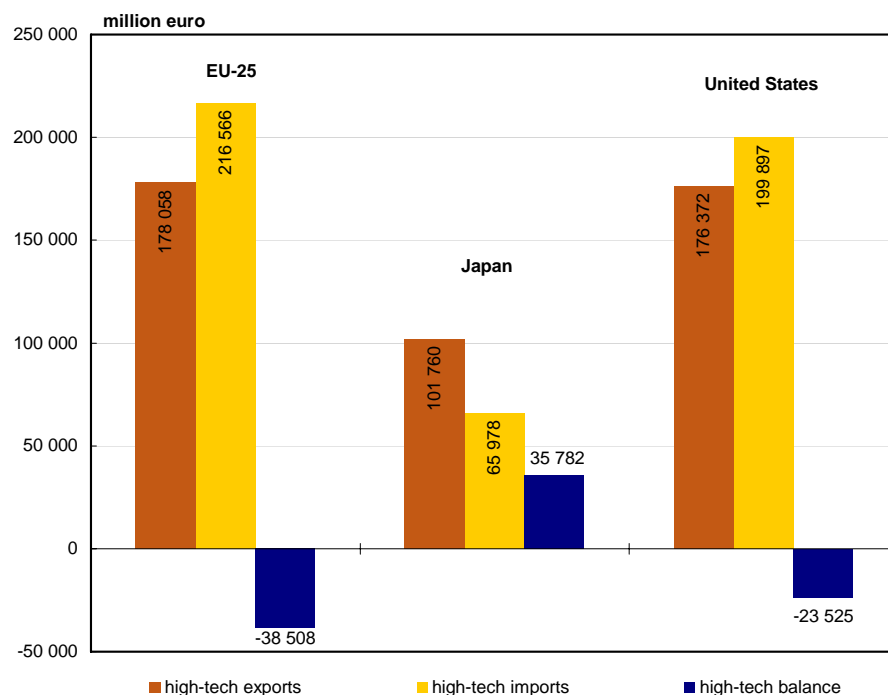


# Trade in high-tech products

## Good progress in high-tech trade by the new Member States

Figure 1: High-tech trade in million euro,  
EU-25, Japan and the United States — 2004



EU-25 does not include intra-EU trade.

Source: Eurostat/high-tech statistics.

### Main findings

- In 2004, the EU-25 was the leading exporter and importer of high-tech products in the world, with goods worth EUR 178 billion and EUR 217 billion respectively. However, compared with Japan and the United States, the EU-25 also had the largest high-tech trade deficit.
- In absolute terms, Germany was the largest importer (EUR 100 billion) and exporter (EUR 112 billion) of high-tech products in the EU-25 in 2004.
- Malta, Ireland and Luxembourg had the largest shares of high-tech products in their total external trade.
- As high-tech exports increased at a higher rate than high-tech imports, the EU-25's high-tech deficit narrowed from EUR 43 billion in 1999 to EUR 38 billion in 2004.
- The countries with big increases in high-tech trade between 1999 and 2004 were mainly the new Member States and the candidate countries.
- In 2004 by far the most traded high-tech product group was "Electronics-telecommunications".
- The distribution of high-tech exports from the EU-25 and from the United States was quite diversified yet fairly similar although it was more specialised from Japan. Japan's high-tech imports showed a much more similar distribution to the EU-25 and the United States than its high-tech exports.

## Statistics in focus

### SCIENCE AND TECHNOLOGY

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Author

Bernard FELIX

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## In absolute terms, as regards trade balance Germany is the leader in the EU-25

As shown in Figure 1, in 2004 the EU-25 was the world's leading exporter and importer of high-tech products. It was closely followed by the United States with Japan further behind. High-tech exports from and imports to the EU-25 totalled EUR 178 billion and EUR 217 billion respectively, counting only extra-EU trade. At the same time the EU-25 also recorded the largest high-tech trade deficit with a figure of more than EUR 38 billion.

The United States exported EUR 176 billion worth of high-tech products and imported EUR 200 billion worth, whereas Japan's high-tech exports added up to slightly over EUR 100 billion but its imports to just EUR 66 billion.

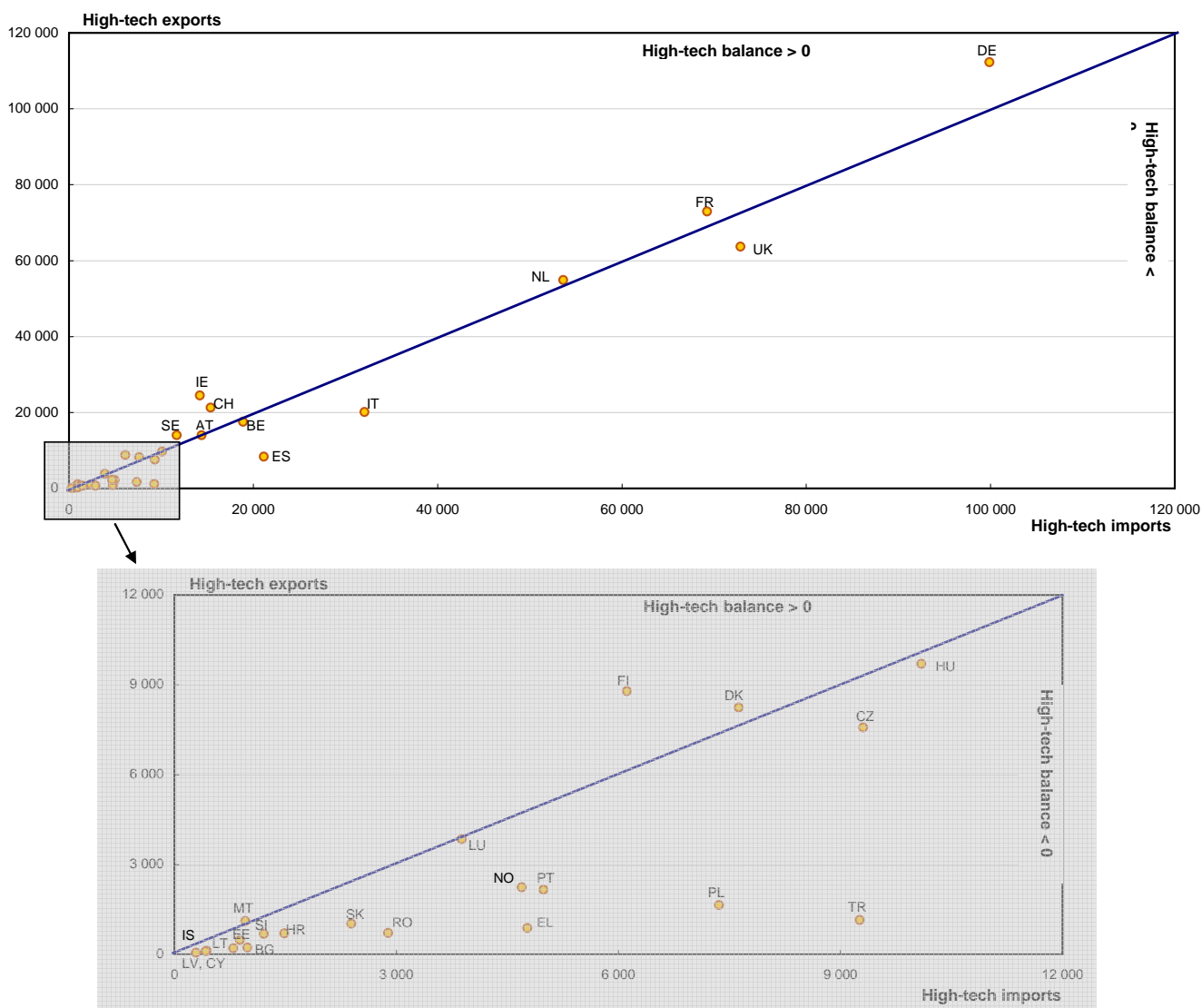
Japan was the only one of the world's three major economies to post a trade surplus in high-tech products (EUR 36 billion).

At Member State level, several also had a positive trade balance in high-tech products, notably Germany, France, the Netherlands, Ireland, Sweden, Finland and Denmark (see Figure 2). Conversely, countries such as the United Kingdom, Italy and Spain recorded a negative balance in high-tech products. With the exception of Malta, this was also the case for all the new Member States and the candidate countries.

In absolute terms, Germany was the largest importer (EUR 100 billion) and exporter (EUR 112 billion) of high-tech products in the EU-25 in 2004. These figures were also higher than those for Japan.

In absolute terms, Germany was followed by France, the United Kingdom and the Netherlands, each with high-tech exports and imports worth more than EUR 50 billion.

**Figure 2: High-tech exports and high-tech imports in million euro, EU-25 and selected countries — 2004**



Source: Eurostat/high-tech statistics.

## As a share of total trade, Malta reported the highest proportions of high-tech products

Among the three leading economies in the world, the United States came first in terms of the proportion of high-tech exports in total exports with 26.8%. Japan followed with 22.4%, whereas high-tech exports accounted for only 18.4% of total exports from the EU-25 in 2004 (see Figure 3).

Looking at high-tech imports, the ranking is reversed: the high-tech share of imports stood at 21.0% in the EU-25 against 18.0% in the United States and 16.3% in Japan.

Malta led by a long way in terms of the high-tech share of total exports (55.9%) and of total imports (32.5%). Moreover, Malta's high-tech trade was highly specialised in "Electronics-telecommunications" (see Table 6).

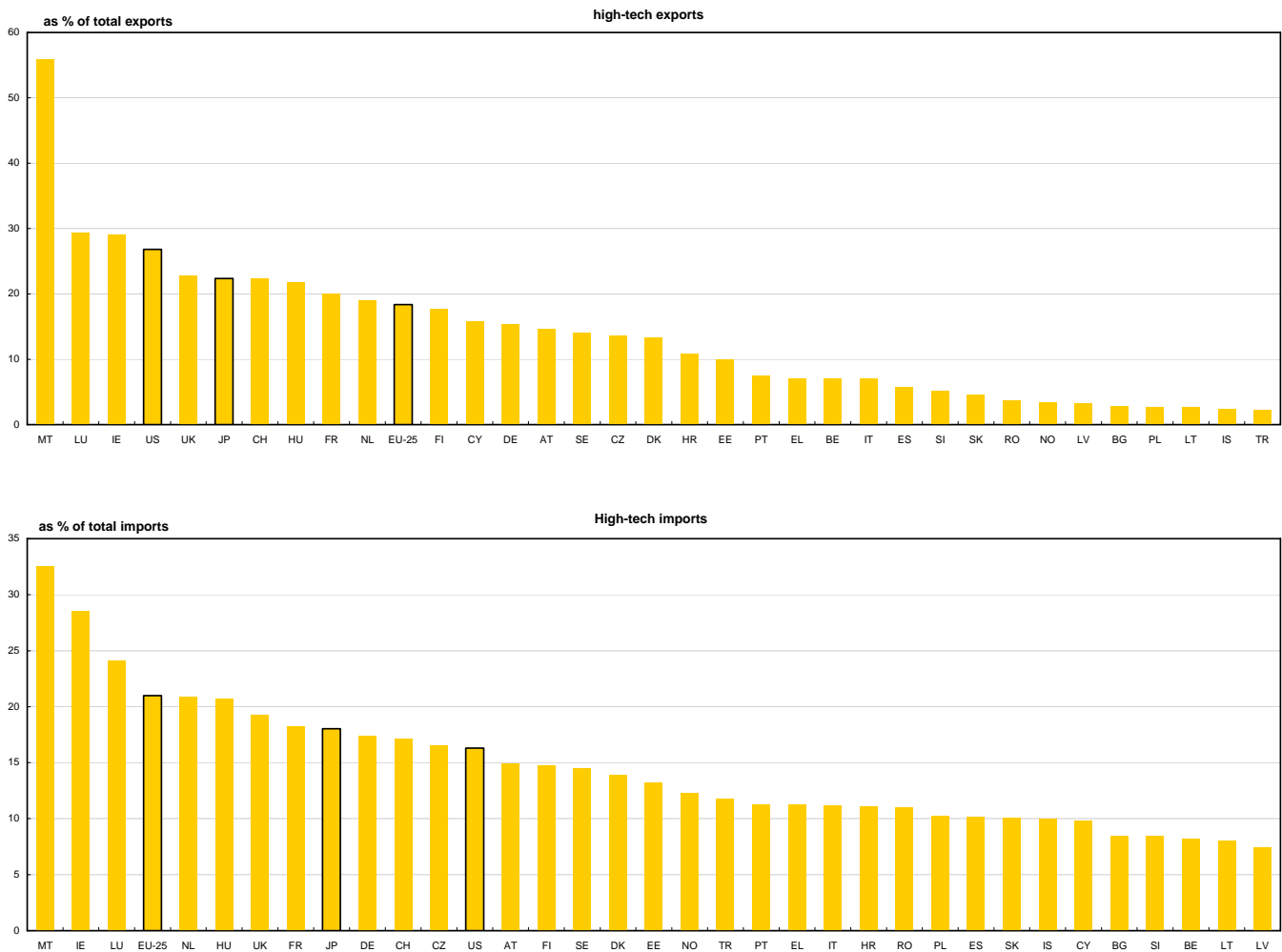
Malta was followed by Luxembourg and Ireland. These were also the three countries with a share of high-tech imports above the EU-25 average (21.0%).

On the export side, in addition to the three aforementioned countries, four other Member States had a high-tech share of exports above the EU-25 average of 18.4%: the United Kingdom (22.8%), Hungary (21.7%), France (20.1%) and the Netherlands (19.1%).

Germany, the leading EU Member State in absolute terms for both high-tech exports and high-tech imports ranked below the EU-25 average in relative terms with 15.4% and 17.4% respectively (due to its high total trade values).

High-tech trade played no prominent role in 15 countries: Portugal, Greece, Belgium, Italy, Spain, five new Member States, three candidate countries, Iceland and Norway. The share of high-tech imports was even under 10% in Cyprus, Bulgaria, Slovenia, Belgium, Lithuania and Latvia.

**Figure 3: High-tech imports/exports as a percentage of total imports/exports, EU-25 and selected countries — 2004**

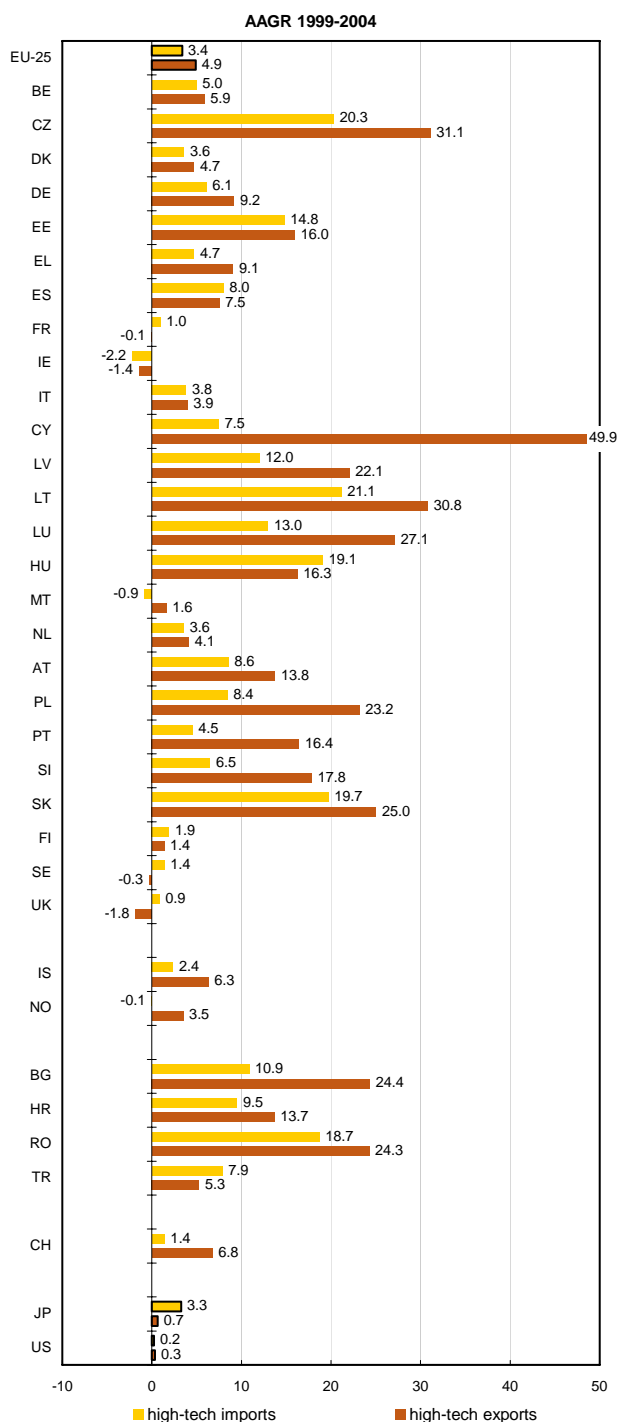


EU-25 does not include intra-EU trade.

Source: Eurostat/high-tech statistics.

## High-tech exports from the EU-25 grew faster than its high-tech imports

**Figure 4: Annual average growth rate (AAGR) of high-tech imports and exports, EU-25 and selected countries, 1999-2004**



EU-25 does not include intra-EU trade.  
Exception to the reference period:  
HR: 2002-2004

Source: Eurostat/high-tech statistics.

Figure 4 shows the annual average growth rates (AAGR) in high-tech exports and imports over the period 1999 to 2004.

The EU-25 recorded growth in both high-tech exports (4.9%) and imports (3.4%).

The EU-25's growth rates were above those of Japan and the United States for the same period. Japan recorded annual average growth rates for high-tech imports of 3.3%, while its high-tech exports increased at a rate of 0.7% per year. High-tech imports and exports to and from the US remained fairly stable with annual average growth rates of 0.2% and 0.3% respectively.

As high-tech exports increased at a higher rate than high-tech imports between 1999 and 2004, the EU-25's high-tech deficit narrowed during the same period (from EUR 43 billion in 1999 to EUR 38 billion in 2004).

With the exception of Spain, France, Finland, Sweden, Hungary, the United Kingdom and also Turkey, between 1999 and 2004 high-tech exports grew faster than high-tech imports in all the EU-25 Member States and candidate countries, plus Iceland and Norway.

The countries with the fastest increases in high-tech trade between 1999 and 2004 were mainly the new Member States and the candidate countries.

Cyprus recorded the highest annual average growth rate in high-tech exports between 1999 and 2004 (49.9%), followed by the Czech Republic (31.1%) and Lithuania (30.8%). On the import side, Lithuania saw the highest growth (21.1%), followed by the Czech Republic (20.3%) and Slovakia (19.7%).

Among the four leading EU Member States in terms of high-tech trade (in absolute value) — Germany, France, the United Kingdom and the Netherlands — Germany achieved the highest growth (9.2% for exports and 6.1% for imports) between 1999 and 2004. High-tech exports decreased slightly from France (-0.1%) and the United Kingdom (-1.8%).

Apart from France and the United Kingdom, high-tech exports also decreased from Ireland and Sweden between 1999 and 2004, whereas high-tech imports fell only in Ireland and Malta.

Despite these declines, Malta and Ireland were among the top three countries in terms of high-tech trade as a proportion of total trade in 2004 (see Figure 3).

As well as being among the leading countries in relative terms, Luxembourg also reported strong growth rates in high-tech trade between 1999 and 2004 (27.1% for exports and 13.0% for imports).

## High-tech imports are more diversified than high-tech exports both at international level and within Europe

Looking at the distribution of high-tech trade by group of products in 2004 (see Figure 5), by far the most traded group was “Electronics-telecommunications”.

“Electronics-telecommunications” accounted for more than half (50.7%) of Japan’s high-tech exports and 38.1% of its high-tech imports. These goods also contributed at least 30% to high-tech exports and imports in the EU-25 and the United States.

The second highest export category was “Aerospace” in the EU-25 (23.2%) and in the United States (19.0%) and “Computer & office machinery” in Japan (18.1%). “Aerospace” made up only 1% of Japan’s high-tech exports.

“Scientific instruments” and “Pharmacy” totalled 14% and 10% of the EU-25’s high-tech exports respectively. Their shares were 17% and 1% in Japan and 14% and 5% in the United States.

The category “Other” which includes products such as “Electrical machinery”, “Chemistry”, “Non-electrical

machinery” and “Armament” generated approximately one tenth of the high-tech exports from the three major world economies.

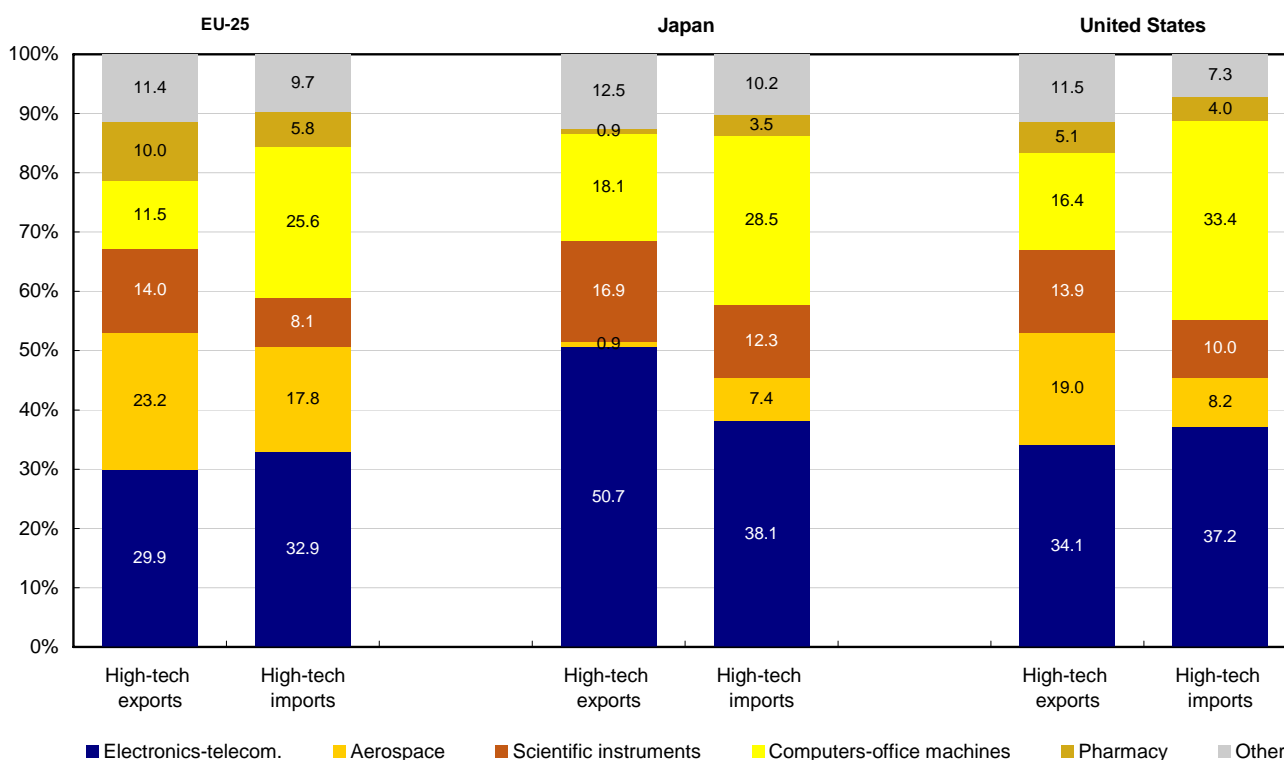
Overall, the distribution of high-tech exports was quite similar in the EU-25 and the United States but more concentrated in Japan.

Behind “Electronics-telecommunications”, “Computer & office machinery” was the second largest group in terms of imports into the EU-25, Japan and the United States. In fact, this group of products contributed more than one quarter of high-tech imports into all three economies.

“Aerospace” imports made up 17.8% of high-tech imports into the EU-25 but under 10% in Japan and in the United States.

Japan’s high-tech imports showed a much more similar distribution to the EU-25 and the United States than its high-tech exports.

**Figure 5: Distribution of high-tech exports and imports by group of products<sup>(1)</sup>, EU-25, Japan and the United States — 2004**



EU-25 does not include intra-EU trade.

(1) “Other” includes “Electrical machinery”, “Chemistry”, “Non-electrical machinery” and “Armament”.

Source: Eurostat/high-tech statistics.

Table 6 shows, country by country, total high-tech exports and imports in million euro, the share of extra-EU trade and the distribution of trade by group of high-tech products.

Although “Electronics-telecommunications” made up the largest share of high-tech exports from 14 Member States plus Iceland, Norway, Bulgaria and Romania in 2004, the distribution of high-tech exports by group of products was more varied between countries.

France and the United Kingdom, the second and third largest exporters of high-tech products at the EU-25 level, recorded a high share of their exports in “Aerospace”, with 49% and 28% respectively. “Aerospace” also scored heavily in Lithuania and Turkey.

Belgium, the Czech Republic, Ireland, Luxembourg, the Netherlands and Slovakia had high shares of exports in “Computer and office machinery”, while “Pharmacy” featured prominently in Denmark, Slovenia and Switzerland.

Finally, more than 90% of high-tech exports from Iceland were “Scientific instruments”.

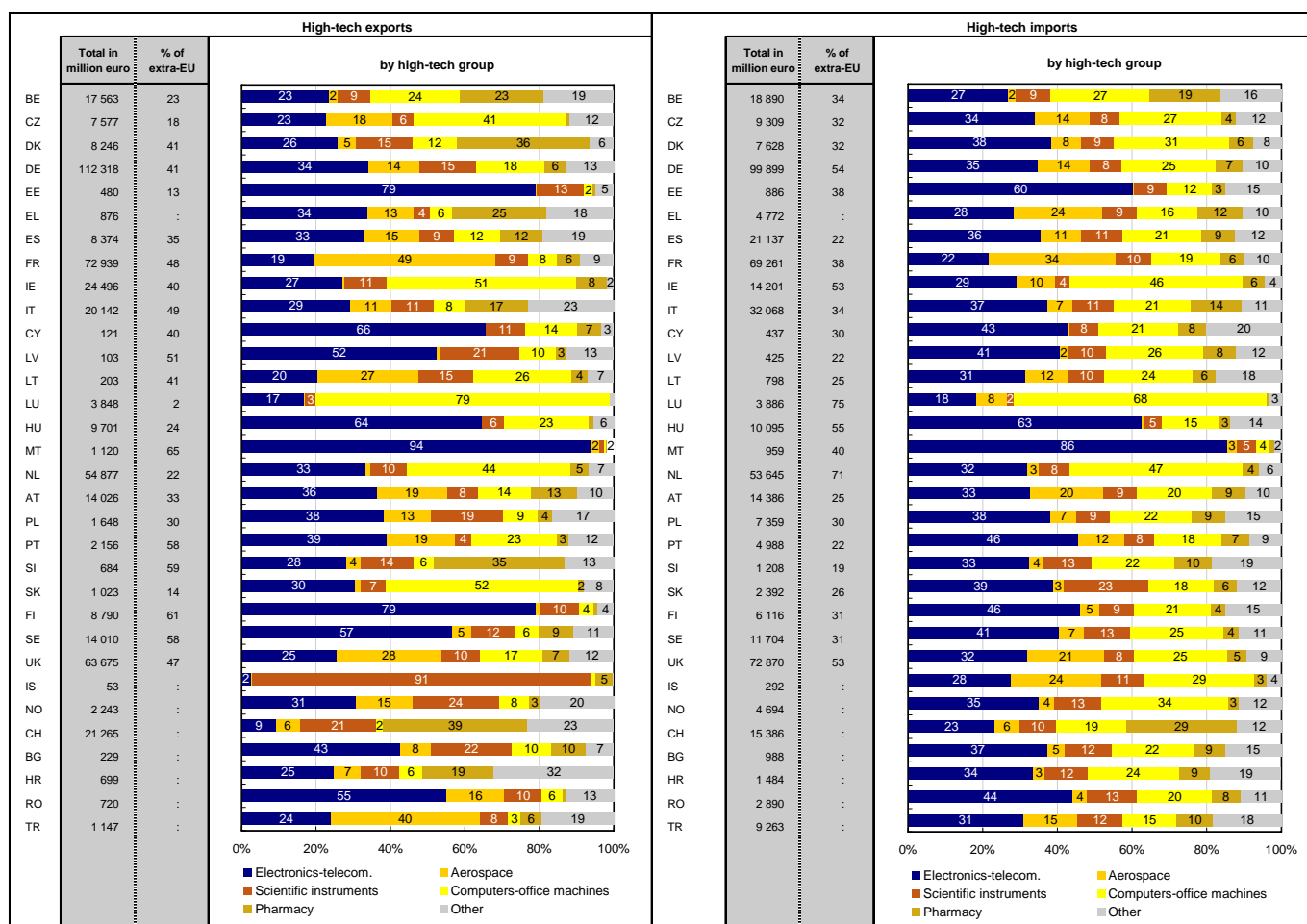
The breakdown of high-tech imports by group of products was less diversified across countries.

With the exception of France, Ireland, Luxembourg and the Netherlands, the highest share of high-tech imports was taken by “Electronics-telecommunications” for all the EU-25 Member States plus Norway and the candidate countries.

The most heavily imported groups of high-tech products in 2004 were “Computer and office machinery” in Ireland (46% of total high-tech imports), Luxembourg (68%), the Netherlands (47%) and Iceland (29%) and “Aerospace” in France (34%).

However, “Aerospace” also took a sizeable share of high-tech imports in Greece (24%), Austria (20%), the United Kingdom (21%) and Iceland (21%). Switzerland was the only country where “Pharmacy” took the largest share of high-tech imports (29%).

**Table 6: Total high-tech exports and imports, share of extra-EU trade and distribution by group of products<sup>(1,2)</sup>, EU-25 and selected countries — 2004**



<sup>(1)</sup> “Other” includes “Electrical machinery”, “Chemistry”, “Non-electrical machinery” and “Armament”.

<sup>(2)</sup> If under 2%, the value of the proportion by high-tech group of products does not appear in the figures.

Source: Eurostat/high-tech statistics.

## ➤ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

### High-tech products

In order to analyse the competitive and trade performance of high-tech trade markets, two main approaches are used to identify technology-intensive industries and products: the sectoral approach and the product approach.

The product approach was devised to complement the sectoral approach. It opens the way to far more detailed analysis of trade and competitiveness. The product list is based on the calculations of R&D

intensity by groups of products (R&D expenditure/total sales). The groups classified as high-technology products are listed in the table below. Exports and imports of these products comprise high-tech trade.

For the purposes of this issue of *Statistics in Focus*, the product approach is used to analyse trends in high-tech trade, which makes up a considerable proportion of total trade in many advanced economies.

High-technology products are defined as listed below:

List of high-technology groups of products	SITC Rev. 3
Aerospace	7921+7922+7923+7924+7925+79293+(714-71489-71499)+87411
Computers-office machines	75113+75131+75132+75134+(752-7529)+75997
Electronics-telecommunications	76381+76383+(764-76493-76499)+7722+77261+77318+77625+7763+7764+7768+89879
Pharmacy	5413+5415+5416+5421+5422
Scientific instruments	774+8711+8713+8714+8719+87211+(874-87411-8742)+88111+88121+88411+88419+89961+89963+89967
Electrical machinery	77862+77863+77864+77865+7787+77844
Chemistry	52222+52223+52229+52269+525+57433+591
Non-electrical machinery	71489+71499+71871+71877+72847+7311+73135+73144+73151+73153+73161+73165+73312+73314+73316+73733+73735
Armament	891

### Sources

All high-tech trade data relating to the EU-25 Member States and candidate countries are based on data extracted from the **COMEXT** database — Eurostat's database of official statistics on EU external trade and trade between EU Member States.

Trade data reported by non-EU countries were extracted from the UN Statistical Office's **Comtrade** database.

Data on trade in high-tech products are available on Eurostat's **NewCronos** reference database under the domain "Science and Technology" and in the collection "Statistics on high-tech industries and knowledge-intensive services".

### Time series

The trade data presented in this issue of *Statistics in Focus* cover the reference period 1999-2004.

### European totals

The EU-25 totals reported include only extra-EU trade (i.e. they exclude intra-EU trade). This makes it possible to consider the EU-25 as a single entity and to compare it with other countries. Nevertheless, the figures for the individual EU-25 Member States include intra-EU trade.

This issue of *Statistics in Focus* presents the data available in Eurostat's reference database on 1 July 2006.



## ***Further information:***

**Databases:** [EUROSTAT Website/Home page/Science and technology/Data](#)

 **Science and technology**

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