

Technology Balance of Payments

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Main findings

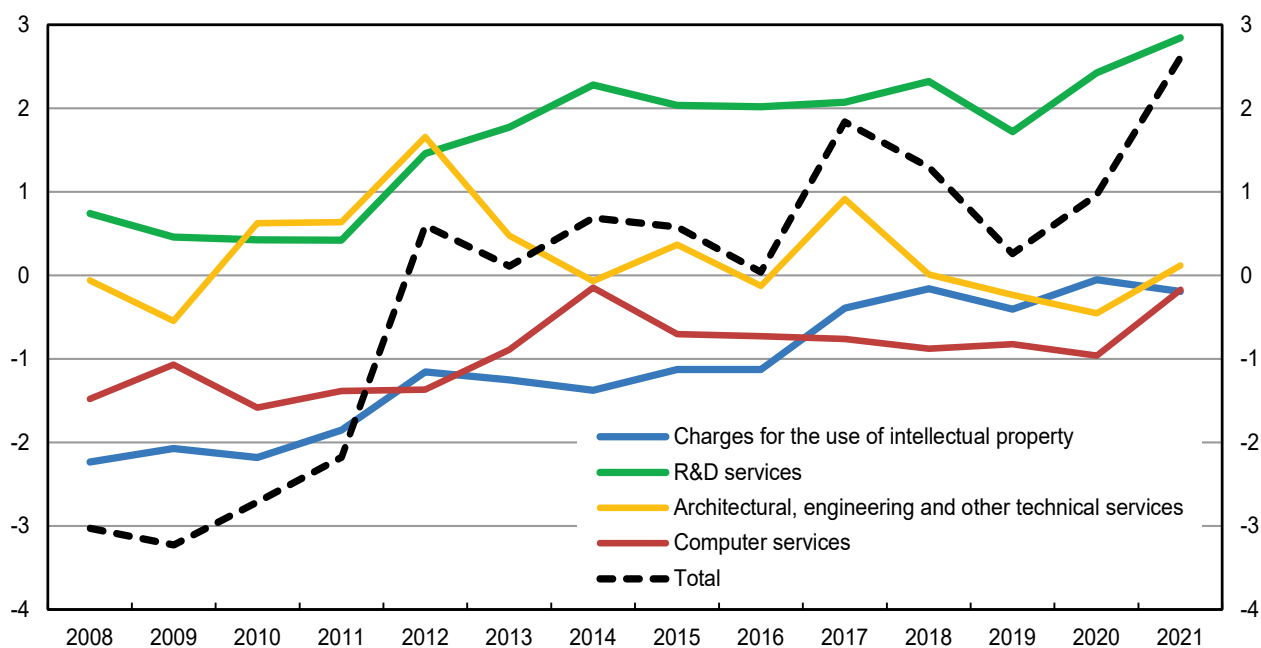
In 2021 Italy's technology balance of payments surplus, which includes fees for the use of intellectual property, as well as trade in computer services, research and development (R&D) services, and architectural and engineering and other technical services (collectively defined as international trade in disembodied technology), reached an all-time high of €2.6 billion, from €1.0 billion in 2020 (Figure 1 and Table 1).

The increased surplus reflected the improvement in the balances of all the main components, with the exception of fees for the use of intellectual property, whose slight deficit widened marginally. Exports grew by around 18 per cent compared with 2020, in line with other types of services, whereas imports increased significantly less than other services (by just under 8 per cent against approximately 22 per cent).

The technology balance of payment surplus is entirely attributable to manufacturing firms, which account for 60 per cent of exports. The share of firms belonging to foreign groups increased further, to 68 per cent for sales and to 75 per cent for purchases of disembodied technology.

While it is one of the most dynamic components of trade in services in Italy, disembodied technology trade, as a share of GDP, remains below the European average and that of the main euro-area countries.

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



Reference period: 2021

Italy's technology balance of payments in 2021¹

The technology balance of payments surplus is at an all-time high

In 2021, Italy's overall technology balance of payments (TBP),² positive since 2012, stood at an all-time high of €2.6 billion, up from €1.0 billion in 2020 (Table 1). The improvement with respect to the previous year reflected the substantial reduction in the computer deficit, the transition from deficit to surplus of architectural and engineering services, and the increase in the surplus of R&D services, the latter having reached historical highs as well. Only the moderate income deficit for the use of intellectual property (which includes charges for the use of patents, licences and royalties) has marginally widened.

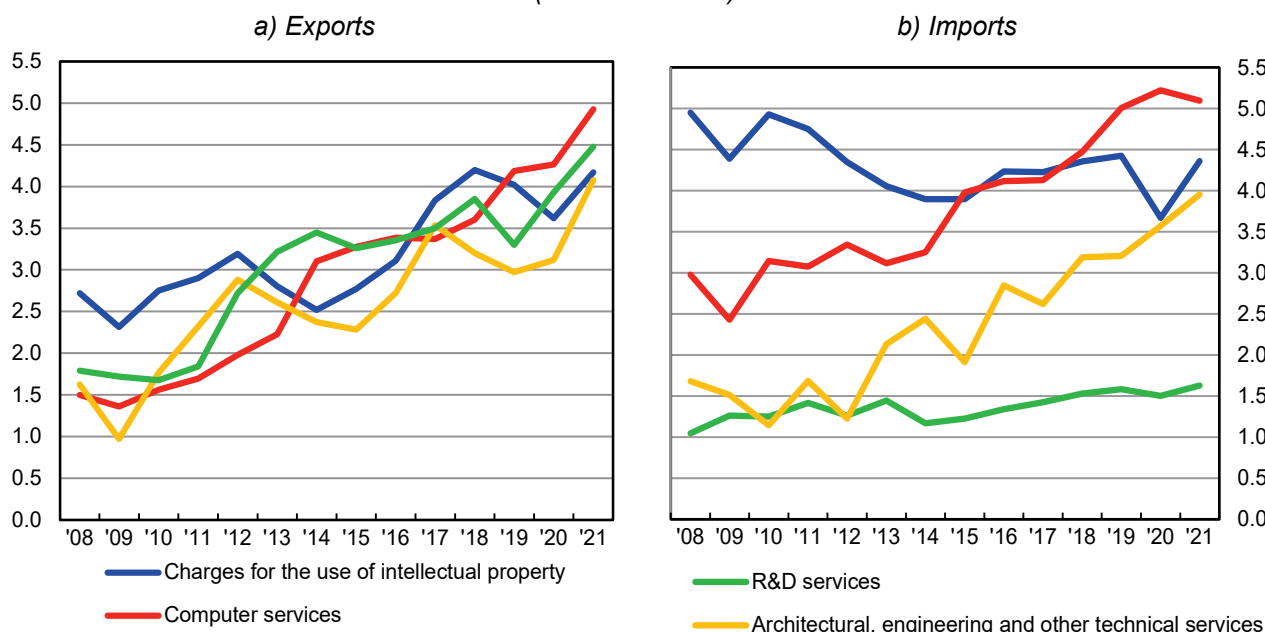
Exports rise significantly in 2021 ...

Since 2021, exports of disembodied technology have increased by 18.2 per cent, around one percentage point more than for other types of services. Sales of engineering and architectural services performed particularly well (30.7 per cent), while the other components of the technology balance of payments grew by around 15 per cent (panel (a) of Figure 2).

... while imports record lower growth than other services

The volume of imports of disembodied technology rose by 7.7 per cent, at a rate significantly lower than that of other services (21.9 per cent). The trends differed considerably from sector to sector (panel (b) of Figure 2). The charges paid for the use of intellectual property have increased by 18.9 per cent, returning to levels close to those observed before the pandemic. Despite the modest decline in 2021, purchases of computer services remained at historically high levels, whereas those of R&D increased moderately but volumes were still low.

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



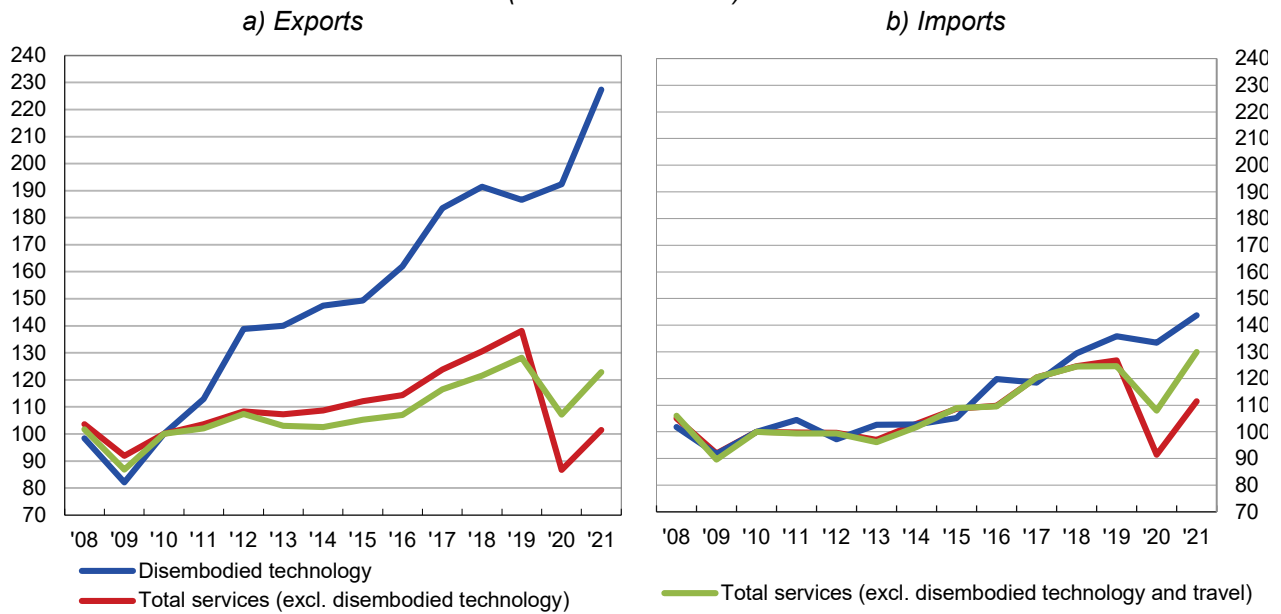
¹This report was prepared by Enrico Tosti, data processing was carried out by Arcangela De Cata and Francesca Monica Romano.

² The definition of 'technology balance of payments' follows the OECD's taxonomy, which excludes 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 transfers of sportspersons from one club to another). To avoid significant overestimations, we have decided to exclude these transfers from the technology balance of payments, because in any case the sums involved are negligible. For further details, see [Methods and Sources: Methodological Notes](#).

Since 2010 technology exports have risen much faster than other services

The values observed in 2021 confirm the trend underway for over a decade (Figure 3). Since 2010, sales of disembodied technology have indeed increased by 11.6 per cent on average each year, against a sluggish trend for other types of services (0.1 per cent); the growth gap remains significant even excluding travel, which was strongly affected by the recent pandemic. For imports, the gap is much smaller and it narrowed considerably in 2021.

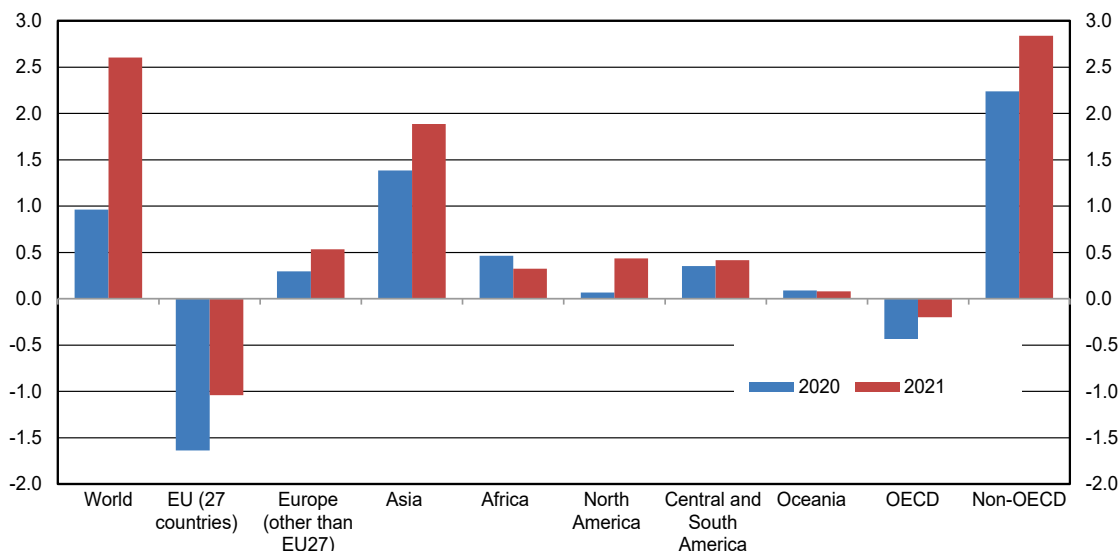
Figure 3 – Italy’s technology balance of payments: exports and imports compared with other services data
(indices: 2010=100)



The deficit with OECD countries is virtually eliminated

The expansion of the technology balance of payments surplus in 2021 is mostly attributable to the reduction in the deficit vis-à-vis OECD countries, which narrowed to €0.2 billion, from €1.2 billion a year earlier (Figure 4 and Table 2), accounting for three quarters of exports and nearly 90 per cent of disembodied technology imports. The improvement reflected mainly the results of trade with Ireland and the United States. The surplus vis-à-vis non-OECD countries increased as well (from €2.2 billion in 2020 to 2.8 billion), especially in relation to Qatar and Croatia.

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



The United States have become the main export outlet

Italian exports were mainly directed to the United States (€2.3 billion, from €1.7 billion in 2020), whereas sales to Switzerland, which has been the main destination market for the past few years, totalled €1.8 billion (from €1.7 billion in 2020); for both countries this is mostly accounted for by revenue from R&D services and charges for the use of intellectual property. Sales in another two main markets also increased, France and the United Kingdom, while they dropped in Germany. Among non-OECD countries, sales to Qatar and Croatia rose above all (in particular engineering and computer services).

Ireland and Germany are the main countries of origin for imports

Ireland has been confirmed as the main country of origin for Italy's purchases (€2.2 billion, down from €2.6 in 2020), especially computer services, similar to Germany, where flows to Italy rose from €2.1 billion to €2.2 billion, followed by the United Kingdom, the United States and France at slightly lower values. Imports from non-OECD countries amounted to €1.6 billion, slightly up from 2020.

The manufacturing surplus grows strongly

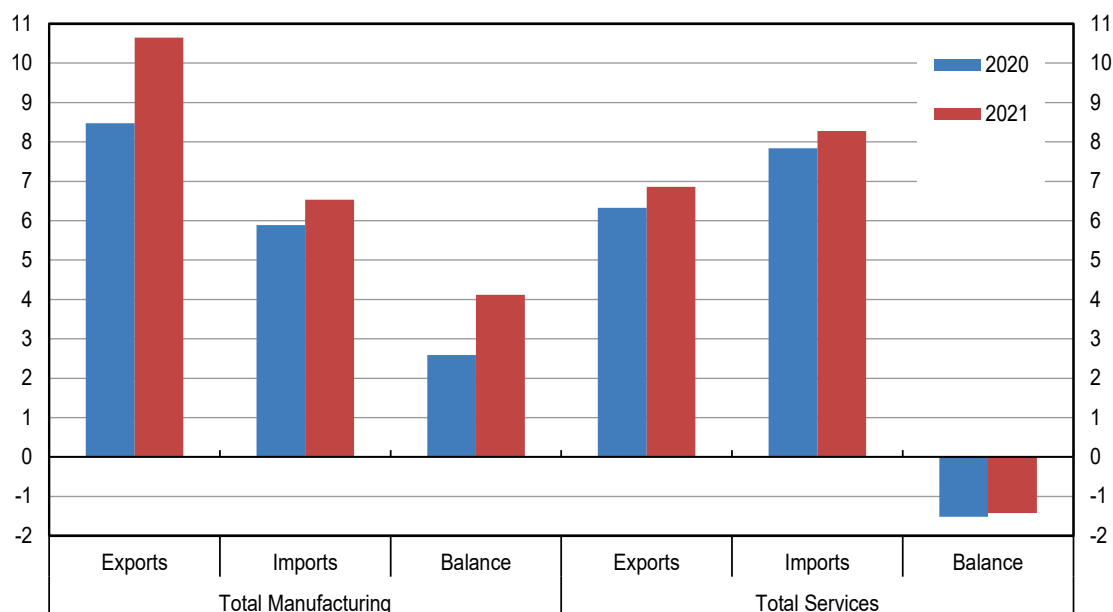
Turning to the business sector of resident firms that trade in disembodied technology, the manufacturing surplus rose significantly in 2021 (from €2.6 billion to €4.1 billion), while the services deficit narrowed slightly (to €1.4 billion, from €1.5 billion; Figure 5 and Table 3).

Manufacturing firms account for 60 per cent of exports

The share of exports of disembodied technology attributable to manufacturing firms grew, to stand at 60 per cent of the total. Sales of disembodied technology were driven mainly by transport equipment and electronics, while the chemicals and pharmaceuticals sectors remained stable. Service firms recorded an increase in exports of 'professional, scientific and technical services' and of 'trade and distribution services', while exports of 'information and communication services' declined.

Also as regards imports, the manufacturing sector's share expanded to 43 per cent, mainly on account of the 'electrical equipment', 'chemicals' and 'food' segments. Among businesses in the service sector, which account for 55 per cent of purchases, those classified as 'information and communication services' continue to make up more than half of total imports, despite a slight contraction. The most dynamic sector was 'trade and distribution services'.

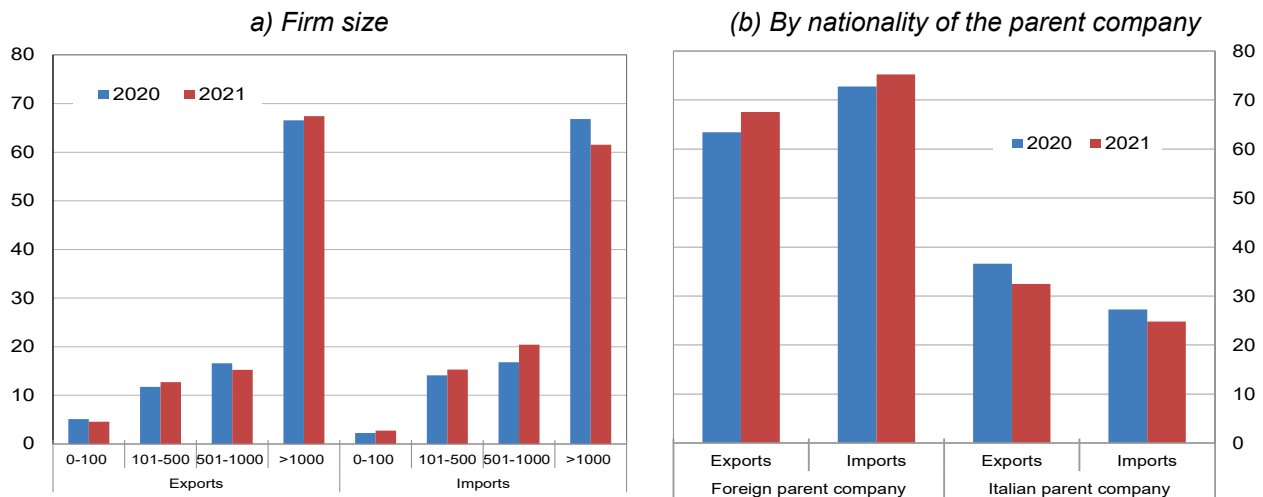
Figure 5 – Italy's technology balance of payments: exports, imports and balances for the manufacturing and service sectors
(billions of euros)



Large and foreign-controlled firms are the most relevant

The share of large companies (those with 1,000 or more employees) trading in disembodied technology accounted for 67 per cent of sales and just under 62 per cent of purchases in 2021 (see panel (a) of Figure 6). Firms with foreign parent companies accounted for 68 per cent of exports and 75 per cent of imports, thus recording a further increase compared with 2020 (see panel (b) of Figure 6).

Figure 6 – Italy's technology balance of payments by size class and by nationality of the parent company

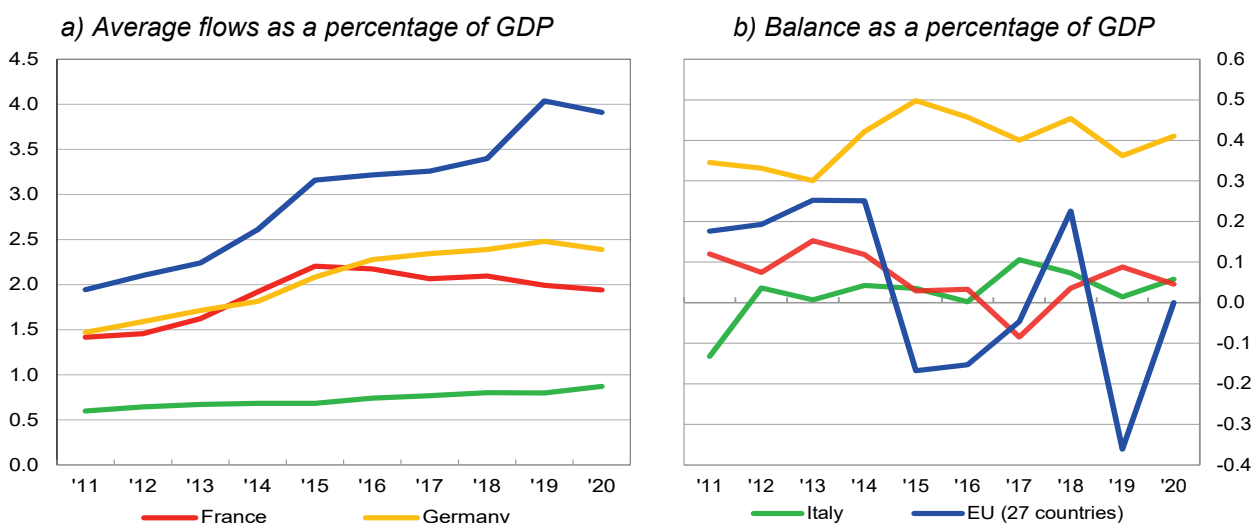


The technology balance of payments as a percentage of GDP is still below the EU average

In 2020 (the last year for which internationally comparable data are available) Italy's TBP flows as a percentage of GDP, though on the increase, were significantly smaller than those of Germany and France (see panel (a) of Figure 7).³ The EU average is high, influenced by the large share of technology trade in countries, such as Ireland, where companies belonging to large multinational groups operate and which often record a technology trade deficit given that a large volume of their sales of computer services is actually offset by even higher spending on fees for the use of intellectual property and on R&D services. In terms

of the disembodied technology balance, Italy's position in 2020 was in line with France and slightly better than the EU average (see panel (b) of Figure 7).

Figure 7 – Italy's technology balance of payments - EU comparison



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

³ The gap was observed both for exports (0.9 per cent of GDP in Italy, compared with 2.0 in France and 2.6 in Germany), and for imports (0.8 per cent of GDP in Italy, compared with 1.9 in France and 2.2 in Germany).

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 BP_TEC (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	4,021	4,185	2,973	7,158	3,301	14,480
2020	3,617	4,264	3,119	7,383	3,928	14,929
2021	4,170	4,925	4,077	9,002	4,476	17,648
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	7,668	1,528	13,553
2019	4,425	5,006	3,206	8,212	1,581	14,219
2020	3,670	5,224	3,571	8,795	1,503	13,967
2021	4,362	5,097	3,956	9,052	1,630	15,044
BALANCES						
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	-404	-822	-232	-1,054	1,720	261
2020	-52	-960	-452	-1,412	2,426	962
2021	-192	-171	121	-50	2,846	2,604

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

Counterpart country or geographical area	EXPORTS		IMPORTS		BALANCES	
	2020	2021	2020	2021	2020	2021
World	14,929	17,648	13,967	15,044	962	2,604
EU (27 countries)	6,652	7,688	8,290	8,728	-1,638	-1,040
Europe (other than EU 27)	2,924	3,452	2,629	2,918	295	534
Asia	2,104	2,672	719	787	1,385	1,885
Africa	970	878	506	554	464	324
North America	1,722	2,334	1,655	1,898	66	436
Central and South America	392	533	38	115	354	418
Oceania	99	89	9	9	90	80
<i>Unallocated data</i>	67	2	120	35	-54	-33
OECD	11,260	13,210	12,482	13,411	-1,222	-201
Austria	267	311	192	118	76	193
Belgium	424	445	195	251	230	195
Finland	191	250	41	112	150	138
France	1,192	1,446	1,444	1,751	-252	-304
Germany	1,488	1,365	2,057	2,181	-569	-816
Ireland	871	1,160	2,633	2,200	-1,763	-1,039
Luxembourg	459	446	189	196	271	250
Netherlands	181	250	675	884	-494	-634
Poland	282	244	69	87	213	156
Spain	234	263	242	217	-9	47
Sweden	479	501	189	225	290	277
United Kingdom	767	1,031	1,703	1,846	-936	-815
Switzerland	1,711	1,780	793	837	917	944
Turkey	126	241	29	47	98	194
United States	1,669	2,279	1,602	1,837	67	442
Canada	52	55	53	62	-1	-6
Japan	128	143	65	68	63	75
Other OECD countries	738	998	311	494	428	504
Non-OECD countries	3,602	4,436	1,365	1,598	2,237	2,838
Croatia	113	301	15	18	98	283
Russia	259	330	9	13	250	317
Brazil	172	228	7	39	165	190
China	875	790	198	220	676	569
India	133	134	79	90	54	43
Qatar	86	537	35	113	113	424
Other non-OECD countries	1,965	2,117	1,022	1,106	881	1,011

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

	EXPORTS		IMPORTS		BALANCES	
	2020	2021	2020	2021	2020	2021
Manufacturing	8,478	10,648	5,891	6,533	2,587	4,115
<i>of which:</i> Food, beverages and tobacco	504	657	244	316	259	341
Textiles, wearing apparel, leather and related products	841	532	128	90	713	442
Chemicals	431	476	371	505	60	-29
Pharmaceuticals	1,058	1,051	458	456	601	595
Computer, electronic and optical products	1,156	2,040	351	481	804	1,560
Electrical equipment	416	482	853	1,046	-438	-564
Machinery and equipment n.e.c.	794	938	441	468	352	469
Motor vehicles, trailers and semi-trailers	1,608	2,258	1,344	1,381	264	877
Other transport equipment	1,204	1,572	943	864	261	708
Services	6,324	6,862	7,838	8,279	-1,514	-1,418
<i>of which:</i> Wholesale and retail trade	1,139	1,622	961	1,230	179	393
Information and communication	2,042	2,035	4,472	4,434	-2,430	-2,399
Financial and insurance	165	149	690	629	-525	-480
Professional, scientific and technical	2,452	2,659	890	951	1,563	1,708
Other sectors*	126	139	237	232	-112	-93
Total	14,929	17,648	13,967	15,044	962	2,604

Note (*) – Other sectors include: i) Agriculture; (ii) Mining and quarrying; (iii) Electricity and waste; (iv) Construction.

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