

Technology Balance of Payments

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Main findings

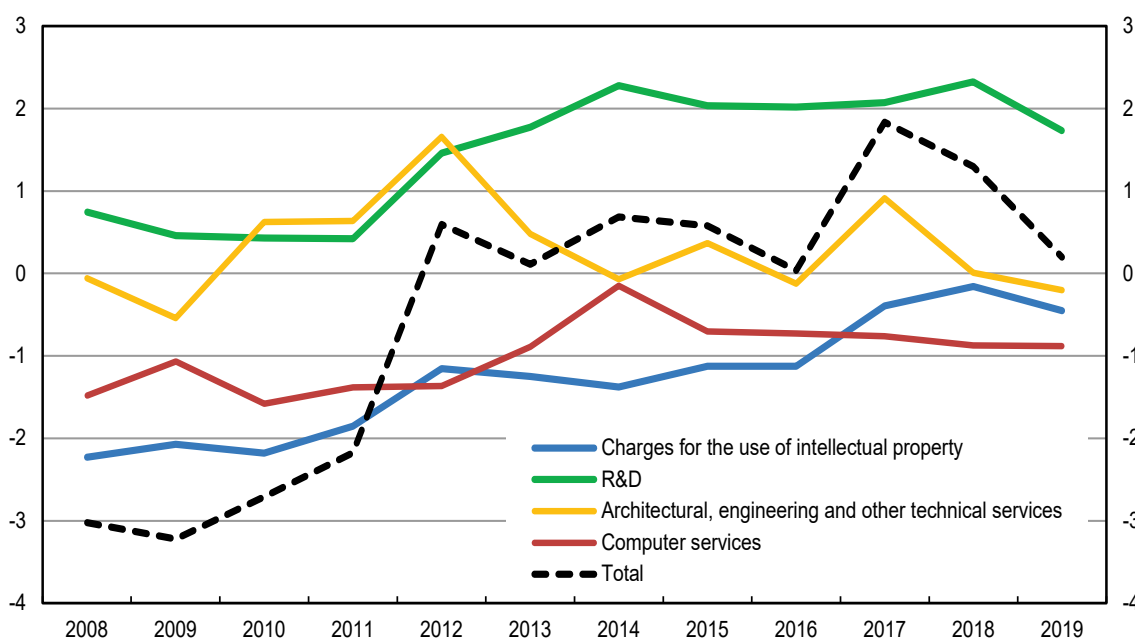
In 2019, Italy's overall technology balance of payments – i.e. charges for the use of intellectual property (patents and royalties), computer services, research and development, and architectural and engineering services, which is also defined as international trade in disembodied technology – fell significantly compared with the previous year (Figure 1), although it remained positive (€0.2 billion; Table 1).

The contraction in the surplus was the result of both the increase in imports and the decline in exports, seen across all sectors, except for computer services. The balance was positive in research and development and negative in the other sectors.

Looking at the business sector of firms that export or import disembodied technology, the manufacturing sector continued to post a positive balance, albeit lower than the year before. On the other hand, the service sector deficit increased, reflecting stronger growth in imports.

Making an international comparison, Italy's trade in disembodied technology, in relation to GDP, remained lower than the European average, although in the last few years it has been one of Italy's more dynamic sectors in the international trading of services.

Figure 1 – Italy's technology balance of payments by transaction type
(billions of euros)



Italy's technology balance of payments in 2019¹

The balance continues to be slightly in surplus

In 2019, Italy's overall technology balance of payments² was positive by €0.2 billion, a sharp decrease from a year earlier (€1.3 billion; Table 1). This marks the eighth consecutive year in which there was a surplus in disembodied technology. The improvement with respect to the period prior to 2012 was initially due to an increase in the surplus in research and development services and, later, to the narrowing in the deficit in charges for the use of intellectual property. The peak

reached in 2017 was also determined by the significant surplus in architectural and engineering services.

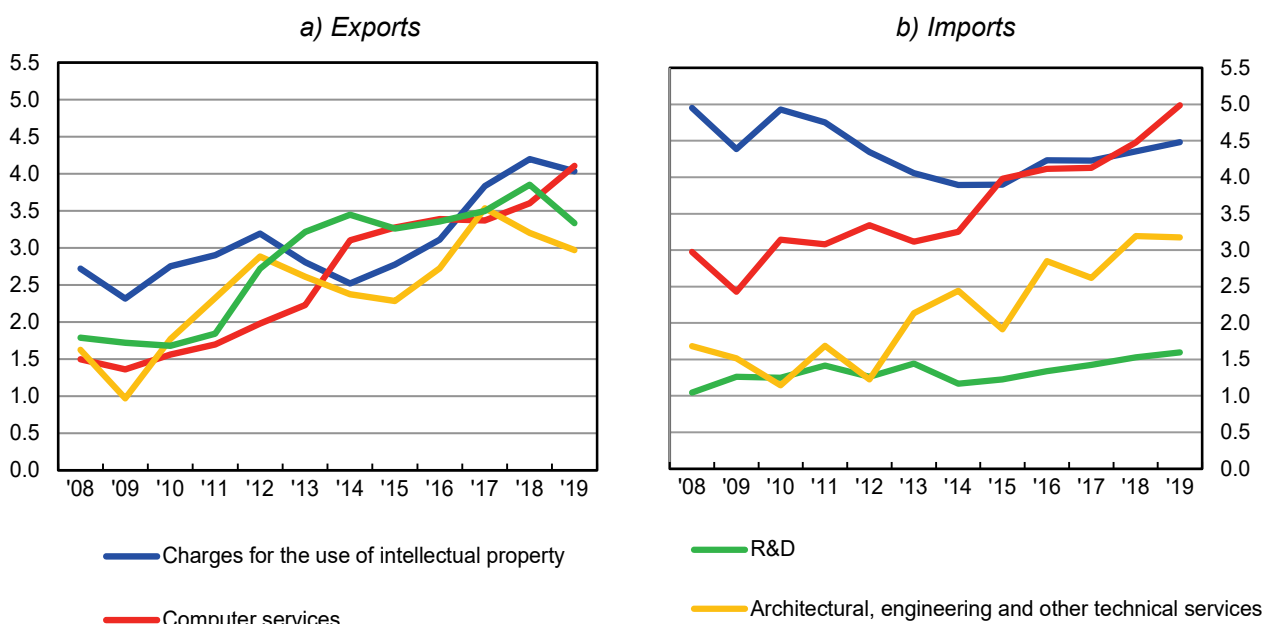
Exports fall by 2.8 per cent in 2019 ...

Technology exports overall fell by 2.8 per cent, compared with 2018, owing to declines across almost all sectors, especially R&D (-13.5 per cent). The exception was computer services (+14.0 per cent) which continued to follow the upward trend that began in 2010 to become the largest contributor (€4.1 billion) to technology exports, slightly exceeding charges for the use of intellectual property (see panel (a) of Figure 2).

... imports instead rise by 5.1 per cent.

By contrast, technology imports rose by 5.1 per cent compared with the previous year; in this case, as well, the most dynamic sector was computer services (11.4 per cent). Imports of architectural and engineering services fell marginally (-0.5 per cent). Computer services represent the most important category (€5.0 billion) also on the import side (see panel (b) of Figure 2).

Figure 2 – Italy's technology balance of payments: exports and imports by type of transaction
(billions of euros)



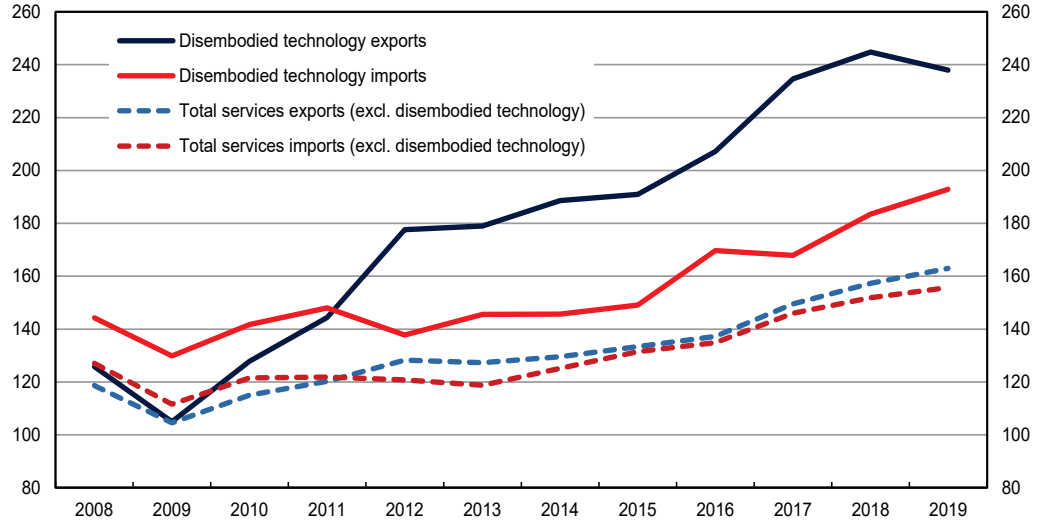
¹This report was prepared by Enrico Tosti, data processing was carried out by Arcangela De Cata.

² The definition of technology balance of payments follows the OECD's taxonomy, which does not include the sale of licenses and similar rights, royalties and other licenses not derived from research and development since such flows are recorded under 'intangible assets' in the capital account and therefore cannot be kept distinct from other transactions entered under that item (such as the sale of CO₂ emission rights and the like, television and film rights and the transfer of the services of athletes from one club to another). To avoid gross overestimation, we have decided to exclude these transfers from the technology balance of payments, although we should note that the sums involved are negligible. For further details, see [Methods and sources: Methodological Notes](#).

Since 2008 technology exports have risen much faster on average than have other services

Over the last decade, Italian exports of disembodied technology have risen at a much higher overall rate than trade in the other services (Figure 3). Technology trade increased by an average of 8.1 per cent, compared with 2.9 per cent for other services. On the imports side, the growth gap, while positive, was much smaller, 3.1 per cent compared with 1.9 per cent.

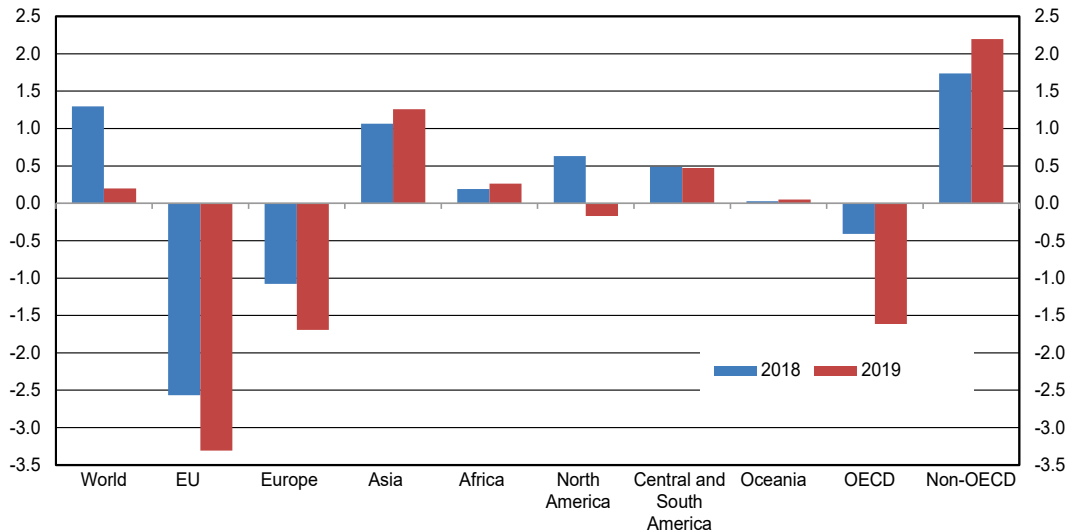
Figure 3 – Comparison of total trade in services and technology balance flows
(indices: 2008=100)



The deficit with the OECD countries widens

The transactions recorded in the technology balance of payments are, for the most part, with advanced countries (around three quarters of exports and 91 per cent of imports). Italy’s deficit with the OECD countries widened considerably in 2019 (€2.0 billion, from €0.4 billion; Figure 4 and Table 2). The deterioration was mainly due to the balance with the United States, which went from a surplus of €0.6 billion to a deficit of €0.2 billion, and to the deficit with Ireland (which rose from €1.6 billion to €2.0 billion). The surplus with the BRIC countries and the other non-OECD countries rose, instead, to €2.2 billion.

Figure 4 – Italy’s technology balance of payments by geographical area
(billions of euros)



Exports to OECD countries fall and those to non-OECD rise

The deterioration in the balance with the OECD countries reflected the significant decline in exports (-8.0 per cent), especially those to the United States. Switzerland continues to be the main destination country for Italian exports (€2.0 billion), consisting largely of R&D services sold primarily by the electronics and pharmaceuticals sectors. Export to the non-OECD countries rose significantly (15.5 per cent), in particular to Russia (especially engineering services), China and India.

Imports from OECD countries rise

Imports from OECD countries rose by 5.4 per cent, in particular those from Ireland, which has solidified its position as the main country of origin of imports to Italy (€2.7 billion, overwhelmingly computer services), followed by Germany (€2.1 billion). Imports from non-OECD countries were essentially stable, with only those from India rising significantly.

The surplus in manufacturing decreases and the deficit in services increases

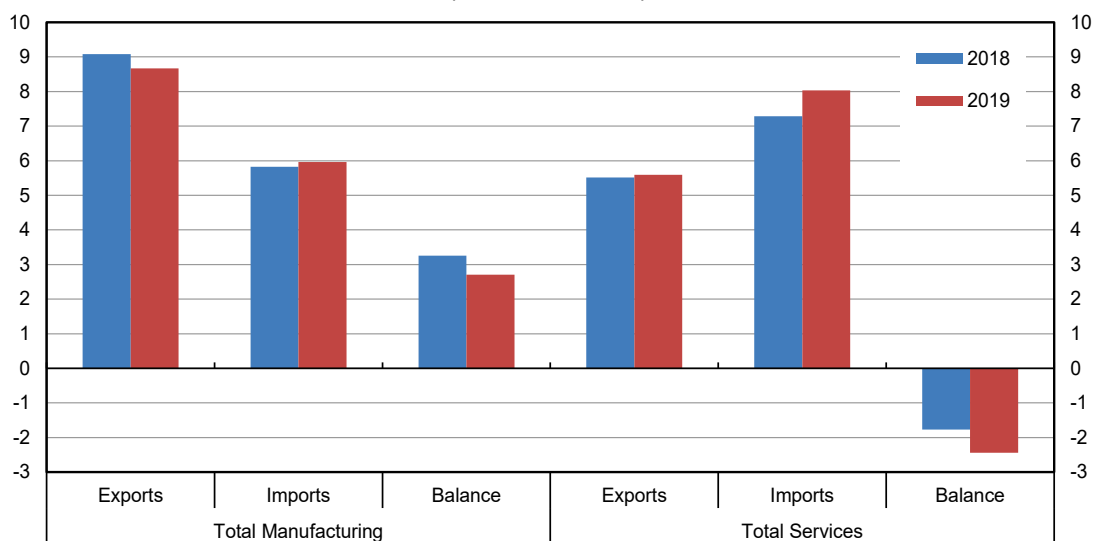
Given the business sector of resident firms that trade disembodied technology, in 2019 the manufacturing surplus, while still sizeable, fell to €2.7 billion from €3.3 billion (Figure 5 and Table 3), reflecting both a reduction in exports and an increase in imports (-4.5 and 2.5 per cent respectively). The deficit widened further for service firms (from €1.8 to €2.4 billion), owing to imports growing at a faster rate than exports.

Manufacturing accounts for about 60 per cent of total exports

Manufacturing firms make of a share of around 60 per cent of total technology exports. The sectors with the most growth in 2019 were electrical equipment and pharmaceuticals; the steepest decline was recorded in the motor vehicles sector. The service sector's share of total exports was 39 per cent; exports of 'information and communication services' increased slightly, while those of 'professional, scientific and technical services' fell by 2.1 per cent, although it remained the largest category (€2.0 billion).

As for imports, the manufacturing sector – which accounts for around 42 per cent of the total – registered a slight decline, mainly in 'motor vehicles and other transport equipment'. Services, which make up 56 per cent of imports, saw significant growth across all the main categories, with 'information and communication services' continuing to hold the top position (imports of €4.9 billion).

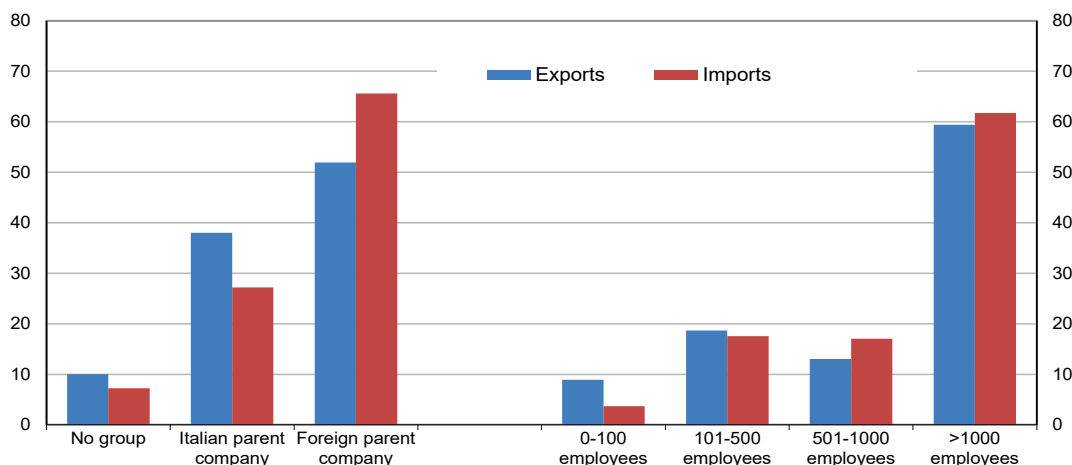
Figure 5 – Italy's technology balance of payments by exports, imports and balances for the manufacturing and service sectors (billions of euros)



Large and foreign-controlled firms predominate

The share of large companies (those with 1,000 or more employees) trading in disembodied technology rose even higher, to around 60 per cent of both imports and exports in 2019. A slightly smaller share, 58 per cent of trade, is reported by firms with a foreign parent company and, in this case, imports significantly exceed exports (Figure 6).³

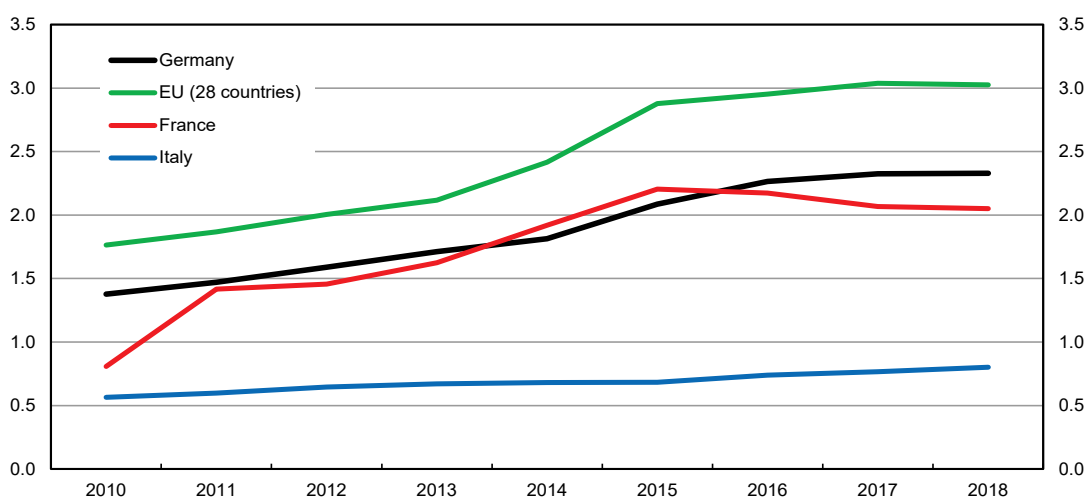
Figure 6 – Italy's technology balance of payments for 2019 by size class and membership in a group (per cent)



Flows remain below the European average

In Italy, the technology balance of payments flows as a per cent of GDP is still significantly lower than in Germany and France and, to a much greater extent, than the EU average (28 countries; Figure 7); this latter figure, however, is influenced by the large share of technology trade in some member states, such as Ireland and the Netherlands, which are important centres for multinationals.⁴

Figure 7 – Italy's technology balance of payments - EU comparison (average of exports and imports as a per cent of GDP)



Sources: Based on Eurostat data (balance of payments data and, for GDP, national accounts).

³ These results can also be found in less recent years, see E. Tosti, 'The Italian Technology Balance of Payments', Banca d'Italia, Questioni di Economia e Finanza (Occasional Papers), 207, 2013 (only in Italian).

⁴ Both of these countries have a technology trade deficit given that a large volume of its computer exports are actually offset by even larger spending on charges for intellectual property and, in the case of Ireland, on research and development.

Tables

Table 1 – Italy's technology balance of payments by transaction type
(millions of euros)

Year	A) Charges for the use of intellectual property	B1) Computer services	B2) Architectural, engineering and other technical services	Technology-related services (B=B1+B2)	C) Research and development	Total disembodied technology (A+B+C)
EXPORTS						
2002	2,040	1,008	1,274	2,282	1,746	6,068
2003	2,163	1,099	1,145	2,244	1,523	5,930
2004	2,321	1,209	1,438	2,648	1,691	6,659
2005	2,610	1,358	1,690	3,048	1,549	7,207
2006	2,934	1,526	1,899	3,425	1,741	8,100
2007	3,101	1,613	2,008	3,621	1,841	8,563
2008	2,720	1,498	1,624	3,122	1,789	7,632
2009	2,316	1,360	972	2,332	1,721	6,369
2010	2,752	1,563	1,768	3,331	1,677	7,760
2011	2,901	1,695	2,323	4,018	1,841	8,760
2012	3,193	1,980	2,884	4,863	2,719	10,775
2013	2,804	2,229	2,611	4,841	3,217	10,862
2014	2,520	3,103	2,372	5,475	3,449	11,444
2015	2,773	3,275	2,281	5,556	3,261	11,590
2016	3,110	3,387	2,723	6,110	3,355	12,575
2017	3,834	3,370	3,535	6,905	3,498	14,237
2018	4,198	3,602	3,200	6,802	3,852	14,852
2019	4,033	4,107	2,970	7,077	3,332	14,442
IMPORTS						
2002	3,438	2,356	833	3,189	759	7,386
2003	3,832	1,770	896	2,666	890	7,388
2004	3,990	1,870	1,119	2,989	1,139	8,118
2005	4,452	2,441	1,272	3,713	1,058	9,223
2006	5,196	2,849	1,485	4,334	1,234	10,765
2007	5,815	3,188	1,662	4,850	1,381	12,046
2008	4,951	2,978	1,682	4,660	1,046	10,658
2009	4,388	2,429	1,515	3,944	1,262	9,594
2010	4,931	3,145	1,144	4,289	1,249	10,469
2011	4,753	3,078	1,687	4,765	1,417	10,935
2012	4,348	3,344	1,226	4,571	1,261	10,179
2013	4,056	3,118	2,134	5,252	1,444	10,751
2014	3,896	3,251	2,441	5,693	1,168	10,757
2015	3,897	3,978	1,913	5,890	1,224	11,011
2016	4,235	4,116	2,848	6,964	1,338	12,536
2017	4,227	4,131	2,620	6,751	1,424	12,402
2018	4,357	4,477	3,191	7,667	1,528	13,553
2019	4,483	4,988	3,174	8,162	1,597	14,242
BALANCE						
2002	-1,398	-1,348	441	-907	987	-1,318
2003	-1,669	-671	248	-422	634	-1,458
2004	-1,669	-661	320	-341	551	-1,459
2005	-1,842	-1,083	418	-666	492	-2,015
2006	-2,263	-1,323	414	-909	507	-2,665
2007	-2,714	-1,575	346	-1,229	459	-3,484
2008	-2,231	-1,480	-58	-1,538	743	-3,026
2009	-2,072	-1,069	-543	-1,612	459	-3,225
2010	-2,179	-1,582	624	-958	428	-2,709
2011	-1,852	-1,383	636	-747	424	-2,175
2012	-1,155	-1,364	1,657	293	1,458	596
2013	-1,251	-889	478	-411	1,774	111
2014	-1,376	-148	-69	-218	2,281	687
2015	-1,124	-702	368	-334	2,036	579
2016	-1,125	-729	-125	-854	2,017	39
2017	-393	-761	915	154	2,074	1,835
2018	-159	-875	9	-865	2,323	1,298
2019	-450	-881	-204	-1,085	1,735	200

Table 2 – Italy’s technology balance of payments by counterpart country or geographical area
(millions of euros)

Counterpart country or geographical area	EXPORTS		IMPORTS		BALANCE	
	2018	2019	2018	2019	2018	2019
World	14,852	14,442	13,553	14,242	1,298	200
EU	7,235	7,141	9,802	10,448	-2,567	-3,307
Europe	9,935	9,748	11,013	11,443	-1,078	-1,694
Asia	2,089	2,179	1,023	921	1,066	1,258
Africa	273	445	82	182	192	264
North America	1,953	1,390	1,323	1,559	630	-169
Central and South America	539	516	50	46	489	470
Oceania	60	88	32	37	28	52
Not classified	2	74	31	56	-29	18
OECD countries	11,867	10,922	12,277	12,937	-410	-2,015
Austria	214	232	101	106	114	126
Belgium	475	462	279	203	197	259
France	1,385	1,147	1,305	1,178	80	-32
Germany	1,301	1,382	1,870	2,129	-569	-747
Ireland	557	733	2,183	2,750	-1,626	-2,017
Luxembourg	420	514	169	265	251	248
Netherlands	228	163	822	1,041	-594	-878
Poland	398	269	82	61	316	208
Spain	339	295	360	304	-21	-9
Sweden	365	461	163	157	202	304
United Kingdom	814	841	1,779	1,781	-965	-940
Switzerland	2,344	2,037	1,084	846	1,260	1,190
Turkey	118	100	40	32	78	67
United States	1,914	1,330	1,290	1,503	625	-173
Canada	38	60	33	55	5	5
Japan	127	99	98	84	28	15
Other OECD countries	829	798	618	440	211	358
Non-OECD countries	2,982	3,446	1,245	1,249	1,737	2,197
Russia	163	400	22	12	141	388
Brazil	257	247	33	18	224	229
China	471	524	138	130	333	394
India	190	242	88	154	102	88
Other non-OECD countries	1,902	2,033	964	935	938	1,097

Table 3 – Italy’s technology balance of payments by sector of economic activity of the Italian reporting entity
(millions of euros)

	EXPORTS		IMPORTS		BALANCE	
	2018	2019	2018	2019	2018	2019
Manufacturing	9,078	8,673	5,821	5,965	3,257	2,708
<i>of which: Food, beverages, tobacco</i>	472	529	297	227	174	302
<i>Textiles, wearing apparel, leather and related products</i>	939	782	392	127	548	655
<i>Chemicals and chemical products</i>	378	402	448	415	-70	-13
<i>Pharmaceuticals</i>	897	1,001	542	436	355	565
<i>Rubber and plastic products</i>	330	223	209	161	121	62
<i>Computer, electronic and optical products</i>	1,061	1,096	85	136	976	960
<i>Electrical equipment</i>	396	564	937	952	-541	-387
<i>Machinery and equipment n.e.c.</i>	815	678	501	393	314	284
<i>Motor vehicles, trailers and semi-trailers</i>	1,750	1,180	1,133	1,334	617	-154
Services	5,520	5,597	7,288	8,032	-1,768	-2,436
<i>of which: Wholesale and retail trade</i>	1,029	1,093	737	895	293	197
<i>Information and communication</i>	1,665	1,857	4,722	4,916	-3,057	-3,058
<i>Financial and insurance activities</i>	434	152	298	343	135	-191
<i>Professional, scientific and technical activities</i>	2,050	2,006	851	903	1,199	1,103
Other sectors*	254	172	444	245	-190	-72
Total	14,852	14,442	13,553	14,242	1,298	200

Note (*) – Other sectors comprise: Agriculture; Mining and quarrying; Electricity and waste; and Construction.

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