

Snapshots 'Key Figures 2003/2004'

2. Investment in Research and Development Are we still on track?

In March 2000, the Lisbon European Council launched the Union's decade-long strategy for economic, social and environmental renewal. This strategy aims at transforming the European Union by 2010 into *"the most competitive and dynamic knowledge based-economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion"*. The set of measures and decisions taken then, better known as 'the Lisbon strategy', entail reforms in three main dimensions: a) further consolidation and unification of the European economic environment; b) improvement of the creation, absorption, diffusion and exploitation of knowledge; and c) modernisation of the social model. Research and innovation therefore constitute one of the main pillars of the Lisbon strategy. The latest data on R&D investment allow us to assess to what extent we are on track in these fields.

- The slowdown in overall investment growth in the transition towards the knowledge-based economy in 2001, as described by the composite indicator on investment (see snapshot 1), was at least as strong in the US as in the EU-15. However, in the US it was almost exclusively due to weak growth in capital formation (see also Annex 1 in snapshot 1). As far as R&D expenditure is concerned, the EU-15 is far from closing the large absolute investment gap with the US. On the contrary the R&D investment gap between the EU-15 and the US has continued to increase in favour of the US. In 2001, the gap was PPS 87bn in real terms, and ?141bn in current terms (see Figure I-1b in publication). The gap has been widening since the mid-1990s and the latest data do not show any trend reversal. About 80% of that gap is caused by the difference in business R&D expenditure between the US and the EU-15.
- For the EU-15 to reduce this investment gap with the US, the annual rate of growth of R&D investment should be in real terms nearly twice as much as it is now: about 8% growth per year instead of 4.5% growth per year between 1997 and 2002. An annual real growth of 8% a year would also make it possible to reach the objective set at the Barcelona Summit (March 2002) by the Heads of State and Governments to devote 3% of GDP to R&D by 2010 (assuming an average GDP growth of 2% per year). This, however, implies a quick and substantial trend reversal.
- The recent progress made by some countries shows that the Barcelona target remains possible for the European Union as a whole. Sweden and Finland, for instance, had in 2001 R&D intensities (R&D expenditure as % of GDP) of well above 3%, whereas Germany was approaching that threshold (see figure I.1d below). For others, the 3% objective is not realistic in the short-term. However, they will contribute to the realisation of this objective by increasing their efforts.
- At the Barcelona Summit, the Heads of State and Governments also asked for an increased involvement of the private sector. Therefore they put as target that 2/3rd of the R&D expenditure should be financed by the private sector by 2010. In 2001 the business sector still financed much more R&D in Japan and in the US than in the EU-15 or EU-25, which reflects the more market-driven character of US and Japanese research systems (table I-1a). **In the EU-15 (EU-25), only 56% of R&D is financed by the business sector, against 66% in the US and 73% in Japan.**
- The large absolute gap in EU-US business R&D expenditure, mentioned previously, does not mean that the larger EU-15 companies are lagging behind in R&D investment. These

companies even perform rather well relative to very large companies in both the US and Japan (see Table I-2a in publication). **EU-15 firms account for a large and growing share of R&D expenditure by the top 300 international firms in terms of R&D investment.** While **between 1998 and 2002** the US share declined from 42.8% to 40.9% and the Japanese one from 22.7% to 21.7%, **the European share increased from 28.1% to 31.3%.** The EU-15 share continued to grow during the period 2001-2002, when overall growth in R&D expenditure by the top 300 international firms was negative. But European firms are also investing increasingly in non-European countries, such as Asian countries and the USA, so that Europe gets less and less from the R&D investment of its larger companies.

- If one compares business R&D expenditure by the EU-15 and US firms from the top 300 international firms by sector (Figure I-2g), then it can be seen that the EU-15 firms spend substantially less than their US counterparts in 'pharmaceuticals & biotechnology', 'IT hardware' and 'software & computer services'. However, they maintain substantial leads in 'automobiles & parts', 'electronics & electrical equipment' and the remaining sectors.

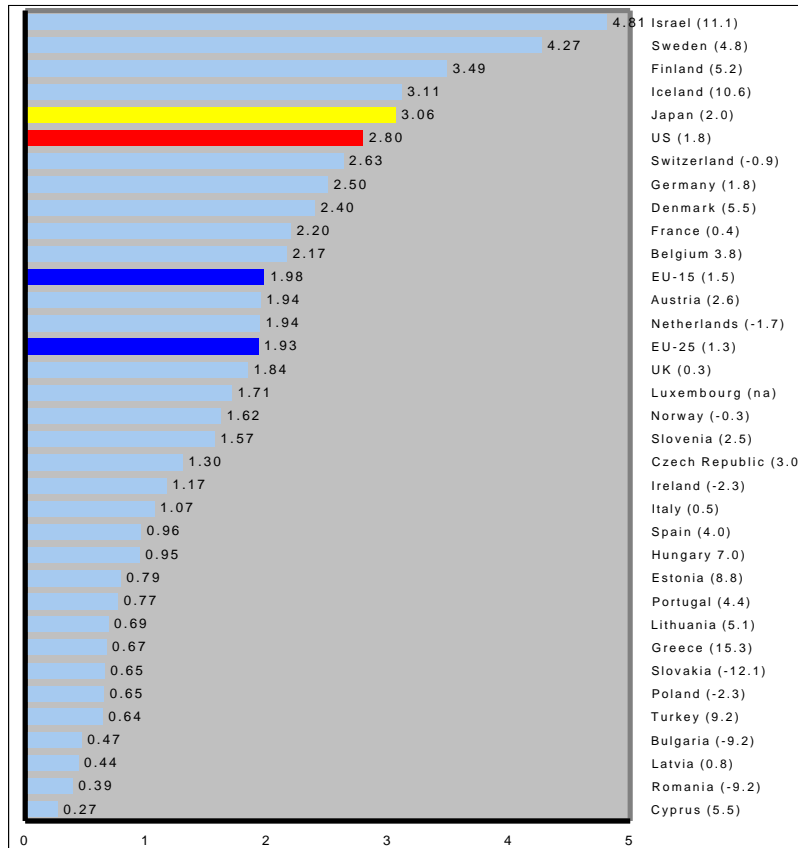
In spite of some progress made during the last few years, it appears from the latest data that a more substantial stimulation of R&D investment is needed if the EU-15 is to reach the goals set by the Lisbon and Barcelona councils. Therefore, the European Commission has put forward an 'Action Plan for more Research in Europe'¹ defining a coherent range of actions to be undertaken at national, regional and EU-15 level across a range of policies, and by other stakeholders (industry, investors and the public research sector). Concrete steps have been taken to implement the action plan. For instance:

- The launch of a first series of **European Technology Platforms** is underway. The aim is to develop and implement strategic research agendas for a range of key technology sectors, and to **mobilise resources at European level** through co-ordination and integration of efforts.
- Co-operation between the Commission's research activities and the **European Investment Bank** has been deepened and formalised. This has resulted in a large increase in new EIB means to support research and innovation (up to € 50 billion by 2010) and a broader range of instruments better adapted to needs under its new "**Innovation 2010 Initiative**" (i2010i).
- The EU-15 regulation extending the block exemption of **state aid for R&D** to SMEs is planned for adoption by the Commission early in 2004. This will greatly simplify implementation of schemes to support investment by SMEs in R&D in the Member States.

Mobilising research investment through public-private partnerships has been taken as one of the two priorities of the Commission's new **European Initiative for Growth** to stimulate growth and employment throughout the EU. An initial list of research, development and innovation projects is included under the initiative's **Quick Start** programme with the aim of mobilising more effectively public (at national and EU-15 levels, EIB, etc.) and private financing.

¹ For more details on this Action Plan, see the Communication from the Commission: 'Investing in research: an action plan for Europe (COM(2003)226/final/2). The Action Plan will be included in the Spring 2004 Report of the Commission.

Figure I-1d R&D intensity (GERD as % of GDP), 2001 (1); in brackets: average annual growth rates of R&D intensity (%), 1997–2002 (2)



Source: DG Research
Data: OECD, Eurostat

Key Figures 2003-2004

Notes: (1) or latest available year: EL: 1999; IT, NL, LU, CH, TR: 2000; DE, FR, AT, PT, FI, UK, IS, US: 2002. EU-15, EU-25 data are estimated by DG Research and do not include MT. (2) or nearest available years: CH: 1996–2000; EL: 1997–1999; IT, NL, TR: 1997–2000; CY, EE: 1998–2001; BG: 1999–2001; BE, DK, ES, FR, IE, SE, EU-15, CZ, HU, LT, LV, PL, SI, SK, EU-25, RO, NO, JP: 1997–2001; FR: 2000–2002. EU-15, EU-25 data are estimated by DG Research and do not include LU and MT.

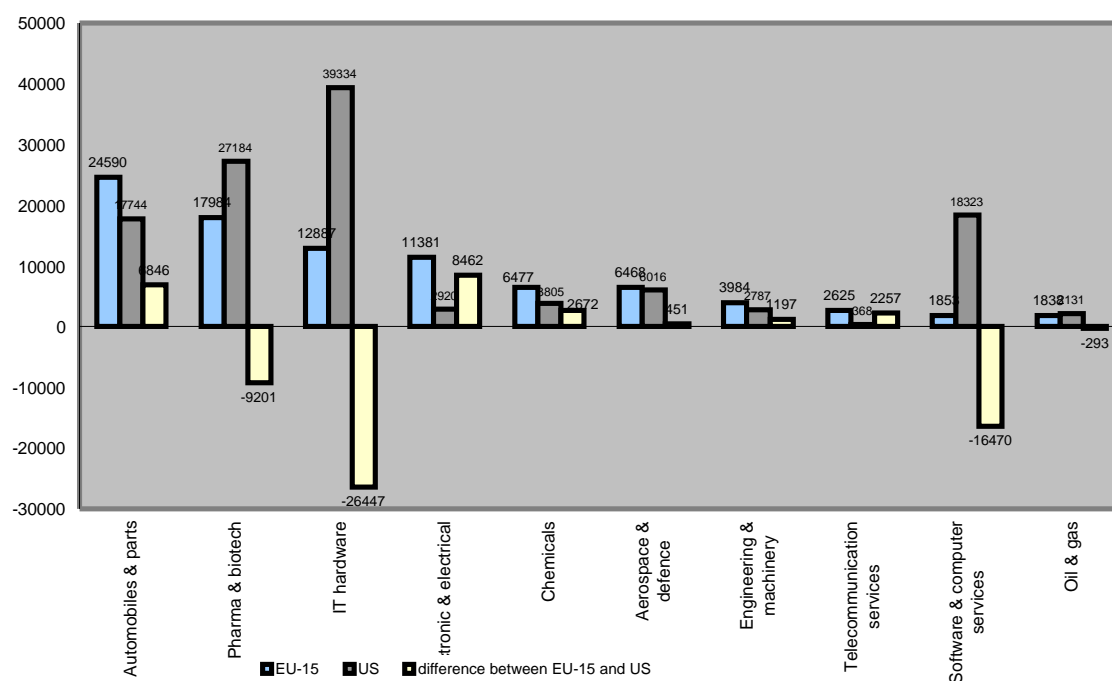
Table I-1a R&D expenditure by main sources of funds (%), 2001 (1)

	Business enterprise	Government	Other national sources	Abroad
Belgium	66.2	23.2	3.3	7.3
Denmark (2)	58.0	32.6	3.5	5.3
Germany	66.0	31.5	0.4	2.1
Greece	24.2	48.7	2.5	24.7
Spain	47.2	39.9	5.3	7.7
France	52.5	38.7	1.6	7.2
Ireland	66.0	22.6	2.6	8.9
Italy	43.0	50.8	-	6.2
Netherlands	50.1	35.9	2.6	11.4
Austria	39.0	42.1	0.3	18.6
Portugal	32.4	61.2	2.1	4.4
Finland	70.8	25.5	1.2	2.5
Sweden	71.9	21.0	3.8	3.4
UK	46.2	30.2	5.7	18.0
EU-15 (3)	56.1	34.0	2.2	7.7
Cyprus	17.5	66.5	6.5	9.4
Czech Republic	52.5	43.6	1.7	2.2
Estonia	24.2	59.2	3.9	12.7
Hungary (2)	34.8	53.6	0.4	9.2
Latvia	29.4	41.5	na	29.1
Poland	30.8	64.8	2.0	2.4
Slovenia	54.7	37.1	1.1	7.2
Slovakia	56.1	41.3	0.8	1.9
EU-25 (4)	55.8	34.4	2.2	7.6
Bulgaria	24.4	69.2	1.1	5.3
Romania	47.6	43.0	1.2	8.2
Turkey	42.9	50.6	5.3	1.2
Switzerland	69.1	23.2	3.4	4.3
Iceland	46.2	34.0	1.6	18.3
Norway	51.7	39.8	1.4	7.1
Israel	63.9	28.8	3.4	3.8
US (5)	66.2	28.7	5.1	na
Japan	73.0	18.5	8.1	0.4

Source: DG Research
Data: OECD, Eurostat

Key Figures 2003-2004

Figure I-2g R&D expenditure by top EU-15 and top US business R&D spenders in selected sectors, 2002



Source: DG Research
Data: R&D Scoreboard 1999 and 2003, DTI Future & Innovation Unit and Company Reporting Ltd.

Key Figures 2003-2004