

# Technology Balance of Payments

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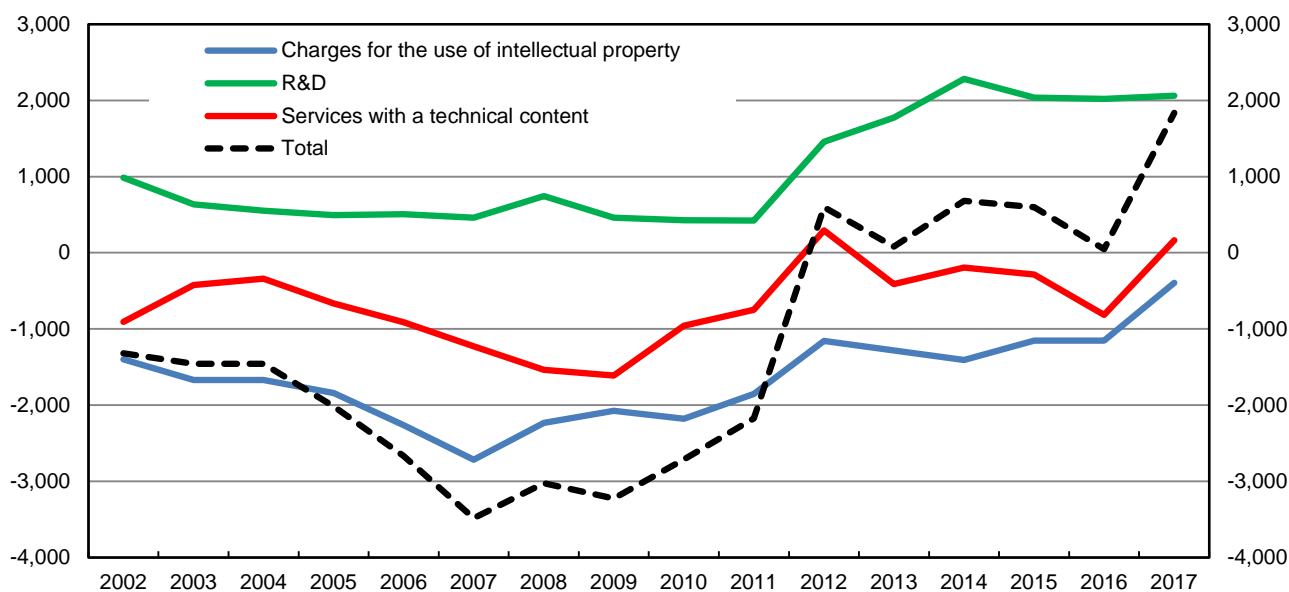
## Main findings

In 2017, Italy's overall technology balance of payments – which relates to international trade in disembodied technology – was positive for the sixth consecutive year at €1.8 billion, a level never attained before (Figure 1).

After a long period in negative territory, the technology balance of payments improved between 2012 and 2014, driven by the larger surplus in research and development (R&D) services and, in the last three years, the narrowing of the deficit in charges for the use of intellectual property; in 2017 the balance of services with technological content turned positive, especially for architectural and engineering services (Table 1).

When looking at the economic sector of firms that export disembodied technology, manufacturing continues to post a surplus, which has widened compared with 2016. At the same time, the deficit ascribable to the service sector has been almost completely wiped out, with exports recording strong growth, especially for firms providing professional, scientific and technical services.

**Figure 1 – Italy's technology balance of payments: balances by transaction type**  
(millions of euros)



Reference year: 2017

## Developments in Italy's technology balance of payments in 2017

**The technology balance of payments surplus reached an all-time high**

In 2017, Italy's overall technology balance of payments<sup>1</sup> was positive by €1.8 billion, a level never attained before and a sharp increase compared with the previous year (€48 million; Table 1). This marks the sixth consecutive year in which there was a trade surplus in disembodied technology; the improvement with respect to the period prior to 2012 was mainly due to a surplus in research and development services (which since 2014 have been stable and above €2 billion) and later to a narrowing in the deficit in charges for the use of intellectual property (fees for the use of patents, licences and royalties) and the return to a surplus in the balance of services with technological content, especially architectural and engineering services.

**In 2017 exports rose sharply ...**

Overall, disembodied technology exports rose by 13.5 per cent compared with 2016, reflecting increases in all the main items except computer services, in which they declined marginally. Significant increases were recorded for both architectural and engineering services (almost 30 per cent, after growing by 19.4 per cent last year) and charges for the use of intellectual property (24.6 per cent). The latter became the largest item in sales abroad (€3.8 billion), slightly

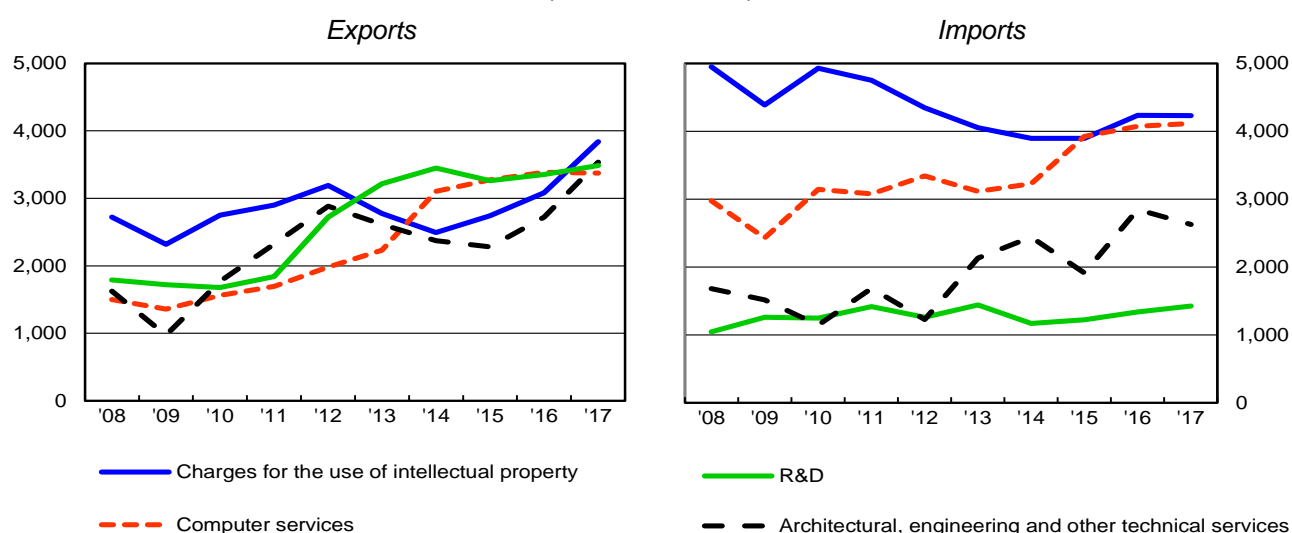
outpacing all the other components, which nevertheless all account for more than a yearly €3 billion (Figure 2).

**... while imports fell slightly**

Imports instead declined slightly, by 0.7 per cent, especially owing to the reduction of 7.7 per cent in the purchases of architectural and engineering services, which came to €2.6 billion. Charges for the use of intellectual property remained stable at €4.2 billion, remaining the main component on the debit side, outpacing computer services by a small margin.

The composition of exports continued to be mostly even among the different categories, accounting for a share ranging from 22 to 27 per cent of the total; imports were again more uneven, ranging from 11 to 34 per cent.

**Figure 2 – Italy's technology balance of payments: exports and imports by type of transaction (2008-2017)**  
(millions of euros)



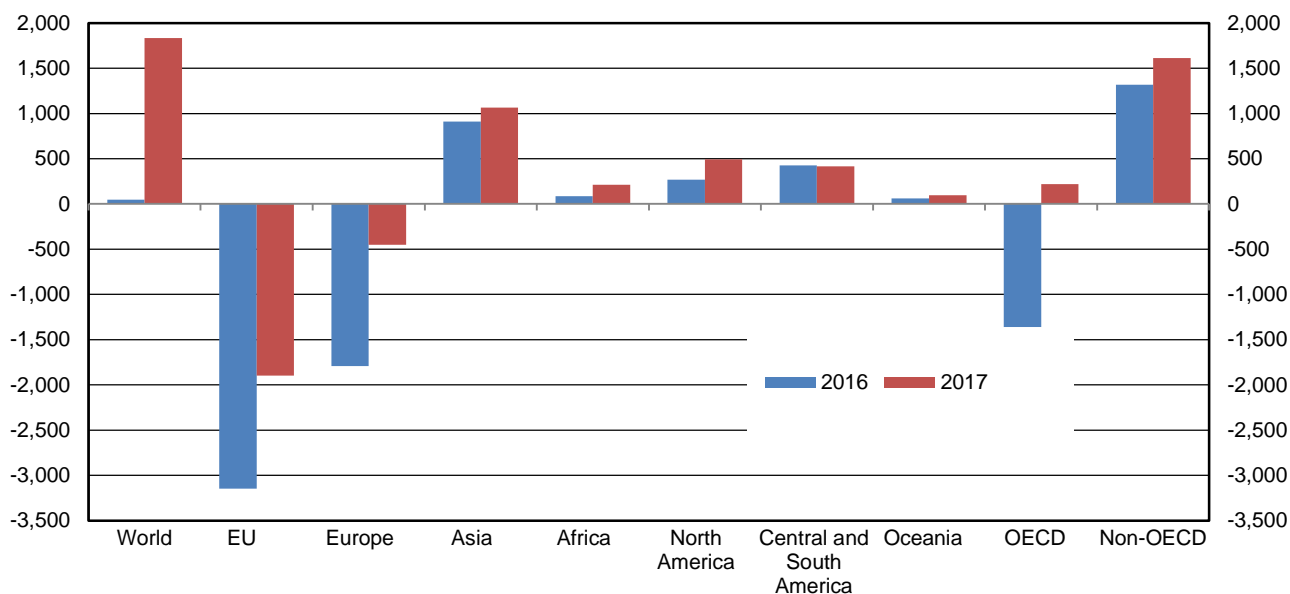
<sup>1</sup> With the sixth edition of the IMF Balance of Payments Manual (BPM6), sales of patents and licences deriving from research and development are kept distinct from other trade in 'intangible assets' and are no longer entered in the capital account but under services in the item 'research and development services'. For stricter adherence to the OECD classification, intangible assets do not fall within the technology balance of payments; therefore, there may be an underestimate (but presumably not a large one) of technology balance of payments flows because of the exclusion of the sale of licences and similar rights, royalties and other licenses not deriving from R&D; for further details, see [Methods and Sources: Methodological Notes](#).

**The balance with OECD countries turned positive**

The vast majority of transactions registered in the technology balance of payments continued to be with advanced countries (almost 88 per cent, calculated as the average of imports and exports). The balance with respect to OECD countries, historically negative, turned into a small surplus of €0.2 billion in 2017, compared with a deficit of €1.4 billion in 2016 (Figure 3 and Table 2), while the surplus with non-OECD countries rose to €1.6 billion, from €1.3 billion

the previous year. The improvement in the balance with OECD countries was mostly due to the significant reduction in the deficit with EU countries, which narrowed to €1.9 billion, from €3.1 billion in 2016.

**Figure 3 – Italy’s technology balance of payments: balances by geographical area**  
(millions of euros)



**Exports to both OECD and non-OECD countries increased**

In 2017 exports of disembodied technology to OECD countries grew by 12.9 per cent compared with the previous year. The largest increase in absolute terms was in sales to France, followed at a distance by the United States, Switzerland and Poland; Switzerland continues to be the top destination country for Italian sales (€2.0 billion), followed by the United States (€1.8 billion) and France (€1.7 billion). On the other hand, the largest declines in exports were in those to Germany and Belgium. Sales to non-OECD countries

grew even more significantly (21.5 per cent); there was an increase in those to most areas, including China, India and Russia, but not Brazil.

Imports from OECD countries fell by 2.1 per cent. The main contraction was in those from the United Kingdom and from Ireland, which in any case remains the main source of Italian imports of disembodied technology (€2.4 billion), followed by Germany. Imports from non-OECD countries, instead, increased by 20.1 per cent, in line with the growth in exports; Russia was the exception to this trend.

**The surplus in manufacturing widened and the deficit in the service sector was almost wiped out**

Taking into account the sectoral distribution of firms trading in disembodied technology, in 2017 the manufacturing surplus grew from €1.7 billion to €2.2 billion (Figure 4 and Table 3), reflecting a sharper reduction in the flows on the import side compared with the export side (the fall was by 11.6 and 3.3 per cent respectively). The deficit in services was almost eliminated, narrowing from €1.6 billion to €0.1 billion thanks to significantly stronger growth in exports than in imports (the increase was by 38.9 and 8.0 per cent respectively).

**The service sector's share in total exports surpassed that of manufacturing**

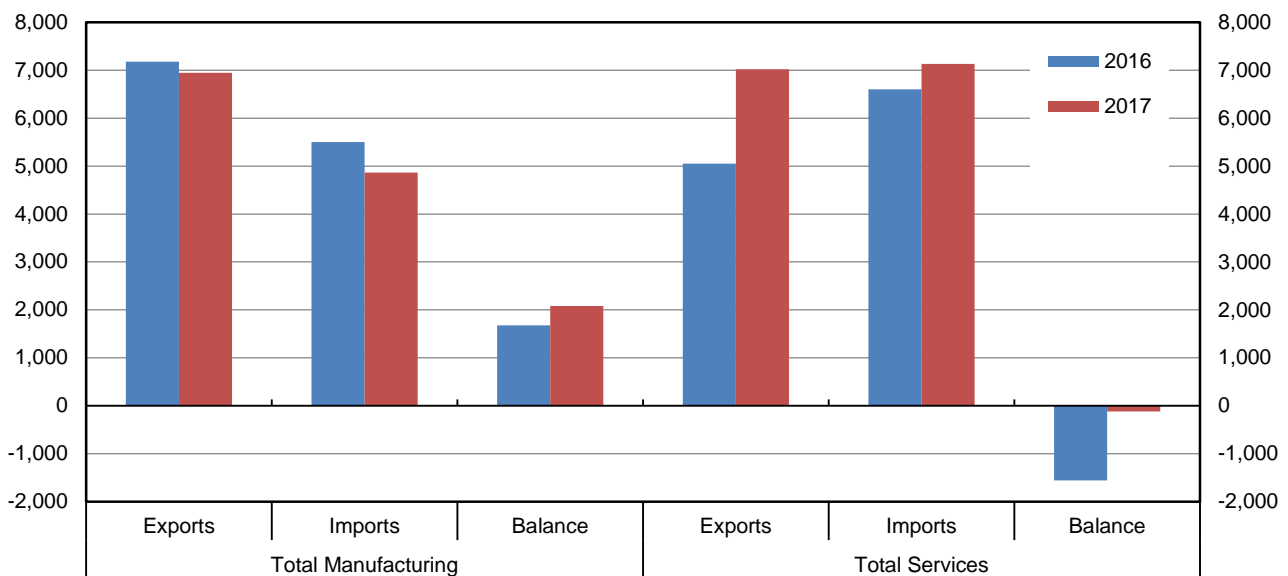
The contraction in technology exports in manufacturing caused its share in total exports to decrease to below 50 per cent in 2017, whereas the 'motor vehicles, trailers and semi-trailers' segment recorded a significant increase. The share of the service sector in total exports rose to almost 50 per cent; the increase in sales abroad was in large part ascribable to the 'professional, scientific and technical activities' segment, which came to €3.9 billion (from €2.5 billion in 2016).

**Manufacturing sector technology imports declined**

Manufacturing sector technology imports fell significantly, mainly reflecting the decrease in purchases in the 'machinery and equipment n.e.c.' and 'computer, electronic and optical products' segments. In the service sector, which represents about 57 per cent of the total, 'information and communication' continued to attract the highest share of imports, accounting for 36 per cent of the total in 2017 and stable at around €4.5 billion.

As regards the main sectoral balances, in manufacturing the largest surplus in absolute terms was recorded in the 'computer, electronic and optical products' segments, while the largest deficit was in 'electrical equipment'; in services, the surplus recorded in 'professional, scientific and technical activities' (€2.8 billion) was largely offset by the deficit in the 'information and communication' segment (€2.7 billion).

**Figure 4 – Technology balance of payments: exports, imports and balances for the manufacturing and services sectors**  
(millions of euros)



## Tables

**Table 1 – Technology balance of payments by transaction type**

(millions of euros)

	<b>A) Charges for the use of intellectual property</b>	<b>B1) Computer services</b>	<b>B2) Architectural, engineering and other technical services</b>	<b>Technology-related services (B=B1+B2)</b>	<b>C) R&amp;D</b>	<b>Total BP_TEC (A+B+C)</b>
<b>EXPORTS</b>						
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	2,775	2,229	2,611	4,841	3,217	10,833
2014	2,491	3,103	2,372	5,475	3,449	11,414
2015	2,743	3,275	2,281	5,556	3,261	11,560
2016	3,081	3,387	2,723	6,110	3,355	12,546
2017	3,840	3,375	3,537	6,912	3,487	14,239
<b>IMPORTS</b>						
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	10,657
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	10,936
2012	4,348	3,344	1,226	4,570	1,261	10,179
2013	4,056	3,118	2,134	5,252	1,444	10,751
2014	3,896	3,227	2,441	5,668	1,168	10,732
2015	3,897	3,928	1,913	5,841	1,224	10,962
2016	4,235	4,077	2,848	6,925	1,338	12,497
2017	4,234	4,118	2,628	6,747	1,425	12,405
<b>BALANCE</b>						
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	-2,710
2011	-1,852	-1,383	636	-747	424	-2,176
2012	-1,155	-1,364	1,658	293	1,458	596
2013	-1,281	-889	478	-411	1,774	82
2014	-1,405	-124	-69	-193	2,281	682
2015	-1,153	-653	368	-284	2,036	599
2016	-1,154	-690	-125	-815	2,017	48
2017	-394	-743	908	165	2,063	1,834

**Table 2 – Technology balance of payments by country or geographical area**  
(millions of euros)

	EXPORTS		IMPORTS		BALANCE	
	2016	2017	2016	2017	2016	2017
<b>World</b>	<b>12,546</b>	<b>14,239</b>	<b>12,497</b>	<b>12,405</b>	<b>48</b>	<b>1,834</b>
EU	6,453	7,409	9,599	9,305	-3,146	-1,896
Europe	8,635	9,764	10,428	10,215	-1,793	-451
Asia	1,482	1,781	572	715	910	1,066
Africa	135	265	48	54	87	211
North America	1,585	1,825	1,317	1,332	268	493
Central and South America	502	461	77	45	425	416
Oceania	85	107	23	11	62	96
Not classified	122	36	33	33	89	3
<b>OECD</b>	<b>10,352</b>	<b>11,686</b>	<b>11,711</b>	<b>11,467</b>	<b>-1,359</b>	<b>219</b>
Austria	142	162	168	98	-26	63
Belgium	653	547	259	328	394	219
France	871	1,738	1,098	1,142	-227	596
Germany	1,349	1,235	1,705	1,802	-356	-567
Ireland	458	403	2,398	2,099	-1,940	-1,696
Luxembourg	379	437	238	191	142	245
Netherlands	178	275	756	860	-578	-585
Poland	382	577	75	76	307	501
Spain	255	322	228	244	26	78
Sweden	278	309	137	140	141	168
United Kingdom	805	788	1,997	1,729	-1,192	-941
Switzerland	1,782	1,993	725	775	1,057	1,218
Turkey	183	132	23	46	159	86
United States	1,558	1,796	1,300	1,282	257	514
Canada	28	29	17	50	11	-22
Japan	121	153	97	81	24	72
Other OECD countries	932	793	490	524	441	269
<b>NON-OECD</b>	<b>2,072</b>	<b>2,517</b>	<b>754</b>	<b>905</b>	<b>1,318</b>	<b>1,612</b>
Russia	135	140	33	28	102	112
Brazil	248	196	22	30	225	167
China	381	419	167	201	213	218
India	110	117	50	59	59	58
Other non-OECD countries	1199	1644	481	587	718	1057

**Table 3 – Technology balance of payments by sector of economic activity (NACE)**  
**of the Italian reporting entity**  
(millions of euros)

	EXPORTS		IMPORTS		BALANCE	
	2016	2017	2016	2017	2016	2017
<b>Total manufacturing</b>	<b>7,179</b>	<b>6,946</b>	<b>5,503</b>	<b>4,866</b>	<b>1,676</b>	<b>2,079</b>
<i>of which:</i> Food, beverages, tobacco	412	438	307	261	105	176
Textiles, wearing apparel, leather and related products	720	728	315	267	405	461
Chemicals and chemical products	276	228	379	402	-103	-174
Pharmaceuticals	696	730	505	577	191	153
Rubber and plastics products	262	243	154	169	108	75
Computer, electronic and optical products	1,673	1,005	274	58	1,399	947
Electrical equipment	327	334	937	955	-610	-621
Machinery and equipment n.e.c.	667	610	739	409	-72	201
Motor vehicles, trailers and semi-trailers	1,387	1,611	833	1,108	554	503
<b>Services</b>	<b>5,050</b>	<b>7,016</b>	<b>6,603</b>	<b>7,132</b>	<b>-1,552</b>	<b>-116</b>
<i>of which:</i> Wholesale and retail trade	523	643	785	774	-261	-131
Information and communication	1,461	1,736	4,459	4,466	-2,998	-2,730
Financial and insurance activities	318	466	238	227	80	238
Professional, scientific and technical activities	2,483	3,886	670	1,060	1,814	2,826
<b>Other sectors*</b>	<b>316</b>	<b>277</b>	<b>391</b>	<b>407</b>	<b>-75</b>	<b>-130</b>
<b>Total</b>	<b>12,546</b>	<b>14,239</b>	<b>12,497</b>	<b>12,405</b>	<b>48</b>	<b>1,834</b>

Note(\*) – Other sectors comprise: a) agriculture; b) mining and quarrying; c) electricity and waste; and d) construction.