, energy**

**Sweden = automotive, telecommunications, energy**

**Netherlands = aerospace, electronics**

**UK = Pharmaceutical, telecommunications, chemical industry, energy**

**Spain = telecommunications, energy, automotive**

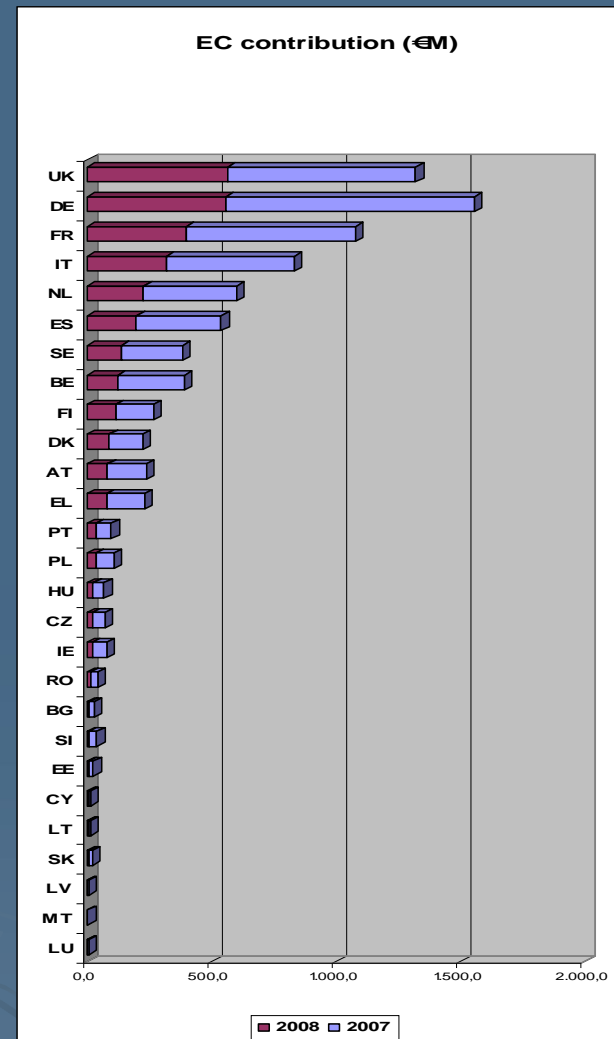
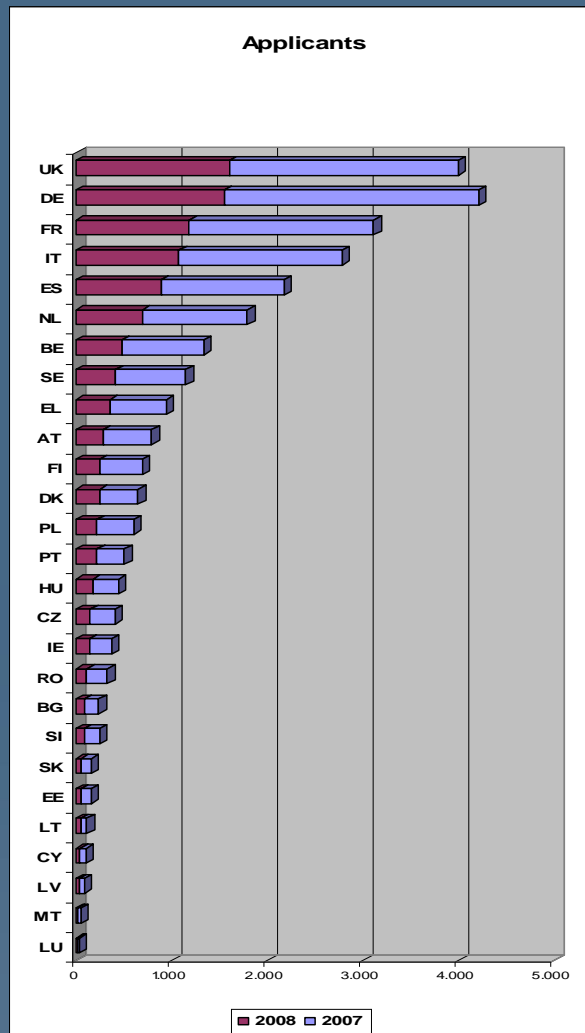
**Portugal = Banking, Construction, Biotechnology, energy**

## THE IMPORTANCE OF THE EUROPEAN RESEARCH PROGRAMMES

- The current European Framework Programme of research and development, with 52 Million Euros of funding, has an enormous strategic importance for the development of innovation, competitiveness and therefore employment of the European area



# THE PARTICIPATION OF THE DIFFERENT M.S. IN THE EUROPEAN RESEARCH PROGRAMMES



## THE STRENGTHS OF THE EU RESEARCH AND INNOVATION SYSTEMS

- We have world leading researchers, entrepreneurs and companies
- We have unique strength in our values, traditions, creativity and diversity
- We have created the largest internal market in the world
- European societies and civil society are actively engaged in emerging and developing economies around the world

## THE CHALLENGES OF THE EU RESEARCH AND INNOVATION SYSTEMS

- We have to tackle our weaknesses:
  - Under-investment in our knowledge foundation
  - Unsatisfactory framework conditions, ranging from poor access to finance, high costs of IPR to slow standardisation and ineffective use of public procurement
  - Too much fragmentation and costly duplication
  - Too much bureaucracy and red tape

## THE FUTURE OF EU RESEARCH AND INNOVATION SYSTEMS

- We must build on our strengths and tackle our weaknesses
- Europe should continue to invest in research, open up the research systems and promote free circulation of researchers, increase competition, and promote excellence
- In order to increase the knowledge intensity of the EU economy, the European research system must pursue the commercial application of the results of scientific research. This requires better cooperation between academia and business in a system of open innovation and the capacity to exploit research within high-tech, innovative SMEs
- Furthermore, European research systems should be more efficient and more effective in order to ensure a better return on investment
- We can and must do much better. Underlying all these reforms is the need to simplify

**The research community urgently calls for harmonization of the rules and procedures in the European research and Innovation programmes and for a general simplification of the financial accountability requirements**

**Recently, 13,000 researchers put their name to a petition urgently requiring more simplification and trust in EU research funding. This is a generalised feeling amongst researchers, academics and industry members.**

## THE IMPORTANCE AND URGENCY OF THE REPORT

**There is a real demand for improvement in the streamlining of research funding and administration.**

**Our work has genuine relevance and urgency as a result. Our report is particularly timely, given that we are just about to begin the interim evaluation of FP/ and to start on the preparation for the FP8.**

**Hopefully, our report will provide a firm foundation upon which we can subsequently build**

- The report involves extensive consultation including Universities, Research Centres, Enterprises and, in general, a whole range of stakeholders, experts and politicians
- 8,000 invitations to contribute to the Report were sent
- Many hearings were organised and the rapporteur was invited to attend key meetings ( e. g. organised by LERU, French Rectors, Belgium Presidency)
- The most substantial contributions may be found at:

[www.gracacarvalho.eu](http://www.gracacarvalho.eu)



**In so far as the general principles are concerned, three points:**

- 1. Simplification is in the interest of all stakeholders**
- 2. It is necessary to provide stability and legal certainty**
- 3. There is also a need for trust-based and risk tolerant approaches without sacrificing procedural rigour;**

### Three Main Points Concerning the Draft Report

1. **Administrative and Financial simplification**
2. **Improvement of quality, accessibility and transparency**
3. **Enhanced synergy between programmes and instruments**

### Administrative and Financial simplification

- Firstly, clear definition of what needs to be changed, how it needs to be changed, and at what speed
- Secondly, greater clarity can be achieved by further simplification in the rules governing funding and costing methodologies. For example, funding rates and costs calculation methods should be identical across the different instruments. Furthermore, the beneficiaries should be allowed to apply their usual management and accounting principles
- Finally, clarity in the definition of such things as eligible costs and taxes is of utmost importance. It is just as important to promote consistency in the application of rules across all the commission departments and audits

## Improvement of quality, accessibility and transparency

Improvement of quality, accessibility and transparency. Three topics:

- science-based approach promotes excellence whilst simplifying financial controls. However, before pursuing a "result-based approach" pilot tests should be carried out for research and demonstration projects in specifically challenging areas
- minimizing time to grant is to be encouraged. The two-stage application procedure provided that evaluation is undertaken thoroughly in the initial stage
- full integration of grants, evaluations and proposals into a unique IT platform. This should be sound, flexible and easy to use. The same platform should be used across all commission services and agencies

## Enhanced synergy between programmes and instruments

- Enhanced synergy between programmes and instruments
- Reduce the complexity of programmes and instruments, introducing uniform interpretation and application of rules and procedures.
- Harmonization across all the EU bodies involved.

# THE FP8

- radical overhaul of the administration of the FP is one of the highest priorities to be tackled in designing the forthcoming FP
- to assess the effectiveness of each individual instrument, within each programme and to reduce the diversity of instruments
- well balanced division between impact-driven and science-driven research as the basis for FP8
- FP8 should focus on frontier research while taking into consideration the whole chain of innovation through frontier research, technological development, demonstration, dissemination, valorisation of results and rapid integration of research results into markets
- further internationalisation of FP8 through cooperation with third countries, including developing countries

- Approved by all political groups in ITRE Committee - 30 September
- Plenary Session: Debate – 10 November
- Plenary Session: Votes – 11 November



- The report met the consensus of various political groups, of the Council, and has been supported by the Belgian and Spanish Presidencies
- The conclusions of the Competitiveness Council of 11 and 12 October demonstrate the consonance of views between the Parliament and the Council on this matter
- Simplification was a priority for the Belgian Presidency in the field of Science and Innovation
- The suggestions contained in the report were welcome by the European Commission, including Commissioner for Research, Science and Innovation, Maire Geoghegan-Quinn and the Director-General for Research Robert-Jan Smits

- The report marks only the beginning of a difficult road ahead
- European Commission is responsible for implementing the recommendations contained in the report
- Political support and monitoring by the European Parliament and the Council

## THE EXTENSION TO OTHER EU PROGRAMMES

- The simplification process can be extended to other European programs, notably the Structural Funds
- Programs with simpler rules, will also be more transparent and efficient. In times of crisis, the keyword is simplicity, flexibility and transparency
- Applying the principles of simplification to Structural Funds would allow higher performance, with consequent job creation

## THE ECONOMIC VALUE OF THE SIMPLIFICATION PROCESS

- It has been estimated that 25% of R&D project funding is dedicated to paperwork, thereby reducing  $\frac{1}{4}$  of funding available for science
- When the current Framework Programme comes to an end, up to 13 billion of the 52 billion euros available will have been directed to administrative and bureaucratic procedures

- European research programmes should be governed by a spirit of confidence and trust in the scientific and business community and their inventive and innovative capacities
- A better balance between trust and control and between risk taking and risk avoidance is required, while ensuring sound financial management
- We need a new evaluation culture, something which requires a trust-based partnership among all the partners. This will strengthen Europe in making it a more attractive working place