STATISTICS IN FOCUS
Economy and finance

1997 ☐ 37

ISSN 1024-4298

RAPID DEVELOPMENT OF INTERNATIONAL TRADE IN COMMUNICATION AND COMPUTER & INFORMATION SERVICES

In Europe, Germany and the United Kingdom take the lead

Two items of international trade in services related to the information society

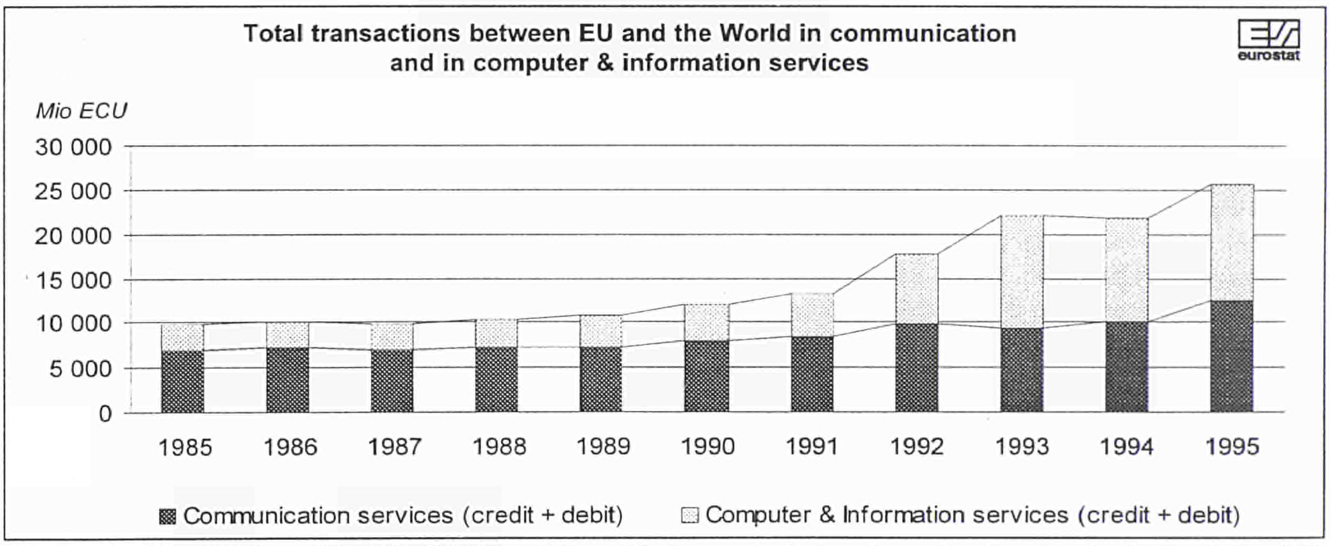
Characterised by a rapid development, the information society has become, within the last few years, a key issue in the field of economic analysis. The information society covers several segments of the economy: telecommunication services, computer services, the software industry, information services and multimedia. Two items of international trade in services relate to the information society: **communication services** that provide a medium for the transport of information and **computer & information services** that represent the main part of the production of intangible information (cf. methodological note).

Main players

The main providers of communication services are the historical courier and telecommunication operators who are still in most EU countries in a monopolistic position. 90% of their revenue still rises from the national market. The trend towards liberalisation recently undertaken in the European Union is expected to favour international competition and thus international trade in communication services.

Over the last years, the technological boom in telecommunication (fixed lines and mobile networks) and the development of computer equipment have increased the accessibility of international networks, thus creating larger opportunities to international trade in computer & information services.

Can the current European statistical data show the premises of such expected developments?



N.B.: Reporter: EU (EUR12 from 1985 to 1991; EUR15 from 1992 to 1995), for computer & information services, Eurostat estimation from 1985 to 1991

Manuscript completed on = 30.10.1997

For further information please contact: Ms M. H. FIGUEIRA
Eurostat, L-2920 Luxembourg, tel. 4301-34730 Fax: 4301-33859 e-mail: Mariahelena.Figueira@eurostat.cec.be

Price (excl. VAT) in Luxembourg: Subscription 'Statistics in focus' of all themes: ECU 310
Subscription 'Statistics in focus' of Theme 2 'Economy and Finance': ECU 85
Single copy: ECU 6

Catalogue number: CA-NJ-97-037-EN-C

A 158% increase in trade over 10 years understated by a fall in prices

Referring to the 1995 figures of Eurostat's balance of payments (BOP) statistics, total international transactions in communication and computer & information services between the EU and the World[1] have increased by **158%** between 1985 and 1995 (9 958 Mio ECU in 1985 compared to 25 693 Mio ECU in 1995).

However, this large increase is not specific to the communication and computer & information services. During the same period, total international transaction in other services[2] have increased by **169%** (134 058 Mio ECU in 1985 and 360 809 Mio ECU in 1995). Furthermore, the share of the services under review in the aggregate other services remained rather stable over the period, representing approximately 7% of this aggregate.

Computer & information services record the largest growth

The rise is more significant when looking at communication and computer & information separately. The rise in the total of these two services items is largely due to the development of computer & information services. Between 1985 and 1995, the latter increased by **352%** (from 2 921 to 13 190 Mio ECU), while communication services showed a **78%** rise (from 7 037 to 12 503 Mio ECU).

Total international transactions between EU and the World for "other services", "communication services" and "computer & information services"

(Mio ECU)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Other services (total)	134 058	128 885	132 532	138 578	158 274	176 247	191 390	301 445	327 073	348 250	360 809
Communication services (total)	7 037	7 245	6 956	7 206	7 276	7 933	8 468	9 787	9 359	9 963	12 503
Computer & information (total)	2 921	2 821	2 839	3 034	3 547	4 069	4 832	8 032	12 730	11 771	13 190
Communication + computer & information (total)	9 958	10 066	9 795	10 240	10 823	12 002	13 300	17 819	22 089	21 734	25 693
Communication (share in other services)	5.3	5.6	5.3	5.2	4.6	4.5	4.4	3.3	2.9	2.9	3.5
Computer & Information (share in other services)	2.2	2.2	2.1	2.2	2.2	2.3	2.5	2.7	3.9	3.4	3.7
Communication + computer & information (share in other services)	7.5	7.8	7.4	7.4	6.8	6.8	6.9	6	6.8	6.3	7.2

N.B.: Reporter = EU (EUR 12 from 1985 to 1991; EUR 15 from 1992 to 1995)

Two observations need to be made which partly explain the relative weakness of the trend in communication services:

- The change in classification: services that used to be classified together with telecommunication services are now recorded as computer & information services (cf. Methodological note).
- Strong fall of prices: It should be noted that total transactions are valued at current prices and thus their evolution should be analysed in the light of the strong fall in prices observed in communication services over the period. While the prices recorded in other segments of the economy have risen, prices in telecommunication for instance have dropped dramatically. Between 1993 and 1995, the average cost in the EU of international calls for a residential user was reduced by 30% (Source: European Investment Bank (EIB)). Therefore the growth in volume of transactions may be substantially greater than that suggested by the growth in current price transactions.

The main partners of the European Union

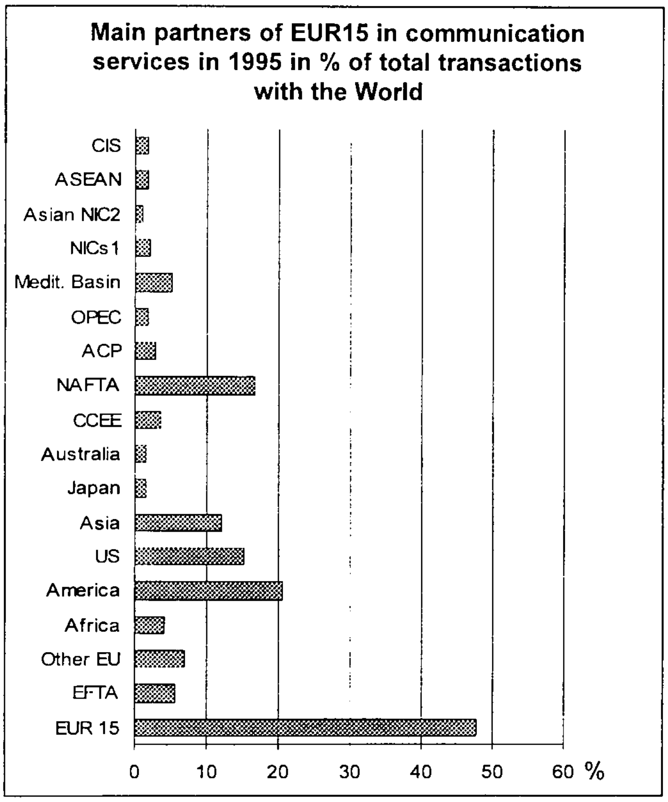
The main partners of the European Member States are themselves and the **United States**. **Intra EUR15** trade represents **48%** of EU total transactions with the World for communication services and **54%** for computer & information services. EU trade with the **United States** represents **21%** of communication services and **27%** of computer & information services.

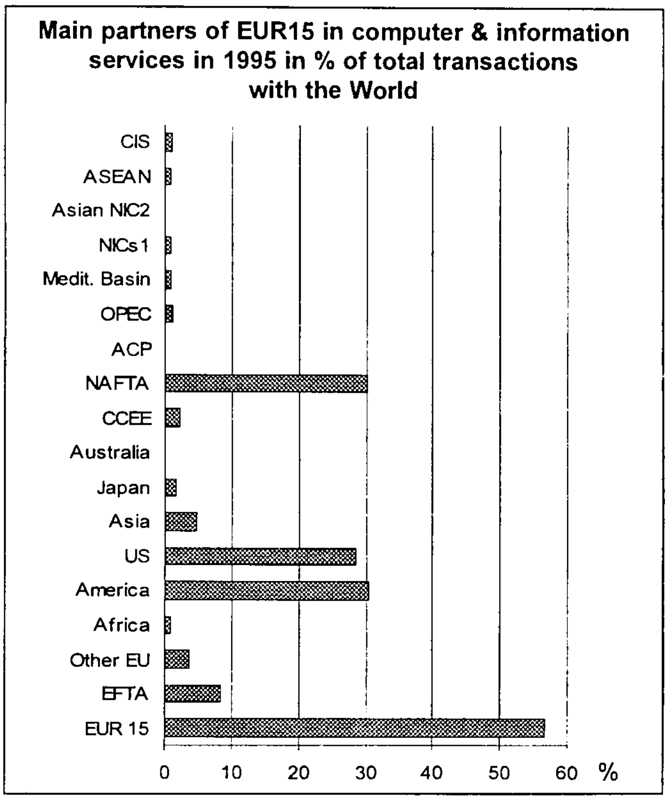
In computer & information services, very few other partners exceed 1% of the market, neighbouring European countries total 11% of exchanges and Asia 5%.

In communication services, the geographical allocation is more evenly spread; the main continents Asia (12%), America without the USA (6%) and Africa (4%) show slightly greater shares than in computer & informations services. The Mediterranean countries join the neighbouring European countries to total 18% of exchanges.

[1] Including Intra EU flows.

[2] Other services comprise those international transactions not covered under the items transportation and travel. They notably include communication and computer & information services.





Analysis of the balance

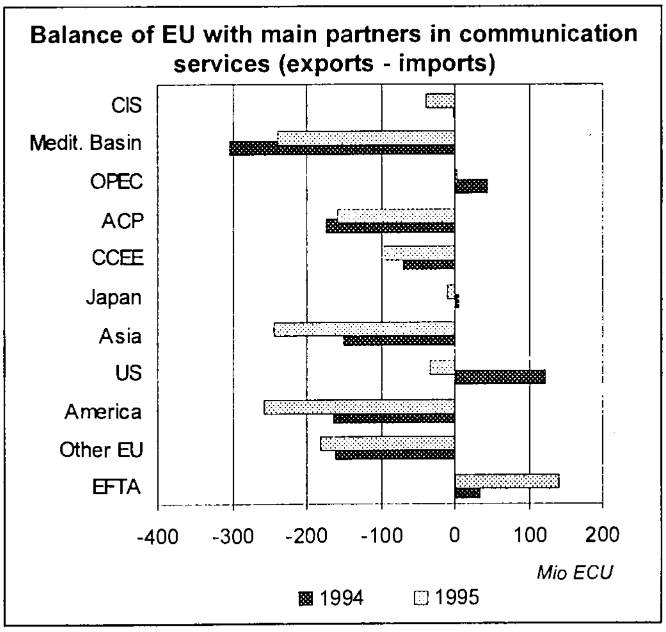
The geographical breakdown of the balance of European Union with its main partners in communication services and computer & information services show opposite pictures of the two items.

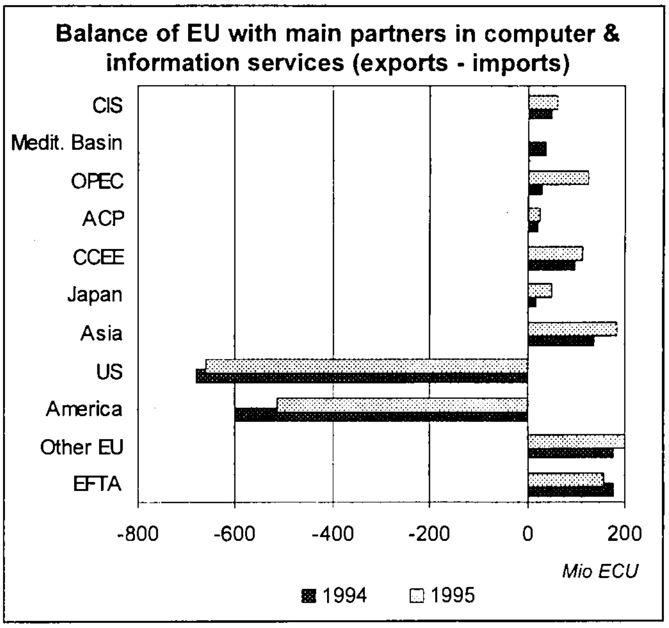
EU is a **net importer** of computer and information services from **USA** and a net exporter of these services to all other countries.

EU is a **net exporter** of communication services to the **USA** and **EFTA** countries, whereas it is a net importer of communication services from Asia, ACP countries, Mediterranean countries and other European countries.

This is mainly due to the way transactions are recorded for telecommunication services. Telecommunication services correspond to the use of a network infrastructure (cables, satellites, etc.) for the physical transmission of sound, images or other information. For example, when a resident of an EU country wants to send information to an ACP country, the local network is used and therefore the EU national operator buys telecommunication services from the ACP country. Compensation methods are used by partners countries to record the value of the access to the local networks, depending on the volume of transactions and on tariffs set by each country.

The geographical allocation of the balance for communication services thus shows that EU countries are sending more information to the countries and areas from which they buy communication services (Asia, ACP, etc.) than they receive information from these countries.





EU countries' shares in total EU transactions: Germany and the United Kingdom take the lead

Germany and the United Kingdom share half of the EU transactions in communication services and one third of the EU transactions in computer & information services

In 1995, the total transactions (credit + debit) of EUR15 with the World amounted to 12 503 Mio ECU for communication services and 13 190 Mio ECU for computer & information services. In communication services, two countries, Germany and the United Kingdom shared 52% (6 564 Mio ECU) of the total European Union transactions. In computer & information services, Austria joins Germany and the United Kingdom to share 47% (6 165 Mio ECU) of the total European transactions.

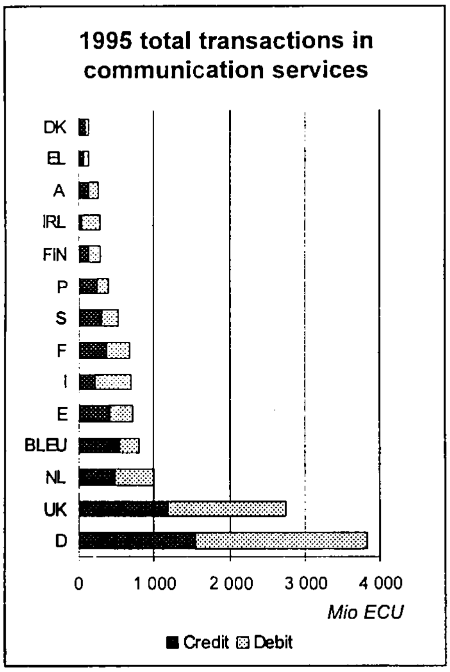
The ranking of countries shown by their share in the total of EUR15 transactions differs from the picture given in other services

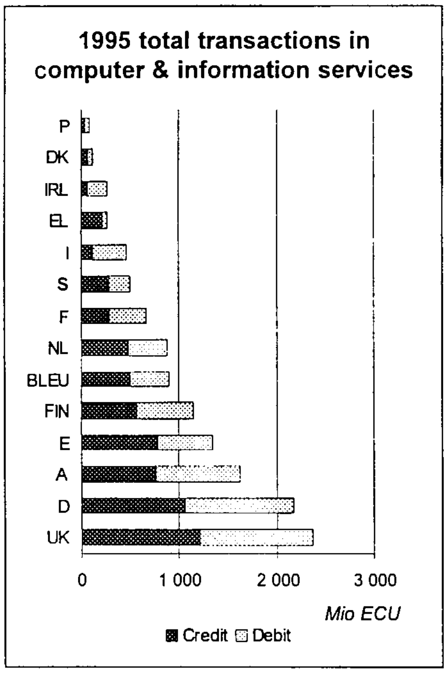
A group of countries have a share in communication services varying between 5% and 8%: the Netherlands (7.9%), the Belgium & Luxembourg Economic Union (6.4%), Spain (5.7%), Italy (5.6%) and France (5.3%). Among these countries, it is striking to find France and Italy whose shares in the aggregate other services are significantly higher, respectively 17.2% and 7.4%.

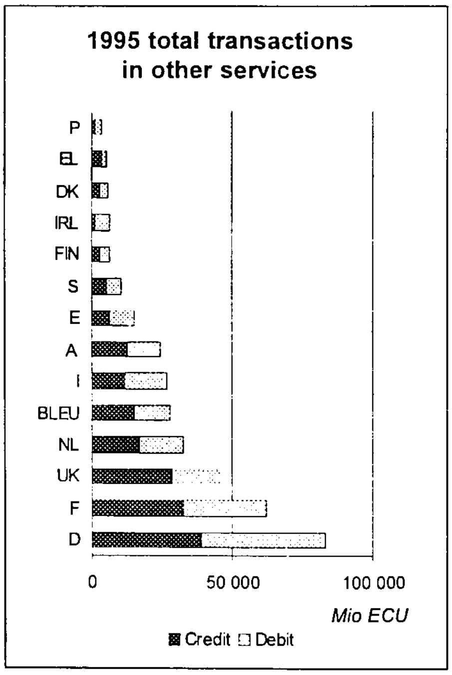
In computer & information services, the position of France and Italy is not better, respectively 5.1% and 3.6%. On the other hand, Austria, Spain and Finland detain a much larger relative share of the market in computer and information services (respectively 12.5%, 10.2% and 8.7% of the EUR15 total) than in other services (respectively 6.8%, 4.25% and 1.8%).

The high level of transactions in communication services and the negative balance of Germany (-701 Mio ECU) and the United Kingdom (-340 Mio ECU) with the World, shows that residents of these countries have a larger access to foreign networks than residents of other EU countries.

In the further detailed analysis, we will especially focus on the data available for Germany, the United Kingdom, France and for computer & information services Austria, Spain and Finland.







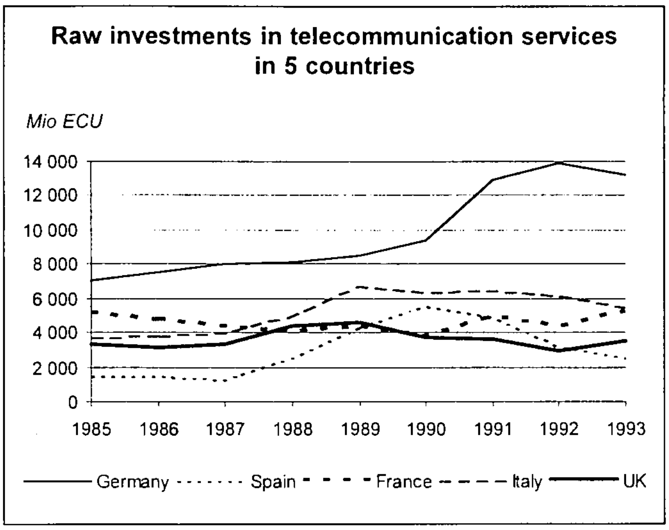
Structure of the international trade in telecommunication services

Communication and principally telecommunication means the exchange of information. What kind of information do Germany and the United Kingdom exchange with the World to a larger extent than other EU countries? According to a study of the European Investment Bank[1], the breakdown of telecommunication services in Western Europe in 1995 consisted mainly of fixed voice services (69%), data services (16%), mobile telecommunications (12%) and Cable TV services (3%).

The opening of fixed and mobile telecommunication networks to international trade

According to the EIB report most European countries have invested heavily and to comparable extents in order to adapt their infrastructure to the new market and technological conditions. Germany has invested the most in order to bring the network in the new Länder (former East Germany) up-to-date. Differences in investments can therefore not explain the large discrepancies observed between the EU countries.

[1] EIB: Telecommunication network development and investment in the EU, 1996



Source: Eurostat, Panorama of European Industry 1997

As stated in the Panorama of European Industry 1997, international development of telecommunication services is based on the creation of alliances, common subsidiaries, etc. Unfortunately, data on Foreign Direct Investments in the field of telecommunication are not available. However, in a sector dominated by very large operators, the creation of major transnational alliances is significant, and one can expect that the operators left out of these deals would suffer from a lack of competitiveness on the international market.

On-line electronic information services: the combined growth of international trade in telecommunication and computer & information services

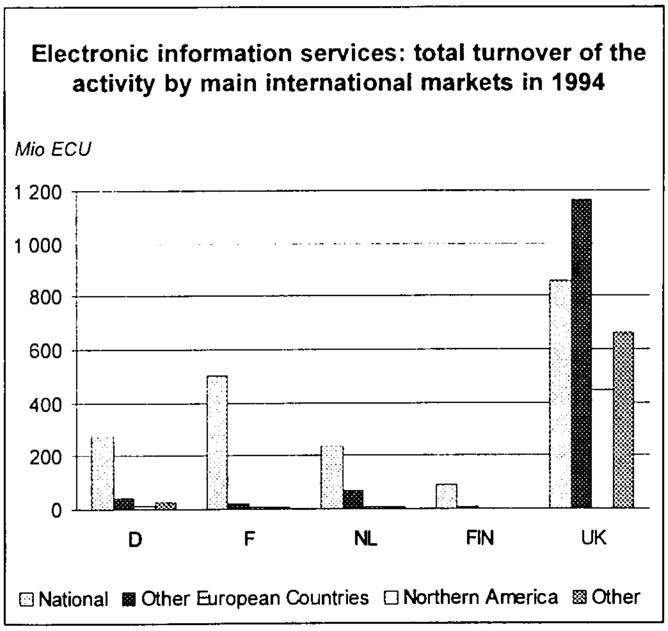
Data services represent 16% of telecommunication services in Europe in the form of on-line information services. On-line electronic information services are direct clients of telecommunication services and according to the Panorama of European Industry 1997, they represent in Europe more than 80% of the turnover realised in the electronic information services activity.

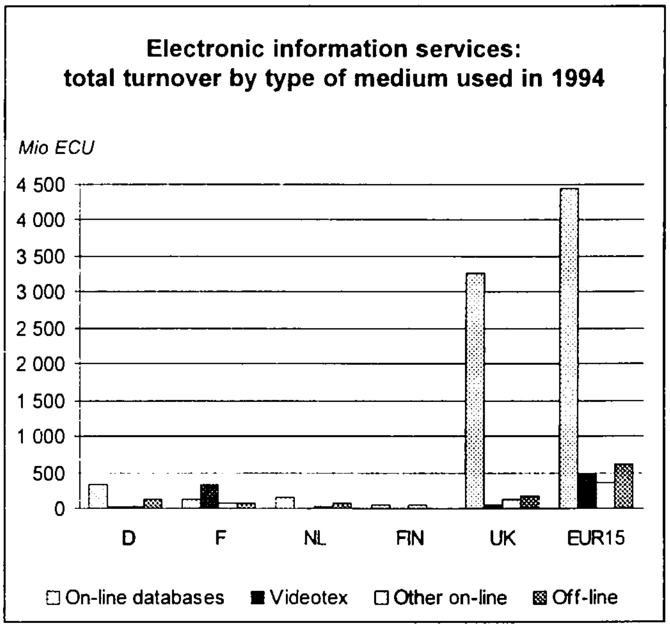
The activity in Europe is dominated by the **United Kingdom**, whose share in the total EUR15 turnover is **65%**. The UK is also the only EU Member whose total turnover is mainly raised from international markets (70%) rather than from its national market. Its activity, and especially the activity of the main firm Reuters, is mainly carried out through on-line databases. On-line databases have been developed using internationally used hardware and software equipment by the world leader of the information society trade, the USA. The choice of this medium probably conditioned the international success of these sources of information.

France: a market trapped in national boundaries

Contrary to all other European countries mainly connected to on-line databases, the French market of on-line electronic information services is largely dominated by the use of videotex. In France **62%** of electronic information services are provided through the Minitel. This system was set up by France Telecom to give access to information at low costs (low tariffs and standard connection equipment provided by the operator). In EUR15, only **9%** of on-line electronic information is provided through this type of videotex system. This percentage drops to respectively **4%** and **1%** in **Germany** and in the **United Kingdom** where **92%** and **94%** of the activity consists of on-line databases.

The system developed by France Telecom has probably slowed down the connection of French residents to international information networks. Furthermore, the national operator has failed to export its videotex system of access to the information. This constitutes a handicap for national providers of information services that have developed their activity under a system that is not widely used at the international level.





Source: Eurostat, Panorama of European Industry 1997

The United Kingdom and Germany have found partners outside the EU

The geographical allocation shows another strength of the two European leaders of the international trade in communication and computer & information services. Germany and the United Kingdom have penetrated regional markets from which other EU countries kept away.

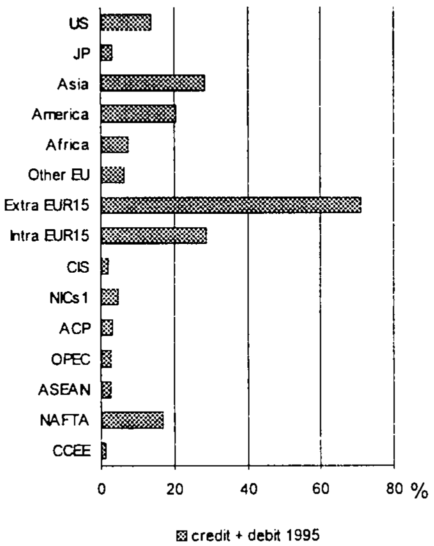
Communication services

Among EU members, the **United Kingdom** is, by far, the most open to **Extra EUR15** countries with which it realises **71%** of its total international transactions in communication services. **Asia** is its main geographical partner representing **28%** of its total transactions, at a comparable level to the share occupied by its **Intra EUR15** partner countries (**29%**).

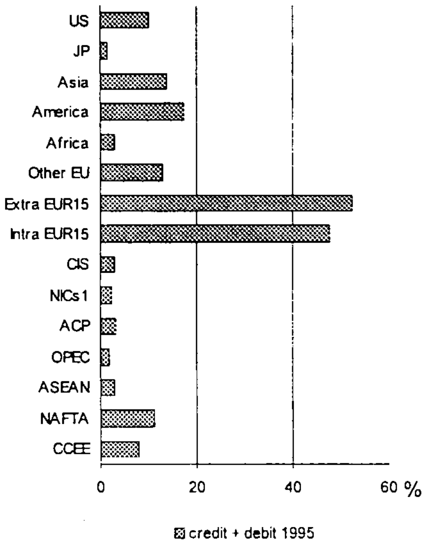
Without being absent from Asia and the United States, respectively 14% and 10% of its total transactions, **Germany** has found markets in **Europe**. Apart from Intra EUR15 countries where it occupies a strong position, Germany has especially developed international trade in **other European** Countries (**13%**) of which Central & Eastern European Countries (CEEC) represent 8% of its total international transactions.

France has a relatively weak position both in Asia and other European countries. The **USA** is France's main non-EU country where it undertakes **25%** of its total international transactions in communication services.

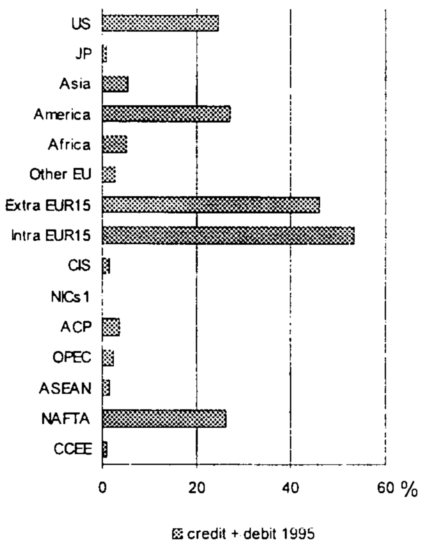
UK: geographical breakdown of communication services in % of transactions with the World



Germany: geographical breakdown of communication services in % of transactions with the World



France: geographical breakdown of communication services in % of transactions with the World



Computer & information services: an international market dominated by the USA

For computer & information services, we have chosen to look at the detailed geographical breakdown of the two largest trading EU countries, **Germany** and the **United Kingdom**, of **France** whose position in the ranking of countries is especially low and of **Spain** and **Finland** whose total transactions with the World are relatively high for this item[1].

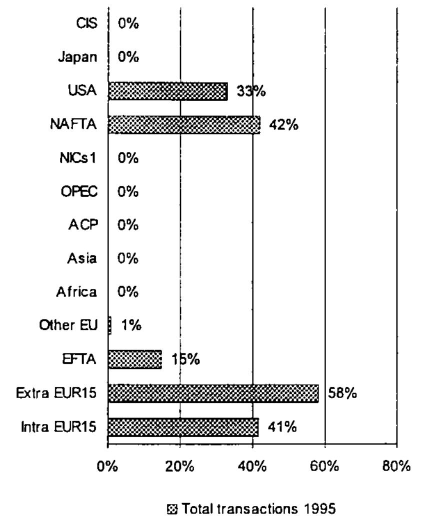
Among EU member States, **Spain**, **France** and the **United Kingdom** trade mainly with **Extra EUR15** countries with which they realise respectively **58%**, **71%** and **63%** of their total international transactions in computer and information services. For the three countries the main partner outside the EU is the **USA**, standing respectively at **33%**, **67%** and **48%** of total transactions with the World.

However France undertakes very little Extra EU trade with other countries than the USA whereas Spain and the United Kingdom trade with other partners outside the European Union. Apart from the USA, the main areas for **Spain** are **NAFTA** with **42%** of total transactions (i.e. USA: 33% and Canada: 9%) and **EFTA** countries (i.e. Switzerland with **15%**). The main areas for the **United Kingdom** are Asia (5%), **EFTA** countries (6%) and **other European** countries (3%).

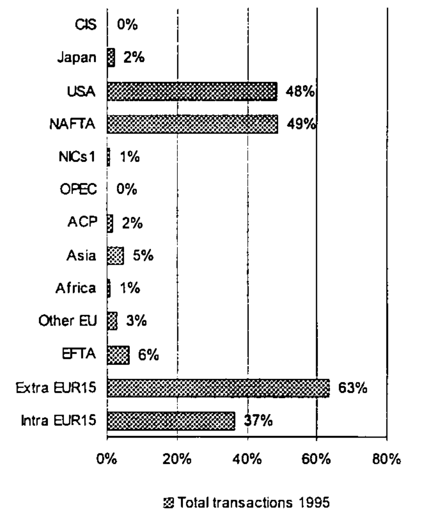
By contrast, **Germany** and **Finland** are more directed towards **Intra EUR15** countries in which they undertake respectively **56%** and **63%** of their international transactions in computer & information services. The weight of USA as a partner is relatively less important than for Spain, France and the United Kingdom. Further, Germany and Finland's Extra EUR15 partners are more diverse. In particular, Germany and Finland trade computer & information services with **non-EU European countries** (16% and 17% respectively) and with **Asian countries** (6% and 5% respectively). To a smaller extent Germany and Finland trade with areas that do not represent large markets for other countries: **Germany** with OPEC, Core Newly Industrializing Countries (NICs1) and Japan, **Finland** with OPEC, NICs1 and the Community of Independant States (CIS) (6%).

[1] Geographical breakdown data are not available for Austria whose total transactions are also very high.

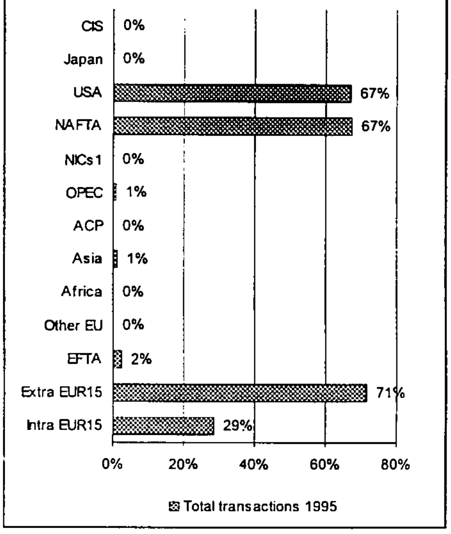
Spain: geographical breakdown of computer & information services in % of transactions with the World



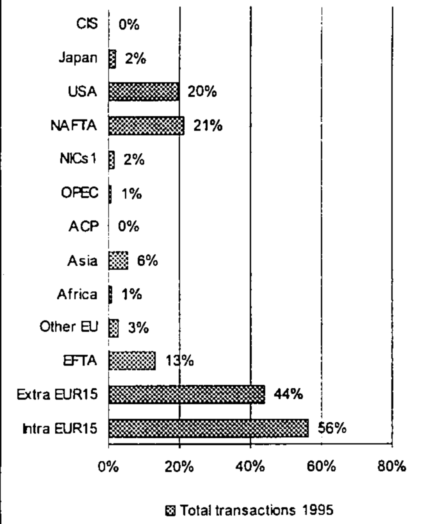
UK: geographical breakdown of computer & information services in % of transactions with the World



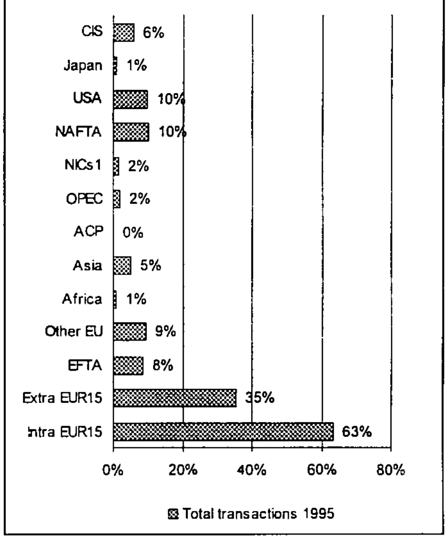
France: geographical breakdown of computer & information service in % of transactions with the World



Germany: geographical breakdown of computer & information services in % of transactions with the World



Finland: geographical breakdown of computer & information services in % of transactions with the World



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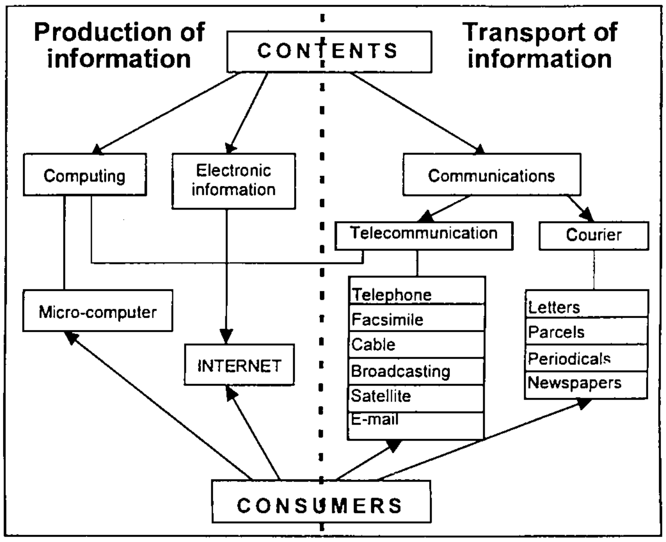
Methodological note

Classification problem

When looking at the international trade in services two items of the BOP are related to information society: "communication services" and "computer & information services". These items are defined in the methodological framework of the IMF Balance of Payments 5th Manual.

"Communication services" cover two main categories of international communications transactions between residents and non-residents:

- "postal courier services" which encompass the pick-up, transport and delivery of letters and other printed matter, parcels, and packages by national postal administrations and other operators. Also included are post office counter and mail box rental services.
- "telecommunication services" which encompass the transmission of sound, images, or other information by telephone, telex, telegram, cable broadcasting, satellite,



e-mail, fax, etc. and include business network services, teleconferencing, and support services. In EU countries that have provided the breakdown, transactions in communication services mainly consist of telecommunication services as, in all cases but one (Italy), they account for more than 80% of the total.

"Computer and information services" cover "computer data" and "news related" service transactions. Included are databases, such as development, storage, and on-line time series; data processing; hardware consultancy; software implementation; maintenance and repair of computers and peripheral equipment; news agency services; and direct subscriptions to news papers and periodicals.

The first item covers transactions referring to the provision of a medium to be used for the transport of information. Buying communication services means paying to use a network infrastructure.

The second item refers to the provision of the content, information itself.

Classification problems arise from the fact that the development of new technology have developed the access to information through electronic equipment allowing an extensive and enlarged use of the physical network. The use of telecommunication networks has fundamentally changed in two ways.

- Firstly, the user is now able to exchange large and complex types of information through the network.
- Secondly, the user is now able to find its own way on the network therefore using a technology for which one needs support. The borderline between the provision of the medium and the provision of the content has become thus more narrow.

Valuation problem

Value data include price changes and give a wrong picture of the volume of transactions when price developments are strong and uneven. Between 1993 and 1995, the average cost in the EU of international calls for a residential user was reduced by 30%.

Geographical and economic zones abreviations

ACP: African, Caribbean and Pacific countries signatories of the Lomé convention (70 countries)
ASEAN: Association of South-East Asian Nations (7 countries)
BLEU: Belgo-Luxembourg Economic Union
CCEE: Countries from Central and Eastern Europe (15 countries)
CIS: Community of Independant States (12 countries)
EFTA: European Free Trade Association (Switzerland, Iceland, Liechtenstein, Norway)
NAFTA: North American Free Trade Association (Canada, Mexico, USA)
NICs1: the Core Newly Industrializing Countries (Hong Kong, Republic of Korea, Singapore, Taiwan)
NICs2A: Asian NICs of the second wave of industrialization (Malaysia, Philippines, Thailand)
OPEC: Organization of Petroleum Exporting Countries (12 countries)
Other EU: European Countries other than EUR15 and EFTA, including CCEE and Baltic countries

For any technical information other than dissemination, please contact:

Eurostat, L-2920 Luxembourg - Unit B5 - Balance of Payments
Ms I. Maquet (Planistat) or Ms M.H. Figueira*, tel. (352) 4301-34730 Fax: (352) 4301-33859
e-mail : Mariahelena.Figueira@eurostat.cec.be

*We would like to express our appreciation to Ms E. Karaliute for her research work, fundamental contribution in the preparation of this document and to Ms A. Champault and F. Faes-Cannito for their assistance in its production.