

Indicators for the High Technology Sector
Provisional results. Year 2006

Turnover of the companies in the High Technology sector increases 9.2% in 2006

Expenditure in R&D activities in this sector increases 20.1%

Turnover for companies of the High and Medium-high Technology manufacturing sectors stood at of 244,617 million euros in 2006, with a 9.2% increase as compared with the previous year.

By manufacturing sector, turnover for the Medium-high Technology Manufacturing sector (accounting for 84.4% of the total sales of High and Medium-high Technology Manufacturing companies) was 152,189 million euros, 9.3% more than in 2005.

In turn, the High Technology Manufacturing sector exceeded 28,167 million euros (15.6% of the total sales of the aforementioned High and Medium-high Technology Manufacturing companies) with an approximate increase of 16% as compared with the previous year.

Turnover in the High Technology sectors

(Economic data in thousands of euros)

NCEA	Sectors	2005		2006		Interannual variation 2005-2006
		Turnover	%	Turnover		
	High Technology and Medium-high Technology Manufacturing	163,657,427	73.1	180,356,215		10.2
	High Technology Manufacturing sectors	24,359,820	10.9	28,167,399		15.6
244	Pharmaceutical industry	11,681,183	5.2	12,349,825		5.7
30	Office machinery and computers	937,706	0.4	761,170		-18.8
321	Electronic components	1,256,795	0.6	1,325,412		5.5
32-321	Radio, TV and communications apparatus	4,078,120	1.8	5,130,085		25.8
33	Medical, precision, optical and clocks and watches instruments	3,517,727	1.6	4,004,492		13.8
353	Manufacture of aircraft and spacecraft	2,888,289	1.3	4,596,415		59.1
	Medium-high Technology Manufacturing sectors	139,297,607	62.2	152,188,816		9.3
24-244	Chemical industry except pharmaceutical industry	32,570,353	14.5	35,290,263		8.4
29	Machinery and equipment	26,653,761	11.9	29,920,144		12.3
31	Electrical machinery and apparatus	17,721,329	7.9	20,586,795		16.2
34	Automobile industry	55,587,501	24.8	58,729,142		5.7
35-353	Construction of boats, trains, motorcycles and bicycles and other transport material	6,764,663	3.0	7,662,472		13.3
	High Technology or State of the Art services	60,321,315	26.9	64,260,983		6.5
64	Post and communications	40,918,895	18.3	⁽¹⁾ 42.338.299		3.5
72	Computer activities	18,224,133	8.1	⁽¹⁾ 20.681.585		13.5
73	Research and development	1,178,287	0.5	⁽¹⁾ 1.241.099		5.3
	Total High and Medium-high Technology sectors	223,978,742	100.0	244,617,198		9.2

Source: Industrial Companies Survey and Annual Services Survey

Note: data in cells marked (1) corresponds to the preview of the results of the publication of the 2006 Annual Services Survey

High Technology sectors employ 7.3% of the total number of employed persons

High Technology sectors employed 1,449,100 persons in 2006, which implied 7.3% of the total number of employed persons in the Spanish economy. The percentage of females was 25.7%.

The number of employed persons in High Technology Manufacturing sectors amounted to 179,900, whereas Medium-high technology manufacturing sectors employed 732,800 persons. In terms of high-technology services, 536,400 persons were employed.

By **Autonomous Community**, Cataluña and Comunidad de Madrid were those with the greatest number of employed persons in the High Technology sectors, with 386,100 and 291,800, respectively. In turn, the Communities with the highest percentage of employment in these sectors as compared with the total number of employed persons were País Vasco (12.6%), Comunidad Foral de Navarra (12.2%), Cataluña (11.3%) and Aragón (10.5%).

Employed persons in High Technology sectors by Autonomous Community

Year 2006

(Thousands of persons)

Autonomous Community	Total employed persons	High Technology Manufacturing sectors	Technology Manufacturing sectors	High Technology services	Total	% of total employed persons
TOTAL	19,747.7	179.9	732.8	536.4	1,449.1	7.3
Andalucía	3,110.4	15.3	48.6	59.2	123.1	4.0
Aragón	577.3	4.8	40.8	15.3	60.9	10.5
Asturias (Ppado de)	423.6	1.3	10.8	9.6	21.7	5.1
Balears (Illes)	496.0	0.8	7.2	7.7	15.7	3.2
Canarias	880.4	1	5	16.8	22.8	2.6
Cantabria	249.7	1.4	11.6	5.4	18.4	7.4
Castilla y León	1,045.6	4.8	41.5	20.2	66.5	6.4
Castilla La Mancha	798.1	4.9	14	13.1	32.0	4.0
Cataluña	3,418.7	54	234.3	97.8	386.1	11.3
C. Valenciana	2,152.3	8.8	73	50.4	132.2	6.1
Extremadura	398.3	0.5	3.9	6.5	10.9	2.7
Galicia	1,164.2	7.2	43.9	20.8	71.9	6.2
Madrid (C. de)	2,977.1	57.4	67.9	166.5	291.8	9.8
Murcia (Región de)	597.6	2.1	16.5	8.4	27.0	4.5
Navarra (C. Foral de)	283.6	1.5	28.4	4.7	34.6	12.2
País Vasco	984.9	13.6	80.2	30.5	124.3	12.6
La Rioja	143.8	0.4	5.1	3	8.5	5.9
Ceuta and Melilla	46.1	0.1	0.1	0.5	0.7	1.5

Source: Economically Active Population Survey (Annual Averages)

Investment in R&D increases 20.1%

High Technology companies invested a total of 4,437 million euros in R&D during 2006, in other words, 20.1% more than the previous year. This figure implied 67.7% of total expenditure of the business sector on R&D activities.

The number of persons employed in full-time equivalent dedicated to R&D tasks in the High technology sector reached 52,098, which implied an annual increase of 7.4%.

The branches of the High Technology sector accounted for 62.9% of the total personnel dedicated to R&D in the business sector and 67.3% of researchers.

Main R&D indicators in High Technology sectors

Year 2006

	Internal expenditure		Personnel in R&D ²			
	Total	%	Total		Researchers	
			Total	%	Total	%
High and Medium Technology manufacturing sectors	2,475,997	37.8	27,413.0	33.1	12,778.9	32.0
High Technology Manufacturing sectors	1,335,635	20.4	11,910.8	14.4	6,701.8	16.8
Medium-high Technology Manufacturing sectors	1,140,362	17.4	15,502.2	18.7	6,077.1	15.2
High Technology or State of the Art services	1,961,266	29.9	24,685.4	29.8	14,108.0	35.3
Total High and Medium-high Technology sectors	4,437,263	67.7	52,098.4	62.9	26,886.9	67.3
Total business sector	6,557,529	100.0	82,869.8	100.0	39,935.7	100.0

Source: Statistics on Scientific Research activities and Technological Development

¹ Units: thousand euros

² In Full Time Equivalent (FTE)

44.7% of High and Medium-high Technology sector companies were innovative in the 2004-2006 period. Of particular note were the branches of Radio, TV and Communications apparatus (standing at 74.3%) and the Pharmaceutical industry (standing at 66.1%).

In the case of High Technology services, the branch of R&D activities was of note, with 75.5% of companies innovating.

Production value for goods exceeds 8,800 million euros

According to the Industrial Products Survey, production value for High Technology goods reached 8,874.8 million euros in the year 2006.

Production value for High Technology goods by product group (Thousands of euros)

Groups of products	2006
0. Weapons and ammunition	717,218.6
1. Manufacture of aircraft and spacecraft	479,700.8
2. Office machinery and computers	508,430.7
3. Electronic material; Radio, television and communication equipment and apparatus	2,344,278.7
4. Pharmaceutical and chemical consumption products	1,652,030.7
5. Scientific instruments	850,988.6
6. Electrical machinery and material	387,599.1
8. Chemical products	1,229,940.1
9. Machinery and mechanical equipment	704,594.2
Total High Technology products	8,874,781.5
Total Industrial Production	417,148,199.0

Source: Industrial Products Survey

In terms of foreign trade of High Technology products, **exports** totalled 8,379.8 million euros en 2006, which implied a decrease of 8.0% as compared with 2005. **Imports** reached 25,849.1 million euros, for a 4.3% increase.

Foreign trade of High Technology products by type of products

Year 2006	(Thousands of euros)		
Groups of products	Value of exports	Value of imports	Commercial Balance
0. Weapons and ammunition	113,160	151,937	-38,777
1. Manufacture of aircraft and spacecraft	1,315,496	2,989,219	-1,673,723
2. Office machinery and computers	848,681	5,607,092	-4,758,411
3. Electronic Material; radio, television and communications equipment	2,331,475	9,174,990	-6,843,515
<u>4. Pharmaceutical products</u>	<u>1,175,262</u>	<u>2,504,318</u>	<u>-1,329,056</u>
5. Scientific instruments	725,212	3,047,884	-2,322,672
6. Electrical machinery and material	452,844	641,504	-188,660
8. Chemical products	859,300	971,962	-112,662
9. Machinery and mechanical equipment	558,414	760,164	-201,750
Total	8,379,844	25,849,070	-17,469,226

Source: Own compilation using Foreign Trade Statistics data from the State Tax Administration Agency

For further information see INEbase-www.ine.es/en/welcome_en.htm All press releases at: www.ine.es/en/prensa/prensa_en.htm

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Methodological Annex

Considering technology as the knowledge base necessary for producing new products and processes, High Technology is characterised by a fast renewal of knowledge, much greater than other technologies, and due to its complexity it demands a continuous effort in research and a solid technological base.

For statistical reasons, the definition of High Technology is carried out by an exhaustive listing of the branches of activity (**approach by sectors**) and of products (**approach by products**) that are considered, at a certain moment in time, of high technological content.

In order to determine the list of High Technology activities and products we have started from methodological tasks performed by the OECD on this matter, as well as from adaptations thereof to the European scope performed by Eurostat.

High and Medium-high Technology sectors.

List used by the INE

NCEA-93	Sectors
High Technology Manufacturing sectors	
244	Pharmaceutical industry
30	Office machinery and computers
321	Electronic components
32-321	Radio, TV and communications apparatus
33	Medical, precision, optical and clocks and watches instruments
353	Manufacture of aircraft and spacecraft
Medium-high Technology Manufacturing sectors	
24-244	Chemical industry except pharmaceutical industry
29	Machinery and equipment
31	Electrical machinery and apparatus
34	Automobile industry
35-353	Other transport material
High Technology or State of the Art services	
64	Post and communications
72	Computer activities
73	Research and development

The study of High Technology from the product perspective is based on the construction of indicators that reflect the technological content of the goods produced and exported by a country or industrial sector.

List of high tech products.

Group	Sector	SITC Code
1	Aerospatial	[7921+7922+7923+7924+7925+79291+79293+(714-71489-71499)+87411]
2	Office machines and computers	[75113+75131+75132+75134+(752-7529)+75997]
3	Electronics-communications	[76381+76383+ (764-76493-76499)+7722+77261+77318+77625+77627+7763+7764+7768+89879]
4	Pharmaceutical industry	[5413+5415+5416+5421+5422]
5	Scientific instruments	[774+8711+8713+8714+8719+87211+(874-87411-8742)+88111+88121+88411+88419+89961+89963+89966+89967]
6	Electrical machinery	[77862+77863+77864+77865+77867+77868+7787+77884]
7	Chemistry	[52222+52223+52229+52269+525+531+57433+591]
8	Mechanical machinery and equipment	[71489+71499+71871+71877+71878+72847+7311+73131+73135+73142+73144+73151+73153+73161+73163+73164+73165+73312+73314+73316+7359+73733+73735]
9	Armament	[891]

The tables showed in this statistical operation are compiled from the results of the following operations:

- Industrial Companies Survey (INE)
- Annual Services Survey (INE)
- Statistics on R&D activities (INE)
- Technological Innovation in Companies Survey (INE)
- Economically Active Population Survey (INE)
- Quarterly Labour Cost Survey (INE)
- Industrial Products Survey (INE)
- Foreign Trade Statistics (own compilation from AEAT data)
- Survey on the Use of Information and Communication Technologies and E-Commerce in Companies (INE)