

The telecom sector in the EU

The telecom services sector is a fast growing high-technology services sector, with high innovation and considerable investments, and productivity and profitability often significantly above the average for the non-financial business economy. This publication analyses the structure, performance and evolution of the sector, as well as the size of the related activity of telecom equipment manufacturing.

The telecom services sector is a relatively important part of the non-financial business economy with an average of 3.5 % of value added for the EU-27 in 2005. In Bulgaria, it represents more than 10 % of value added in the non-financial business economy. In Austria, on the other hand, the share barely exceeds 2 %.

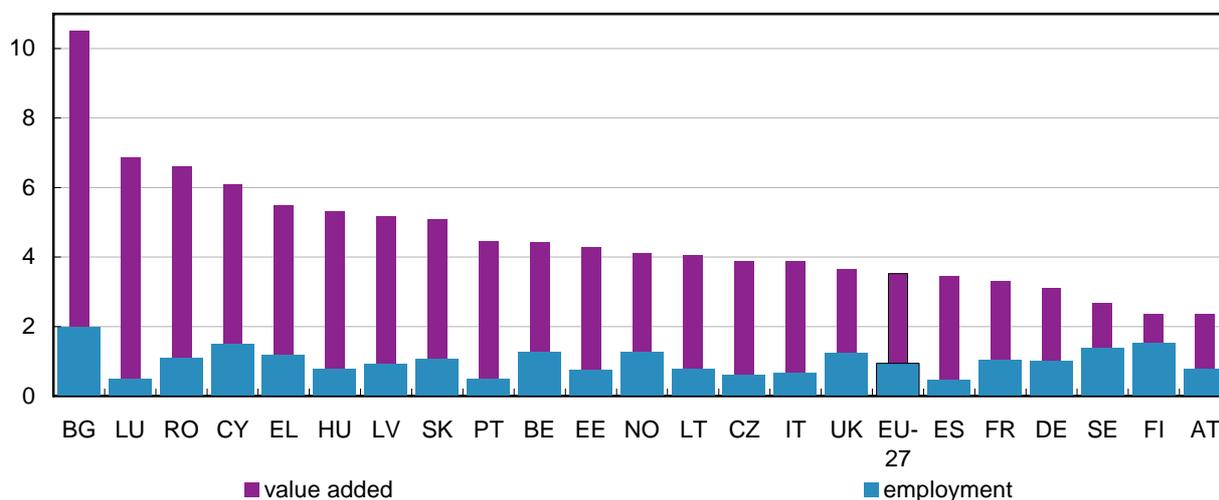
In terms of employment however, the share of telecom services in the non-financial business economy is much smaller. It varies from 2 % in Bulgaria down to 0.5 % in Spain, Portugal, Luxembourg and the Czech Republic, with an EU-27 average of 0.9 %.

Main features of telecom services

At EU-27 level, the telecom services sector provided jobs to 1.2 million people and generated EUR 190 billion in value added in 2005. The production value of telecom equipment exceeded EUR 17 billion.

The weight of the sector is in all countries significantly higher in terms of value added than employment, indicating a particularly high apparent labour productivity (value added per person employed) in this sector.

Fig. 1: Share of value added and employment of telecom services (Nace I 64.2) in the non-financial business economy in EU-27 and Norway, 2005



BG, CZ, EL: 2004 data.
 CZ: number of employees instead of persons employed
 No data available for IE, NL, MT, PL and SI.

Source: Eurostat (SBS - Annual)

NACE Rev.1.1, group I 64.2 telecom services: In addition to the transmission of information this group also covers activities which offer access to a certain network, such as the internet (incl. transmission of sound, images, data or other information via cables, broadcasting, relay or satellite: telephone, telegraph and telex communication, maintenance of the network, transmission (transport) of radio and television programmes, internet access but excl. provision production of radio and television programmes even if in connection with broadcast)

Tab. 1: Main characteristics of telecom services (NACE I 64.2) in the EU and Norway, 2005

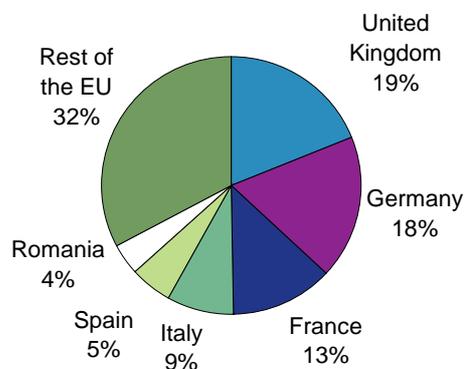
	Number of enterprises	Turnover EUR million	Value added at factor cost EUR million	Gross operating surplus EUR million	Total purchases EUR million	Personnel costs EUR million	Gross investment EUR million	Number of employees
EU-27	29 000 *	421 219	190 262	129 922	242 339	60 340	46 223	1 171 200
BE	1 066	14 023	6 376	4 003	7 859	2 373	1 942	29 218
BG	994	1 473	872	699	860	196	322	27 853
CZ	514	3 924	2 049	1 613	1 957	436	400	22 080
DK	329	6 401	2 603	1 483	4 177	1 120	440	19 640
DE	985	71 890	33 729	21 530	45 453	12 199	5 269	210 441
EE	109	577	252	204	322	48	50	3 046
EL	269	7 298	3 813	2 494	3 725	1 319	744	28 814
ES	823	36 346	17 038	13 571	19 639	3 467	3 890	62 071
FR	3 526	57 297	25 272	15 978	32 779	9 294	4 676	148 106
IT	2 762	51 258	22 926	17 997	28 402	4 930	5 423	99 718
CY	84	460	362	221	99	141	130	2 889
LV	276	667	353	291	314	61	102	5 816
LT	308	812	337	260	482	77	88	6 753
HU	920	4 814	2 140	1 546	2 777	593	598	19 284
AT	227	7 211	3 042	:	4 370	1 029	694	18 697
PT	938	7 470	3 085	2 408	4 702	677	823	16 434
RO	2 766	3 437	1 862	1 377	1 592	485	4 128	43 717
SK	103	1 520	771	609	746	162	253	10 092
FI	332	6 401	1 790	956	4 988	834	451	18 873
SE	585	9 886	4 009	2 171	5 551	1 838	1 189	32 983
UK	4 958	86 395	37 279	23 375	50 197	13 904	10 148	222 462
NO	628	7 047	2 723	1 875	4 306	847	708	12 363

*approximate rounded figure.

Source: Eurostat (SBS - Annual)

BG, CZ and EL 2004 data (in italics), due to confidentiality reasons data for IE, LU, MT, NL, PL and SI are missing.

Fig. 2: Share of the number of employees in telecom services in the EU-27, 2005

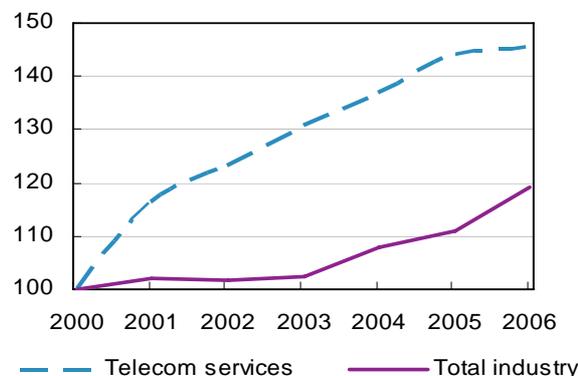


Source: Eurostat (SBS - Annual)

Four countries cover 63 % of the EU value added of telecom services, a rather weak concentration compared to their 66 % share in EU GDP. This is consistent with a services activity targeting the domestic market. In terms of value added, the United Kingdom ranks first, Germany second, followed by France and Italy. (See Table 1). Compared to 2004 data on value added, the United Kingdom took over the lead from Germany.

Employment in telecom services is even less concentrated than value added. The first five countries cover 63 % of EU employment (Figure 2). Yet, among the first four, the country ranking is the same as for value added.

Fig. 3: Index of turnover, EU-27 (2000=100)



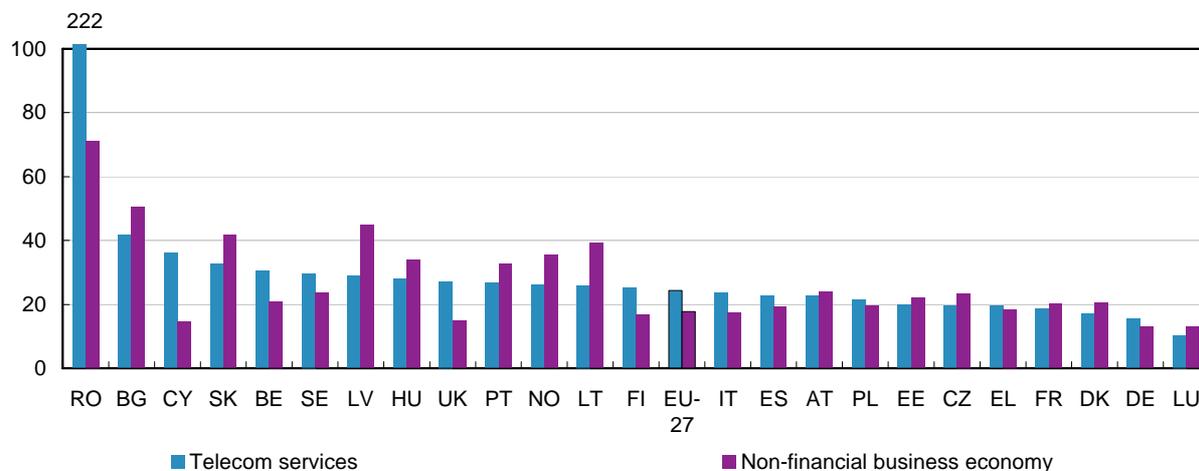
Source: Eurostat (STS)

The index of turnover of telecom services in EU-27 (Figure 3) shows an uninterrupted growth during the whole period from 2000 to 2006. Whereas the growth was very strong at the beginning of the period, the growth rates slowed noticeably especially towards the end of the observation period in 2006. In contrast, total industry grew more slowly, with almost zero growth during the 2001-2003 recession, but picking up rapidly afterwards.

Turnover and value added in telecom services steadily increased, in spite of lower tariffs and communication pricing, largely due to market deregulation, liberalisation and increasing competition but also partly imposed by EU regulations on roaming costs. Therefore the volume must have increased more rapidly.

Investments in telecom services

Fig. 4: Gross investment as a share of value added (%) in EU-27 and Norway, 2005



CZ and EL: 2004 data. No data available for IE, NL, MT and SI.

Source: Eurostat (SBS - Annual)

Expansion of the broadband and mobile phone network infrastructure and the widening range of services linked to mobile phones are the main driving forces for investments in telecom services. Gross investments in tangible goods as a share of value added (investment rate) was clearly higher for telecom services (24 %) than the average in the non-financial business economy (18 %) in the EU-27. Nevertheless, in 13 countries of those shown in figure 4, the investment rate in telecom services was lower than the average in the 'non-financial business economy', most noticeably so in Bulgaria, Latvia, Lithuania, Slovakia and Norway.

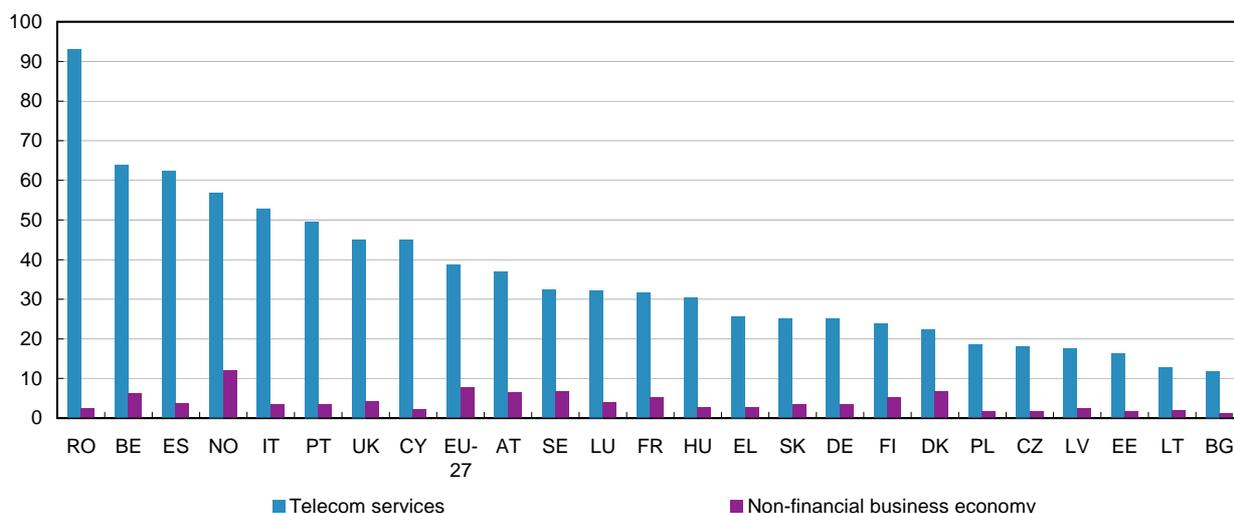
An exceptionally high value (222 %) was observed for Romania, due to a large telecom operator replacing most of its network infrastructure during 2005. Bulgaria (42 %), Cyprus and Slovakia ranked next. In several West Euro-

pean countries there were relatively small investments, with the investment rate in Germany, Denmark and France ranging below 20 % of value added and Luxembourg at barely 10 %.

Figure 5 shows investments per person employed in telecom services, which stood at EUR 38 700 in the EU-27, far above the EUR 7 610 for the non-financial business economy. This is partly due to the relatively low employment in telecom services, compared to the non-financial business economy.

Whereas in Romania investments in telecom services amounted to EUR 93 100 per person employed, that ratio was EUR 63 900 in Belgium and EUR 62 300 in Spain but only EUR 11 900 in Bulgaria (2004 data), which was still far above the ratio of this country for the non-financial business economy (EUR 1 200).

Fig. 5: Investments per person employed in 2005 in EU-27 and Norway, (Thousands EUR)

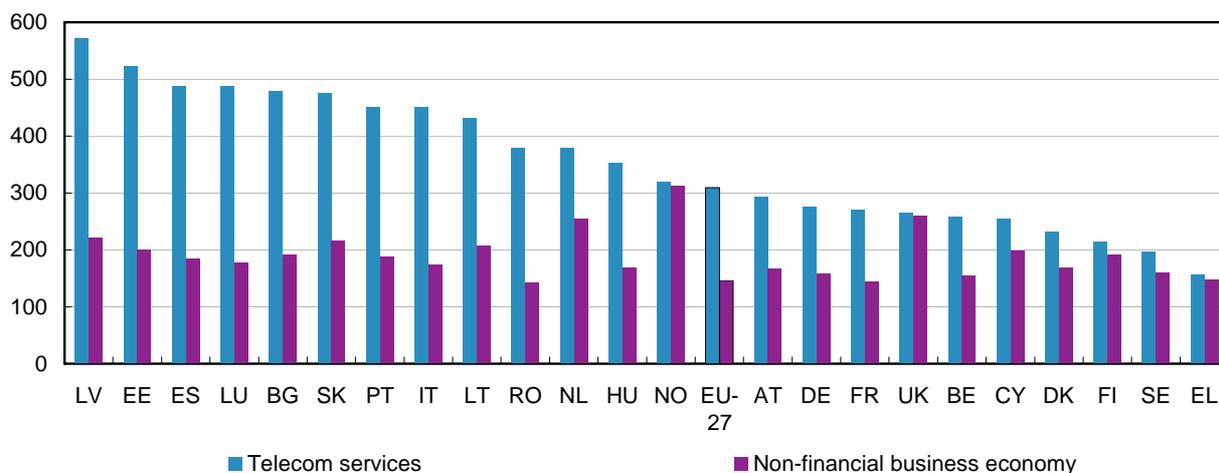


BG, CZ and EL: 2004 data. No data available for IE, NL, MT and SI.

Source: Eurostat (SBS - Annual)

Productivity and profitability of telecom services

Fig. 6: Wage adjusted labour productivity (%) in EU-27 and Norway, 2005



BG, EL: 2004 data. No data available for IE, MT, PL and SI.

Source: Eurostat (SBS - Annual)

Ratios such as the wage adjusted labour productivity (value added per person employed divided by the average personnel costs) and the gross operating rate (share of gross operating surplus in turnover) give an indication of the competitiveness of an economic activity.

At 309 %, the EU-27 wage adjusted labour productivity in telecom services is more than twice as high as that in the non-financial business economy (146 %). The highest rates for wage adjusted labour productivity are found in Latvia (573 %) and Estonia (523 %) and the lowest in Sweden (197 %) and Greece (156 %).

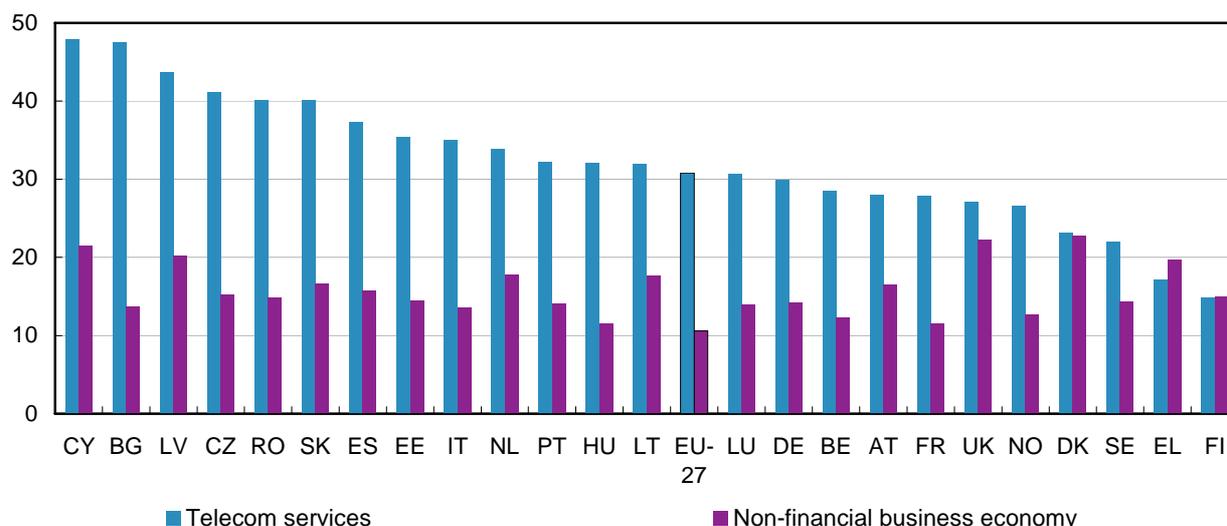
In many Member States the wage adjusted labour productivity in telecom services is considerably higher than that of the non-financial business economy. However, in the United Kingdom, Finland and Greece, the wage adjusted labour productivity just about equals that of the

non-financial business economy. This is also the case in Norway.

The EU-27 average gross operating rate in the telecom services sector stands at 31 %, well above the 11 % for the non-financial business economy (Figure 7). Based on this rate the telecom services sector is the eighth most profitable of all activities on the level of NACE groups (3-digits).

The gross operating rate of the telecom services sector is significantly higher than that of the non-financial business economy in most countries shown. Cyprus and Bulgaria record the highest gross operating rate (48 %). At the bottom of the ranking are Finland and Greece, the latter being the only country where the gross operating rate in telecom services sector is clearly below that of the non-financial business economy.

Fig. 7: Gross operating rate (%) in EU-27 and Norway, 2005

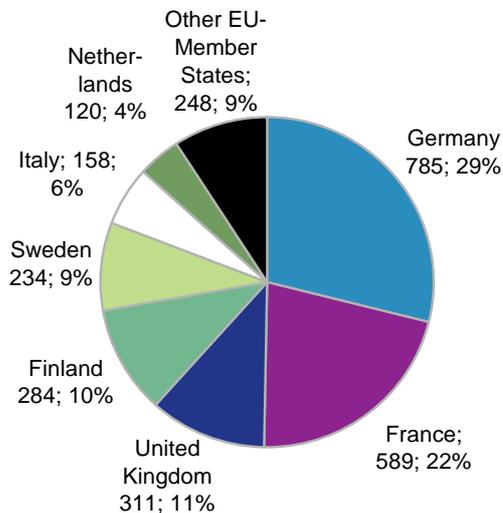


BG, CZ and AT: 2004 data. No data available for IE, MT, PL and SI.

Source: Eurostat (SBS - Annual)

Research & Development and Patenting

Fig. 8: Patent applications on telecommunications to the European Patent Office in the EU-27, 2004*



*provisional.

Source: Eurostat (Patent statistics)

Research and development and innovation are particularly important factors for the development of a high-tech sector such as telecom services. In 2004 the EU-27 Member States applied for 2 729 patents on telecommunications at the European Patent Office (EPO). It should be noted that these patents cover both innovations in telecom services and the manufacture of telecom equipment. Germany accounted for nearly a third of these patent applications. More than two in ten telecom patent applications came from France and 11 % from the United Kingdom. Noteworthy is the fact that the two Scandinavian countries, Finland and Sweden were ranked fourth and fifth with 10 % and 9 % of the EU patent applications on telecom respectively.

Consequently, the picture is quite different when relating the number of patent applications to the population size. Finland then led by a wide margin with 54 patent applications per million inhabitants, ahead of Sweden with 26. Over the last decade, the number of patent applications first rose swiftly and more than doubled at its peak of over 4 000 patent applications in 2000/2001 after major breakthroughs in broadband and mobile telecommunication technology.

The R&D expenditure in telecom services varies significantly across EU Member States, mainly due to the different size of the economies. R&D efforts are generally concentrated in the big incumbent telecom operators. As a result, data availability is often poor because of confidentiality reasons¹. Among the countries with data available, reported R&D expenditure in 2004 in telecom services varied from EUR 0.4 million in the Czech Republic to EUR 707 million in France and EUR 954 million in the United Kingdom (2003). It should be mentioned that the size of R&D expenditure is influenced by the engineering policy of the big (incumbent) operators. Engineering services and R&D work can be done in-house or be outsourced, for example to enterprises focussing on R&D. Purchased development services would not be recorded as R&D expenditure in the telecom services sector.

Research, development and innovation play a key role also for the related activity of telecom equipment manufacturing. However, data are not available separately for this activity as it is merged with other activities in the activity classification (NACE). It could be noted though that in manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy (NACE DL32.2), France reported EUR 1 275 million in R&D expenditure in 2004, 80 % more than the amount reported for telecom services.

Production and trade of telecom equipment

Information on the production and trade of telecom equipment products is available from annual production statistics (PRODCOM) and external trade statistics.

Table 2 shows the production values for seven separately identifiable telecom equipment products. In 2006 the production value in the EU-27 of these products exceeded EUR 17 billion. Close to a third of this value came from 'Telephonic or telegraphic switching apparatus'. Only EU-27 aggregate data are shown because of confidentiality reasons. According to PRODCOM, these telecom equipment products made up 35 % of the production value of 'television and radio transmitters and apparatus for line telephony and line telegraphy', which is an amalgam of radio, television and telecom equipment.

The Comext database supplies foreign trade data for EU-27 imports and exports with a detailed product break-

down. There are 64 relevant product codes relating to trade of telecom equipment. Table 3 shows the products with the highest trade volumes. Transmission apparatus incorporating reception apparatus for cellular networks "mobile telephones" is the most heavily traded product category in the EU-27, with an export value of EUR 13.5 billion and an import value of EUR 18.4 billion. Mobile phones have become a high volume, moderate price commodity item and as such trade is suffering from the effect of delocalisation of the production.

Across the board, imports of these telecom equipments (EUR 33.3 billion) exceeded exports in 2006 (EUR 28.5 billion). Nevertheless, in eight product categories the situation was reversed. Especially for typical high-value investment goods such as 'Telephonic or telegraphic switching apparatus', EU-27 exports exceeded imports (by EUR 1.2 billion).

¹ Nevertheless, data on R&D investments of telecom enterprise groups are freely available as they are communicated to the EC Research DG, in the framework of a research scoreboard: http://iri.irc.es/research/scoreboard_2007.htm

Tab. 2: Production of specific telecom equipment products in EU-27, 2006, in EUR million

PRODCOM Code	Label	Value
32202020	Telephone sets (including line telephone sets with cordless handsets, videophones) (excluding telephone answering machines not an integral part of the set)	1 158.6
32202040	Telephonic or telegraphic switching apparatus (excluding relays and switching equipment such as selectors for automatic telephone exchangers)	7 213.0
32202050	Telephonic/telegraphic apparatus for carrier-current line systems, n.e.c.	2 401.0
32202060	Electrical telephonic and telegraphic apparatus, n.e.c.	1 694.7
32202075	Facsimile machines	43.4
32203030	Electronic assemblies, parts, for telephonic or telegraphic carrier-current line systems	2 095.0
32203060	Electronic assemblies, parts, for line telephony or line telegraphy, including for line telephones with cordless receivers, and for videophones (excluding for telephonic or telegraphic carrier-current line systems)	2 745.0
32202+32203	Telecom equipment	17 350.8

Source: Eurostat (PRODCOM)

Tab. 3: Extra-EU-27 Trade of specific telecom equipment products, 2006, in EUR million

Product code	Product label	Export	Import
85171100	LINE TELEPHONE SETS WITH CORDLESS HANDSETS	276.1	779.8
85171910	VIDEOPHONES	40.3	66.3
85171990	LINE TELEPHONE SETS (EXCL. VIDEOPHONES AND LINE TELEPHONE SETS WITH CORDLESS HANDSETS AND ENTRY-PHONE SYSTEMS)	229.0	448.9
85172100	FAX MACHINES FOR LINE TELEPHONY	138.2	428.1
85173000	TELEPHONIC OR TELEGRAPHIC SWITCHING APPARATUS	1 518.2	329.5
85175010	APPARATUS FOR CARRIER-CURRENT LINE SYSTEMS FOR LINE TELEPHONY OR LINE TELEGRAPHY (EXCL. TELEPHONE SETS VIDEOPHONES FAX MACHINES TELEPRINTERS AND SWITCHING APPARATUS)	631.4	1 044.8
85175090	APPARATUS FOR DIGITAL LINE SYSTEMS FOR LINE TELEPHONY OR LINE TELEGRAPHY (EXCL. TELEPHONE SETS VIDEOPHONES FAX MACHINES TELEPRINTERS AND SWITCHING APPARATUS)	1 776.8	3 421.0
85178090	ELECTRICAL APPARATUS FOR LINE TELEPHONY OR LINE TELEGRAPHY (EXCL. TELEPHONE SETS VIDEOPHONES TELEPRINTERS FAX MACHINES SWITCHING APPARATUS ENTRY-PHONE SYSTEMS AND CARRIER-CURRENT OR DIGITAL LINE TRANSMITTING AND RECEIVING APPARATUS)	254.1	332.1
85179011	ELECTRONIC ASSEMBLIES FOR TELEPHONIC OR TELEGRAPHIC CARRIER-CURRENT LINE	389.0	282.8
85179019	PARTS OF TELEPHONIC OR TELEGRAPHIC CARRIER-CURRENT LINE SYSTEMS N.E.S. (EXCL. ELECTRONIC ASSEMBLIES)	303.3	266.1
85179082	ELECTRONIC ASSEMBLIES FOR ELECTRICAL APPARATUS FOR LINE TELEPHONY OR LINE TELEGRAPHY INCL. FOR LINE TELEPHONES WITH CORDLESS RECEIVERS AND FOR VIDEOPHONES N.E.S. (EXCL. FOR TELEPHONIC OR TELEGRAPHIC CARRIER-CURRENT LINE SYSTEMS)	1 810.4	1 500.4
85179088	PARTS OF ELECTRICAL APPARATUS FOR LINE TELEPHONY OR LINE TELEGRAPHY INCL. FOR LINE TELEPHONES WITH CORDLESS RECEIVERS AND OF VIDEOPHONES N.E.S. (EXCL. ELECTRONIC ASSEMBLIES AND PARTS OF TELEPHONIC OR TELEGRAPHIC CARRIER-CURRENT LINE SYSTEMS)	1 180.0	1 341.4
85251020	RADIO-TELEGRAPHIC OR RADIO-TELEPHONIC TRANSMISSION APPARATUS	199.3	96.4
85251080	TRANSMISSION APPARATUS FOR RADIO-BROADCASTING OR TELEVISION	287.5	156.9
85252020	"TRANSMISSION APPARATUS INCORPORATING RECEPTION APPARATUS FOR CELLULAR NETWORKS ""MOBILE TELEPHONES"""	13 484.2	18 401.5
85252080	"TRANSMISSION APPARATUS FOR RADIO-TELEPHONY RADIO-TELEGRAPHY RADIO-BROADCASTING OR TELEVISION INCORPORATING RECEPTION APPARATUS (EXCL. FOR CELLULAR NETWORKS ""MOBILE TELEPHONES"")"	4 545.8	2 190.2
85299060	ELECTRONIC ASSEMBLIES SUITABLE FOR USE SOLELY OR PRINCIPALLY WITH TRANSMISSION AND RECEPTION APPARATUS FOR RADIO-TELEPHONY RADIO-TELEGRAPHY RADIO-BROADCASTING TELEVISION TELEVISION CAMERAS STILL IMAGE VIDEO CAMERAS AND OTHER VIDEO CAMERA RECORDERS RADAR A	436.2	1 469.1
85299095	PARTS SUITABLE FOR USE SOLELY OR PRINCIPALLY WITH TRANSMISSION APPARATUS FOR RADIO-TELEPHONY OR RADIO-TELEGRAPHY RADIO-BROADCASTING OR TELEVISION VIDEO CAMERA RECORDERS RADAR APPARATUS RADIO NAVIGATIONAL AID APPARATUS AND REMOTE CONTROL APPARATUS N.E.S.	964.4	722.3

Source: Eurostat (COMEXT)

ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

Data sources

The source of all figures presented is Eurostat (unless specifically stated otherwise). Most data sources are continually updated and revised where necessary. This publication reflects the state of data availability in Eurostat's reference database as in December 2007.

For more information on this and related topics see the **European business portal on the Eurostat website** (<http://ec.europa.eu/eurostat/europeanbusiness>).

Structural Business Statistics (SBS) is the main data source for this publication. Statistics are presented by economic activity according to the NACE Rev. 1.1 classification system. As such, telecommunications (NACE I 64.2) is one group. Comparisons are made with the non-financial business economy (NACE Sections C to K without J).

No data available for IE, NL, MT, PL and SI.

Short-Term Statistics (STS) were used to complement SBS data with information on the 'Turnover index, which shows the trend of the business activity.

Patent statistics were used to give some information of R&D activity in telecommunications. Data shown are from the ICT subgroup telecommunications.

Annual Industrial Production Statistics (PRODCOM) were used for an overview of production value of the main product categories.

External Trade Statistics (Comext) are an important data source to give an overview of trade activity. Extra-EU trade statistics cover the trading of goods between a Member State and a non-member country.

Countries

This publication covers all Member States (EU-27): Belgium (BE), Bulgaria (BG), the Czech Republic (CZ), Denmark (DK), Germany (DE), Estonia (EE), Ireland (IE), Greece (EL), Spain (ES), France (FR), Italy (IT), Cyprus (CY), Latvia (LV), Lithuania (LT), Luxembourg (LU), Hungary (HU), Malta (MT), the Netherlands (NL), Austria (AT), Poland (PL), Portugal (PT), Romania (RO), Slovenia (SI), Slovakia (SK), Finland (FI), Sweden (SE) and the United Kingdom (UK). Also included is Norway (NO).

EU aggregates

At the time of data processing for this publication, EU aggregates had been compiled for the EU-25 and the EU-27.

Exchange rates

Financial data are presented in ECU/EUR terms, with national currencies converted using average exchange rates prevailing for the year in question.

Symbols

“.” not available.

Observation unit

The observation unit is the enterprise. An enterprise carries out one or more activities at one or more locations. Enterprises are classified into sectors (by NACE) according to their main activity.

Structural business statistics variables

Variables are defined according to Commission Regulation No 2700/98 and include:

Number of enterprises

The number of enterprises active during at least part of the reference period.

Turnover

The totals invoiced by the observation unit during the reference period, and this corresponds to market sales of goods or services supplied to third parties.

Value added at factor cost

The gross income from operating activities after adjusting for operating subsidies and indirect taxes (including value added tax).

The **gross operating surplus** is the surplus generated by operating activities after the labour factor input has been recompensed. It can be calculated from the value-added at factor cost less the personnel costs.

Total purchases of goods and services include the value of all goods and services purchased during the accounting period for resale or consumption in the production process, excluding capital goods (the consumption of which is registered as consumption of fixed capital).

Personnel costs are defined as the total remuneration, in cash or in kind, payable by an employer to an employee (regular and temporary employees as well as home workers) in return for work done by the latter during the reference period. Personnel costs also include taxes and employees' social security contributions retained by the unit as well as the employer's compulsory and voluntary social contributions.

Gross investment in tangible goods

All new and existing tangible capital goods, whether bought from third parties or produced for own use, having a useful life of more than one year including non-produced tangible goods such as land.

Number of employees is defined as those persons who work for an employer and who have a contract of employment and receive compensation in the form of wages, salaries, fees, gratuities, piecework pay or remuneration in kind.

Number of persons employed

The total number of persons who work in the observation unit, as well as persons who work outside the unit but who belong to and are paid by it. It includes employees, part-time workers, working proprietors, unpaid family workers, seasonal workers etc.

Wage adjusted labour productivity (%) is obtained by dividing apparent labour productivity by average personnel costs.

Gross operating rate (%)

This is an indicator of profitability where the gross operating surplus (above) is related to the turnover generated.

Further information

Data: [Eurostat Website: http://ec.europa.eu/eurostat](http://ec.europa.eu/eurostat)

Select your theme on the left side of the homepage and then 'Data' from the menu.

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