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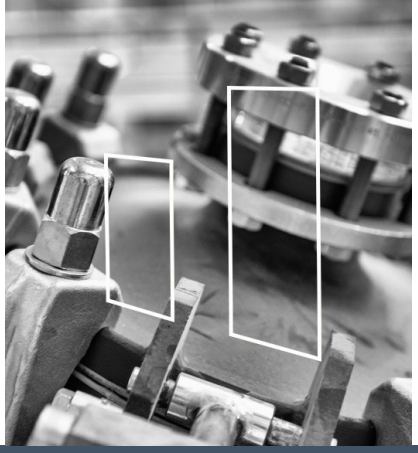
BRIEF

The Italian machinery industry between excellence, innovation and global challenges



Key Messages

This document was coordinated by Andrea Montanino and Simona Camerano and prepared by Alberto Carriero, Michele Masulli, Tommaso Nigra, Livio Romano, and Giovanni Mandras. The data refer to information available as of July 10, 2025. The opinions expressed and conclusions are solely attributable to the authors and do not in any way bind CDP.

- The production of industrial machinery represents an **excellence of Italian industry**, distinguished by its broad manufacturing structure, strong export orientation, and high technological content.
- With a network of about 18,000 companies and half a million employees, it generates a level of **value added** that places it **at the top among national industrial sectors**. It is also among the leading sectors for investments in research and development, playing a crucial role as a supplier and developer of process technologies along supply chains.
- In 2024, the sector generated **a positive trade balance of nearly €60 billion**, contributing significantly to the equilibrium of the national balance of payments.
- High specialization and positioning in niche segments allow for strong integration into global value chains. At the same time, the domestic value added contained in exports is high, indicating a **relatively autonomous supply chain with strong national content**.
- However, the sector faces significant challenges. The **slowdown in the EU market**, particularly in downstream industrial sectors such as automotive, directly affects demand dynamics. The decline in investments in France and Germany, key destination markets, weighs heavily.
- Adding to these difficulties is the introduction of tariffs by the **United States**, a key market for Italian machinery exports. Although instrumental mechanics proves resilient to the immediate risk of replacing Italian manufacturing with U.S. production, **diversifying export destinations remains a priority** to reduce exposure to mature economies' demand.
- Structurally, the sector shows an **average company size larger than Italian manufacturing overall**, but still **smaller than European standards**. Despite maintaining good productivity levels, fragmentation limits penetration into new non-EU markets and increases vulnerability to external acquisition operations. **Sector consolidation**, through horizontal and vertical aggregations, could be a **strategic lever to strengthen competitive positioning**.
- Finally, the pace of ongoing technological transformations requires **a significant acceleration in innovation**, through increasing integration of mechanics, electronics, and digital technologies. Italian instrumental mechanics has wide room for improvement to catch up with European peers in adopting key digital technologies, starting with **artificial intelligence**.

1. Key sectoral strengths

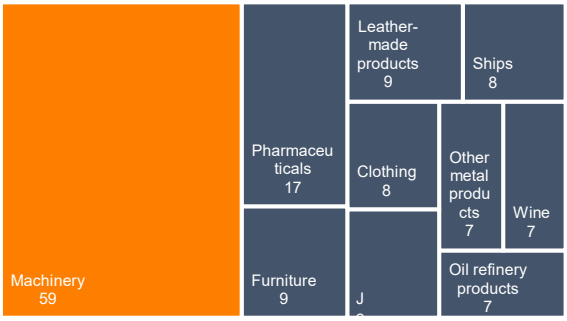
- With **18,000 companies** specialized in industrial machinery production, **annual turnover** of nearly **€150 billion,** and about **half a million employees**, the **machinery manufacturing sector**[1], is one of the pillars of Italian industry.
- It ranks **first in value added** (13.6% share in 2022), ahead of metal products and food industries, and second in employment share. At EU level, the Italian machinery sector is **second only to Germany in terms of value added**.
- Italian production is **highly diversified**, serving both **general uses** (cross-sector) and **special uses** (dedicated to specific supply chains). It ranges from packaging machinery to metalworking machine tools, food processing machines, industrial cooling systems, and the production of taps, valves, pumps, compressors, and much more.
- Production is also **geographically concentrated**, often within industrial districts, with a dense local subcontracting network. The **North** accounts for **85% of employees**, 19 percentage points more than Italian manufacturing overall, with Lombardy and Emilia-Romagna contributing 28% and 22% respectively – twice the size contribution of central regions (10%) and more than five times the employment share of the South (5%).
- Similarly, **larger companies** (see **Chart 1**) are mainly located in the North, with Emilia-Romagna representing 31%, Veneto 26%, and Lombardy 15%. These are often large family-owned groups with a long tradition: at least one in six is over 50 years old[2].

Chart 1 – Distribution of major machinery companies*

*Companies with turnover above €250 million, location by main operating site.
Source: CDP's calculations on Aida BvD data.

- The sector stands out for its **ability to generate revenue in international markets**: 62% of companies sell abroad (vs. 22% manufacturing average), generating more than half of total revenues from exports (vs. one-third for manufacturing).
- In 2024, **machinery exports** accounted for 16% of total Italian goods exports, exceeding **€100 billion** and achieving a **trade surplus of nearly €60 billion** (see **Chart 2**). This value grew significantly over recent years (+25% vs. 2019), faster than the rest of manufacturing)[3].

Chart 2 – Top 10 sectors by trade balance (mld €, 2023)



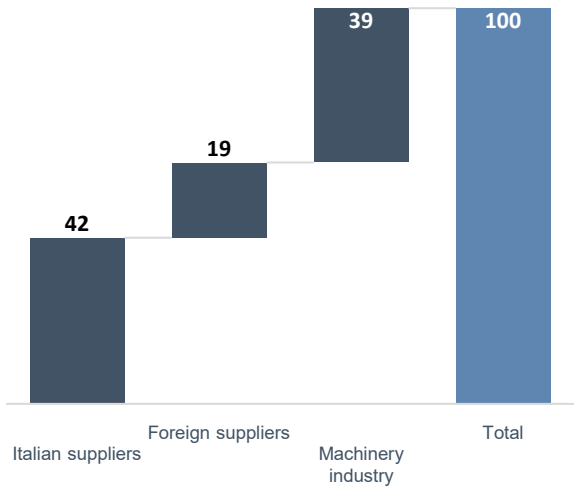
Source: CDP's calculations on ISTAT data.

[1] In the following descriptive statistics and, more generally, in the analysis, reference is made to companies with NACE code 28, 'Manufacture of machinery and equipment n.e.c..'.

[2] CDP's calculations on Cerved data.
[3] Source: ISTAT data.

- Overall, the machinery sector has the highest degree of integration in international trade flows[4]. The relevance of the sector's exports is such that, without the machinery industry, Italy's overall trade surplus would turn into a deficit.
- More than 40% of foreign sales volumes are driven by **Italian multinationals**, making the machinery industry one of the manufacturing sectors where Italian-controlled companies have the greatest weight.
- A key indicator is the **domestic value added contained in exports**, which measures the real **"Made in Italy" contribution** to foreign sales, net of previously imported products.
- If we consider total machinery exports, domestic value added is **81%**[5], broken down as:
  - **39%**: **generated directly by the machinery industry** (see Chart 3) through design, manufacturing, assembly, and maintenance services.
  - **42%**: from upstream Italian companies (suppliers of materials, components, and services).

Chart 3 – Breakdown of value added in Italian machinery exports, 2022



Source: CDP's calculations on ISTAT data.

- The remaining 19% corresponds to foreign value added incorporated in exported machinery, from components produced abroad. This is 10 percentage points lower than the Italian manufacturing average, indicating a **relatively autonomous supply chain** with strong national contribution and moderate dependence on foreign suppliers.
- In addition, in its role as purchaser, developer, and supplier of process technologies, **the machinery industry supports – through exchanges of knowledge as well as products along the supply chains in which it operates – the demand for innovation within the national ecosystem**, fostering the accumulation of specific know-how that underpins territorial competitive advantages.
- On the one hand, it is estimated that **only 37% of R&D expenditure within the machinery industry supply chain is carried out directly by companies in the sector**; the remaining share is generated by upstream firms – specialized, for example, in electronic and electrical components, metal parts, or in providing digital services, research and engineering studies, and applied research.
- On the other hand, the machinery sector plays **a key role in R&D activities for many downstream supply chains of Made in Italy**: 27% of total R&D spending in the Italian agri-food supply chain is attributable to machinery manufacturers; 22% in the construction supply chain; 16% in the energy and waste sectors, to name just a few.

[4] The degree of integration is approximated by the sum of inbound and outbound centrality indicators in foreign trade flows. Source: ISTAT, Report on the Competitiveness of Production Sectors, 2025.

[5] CDP's calculations on ISTAT data (2022)

2. Trade challenges in the international context

European Market slowdown

- 2024 marked a setback for Italian machinery, with turnover down **6%** and production volumes down **3.8%**.
- Exports also fell **1.3%**, more than the manufacturing average (-0.5%).
- Exports to EU countries dropped significantly (-5%), the sector's main destination market.
- Particularly negative was the performance of **gross fixed investments in France and Germany**, which together absorb nearly one-fifth of sector exports. These stagnated in 2022–2023 and then fell in 2024 (-1.4% in France, -2.5% in Germany)[6], negatively impacting **capital goods orders**.
- Consequently, Italian exports to Germany fell 6.4% and to France 5.9%, with provisional Q1 2025 data showing further declines (-8.2% Germany, -6.5% France)[7].
- Growth prospects for the two main Eurozone economies remain weak, with annual GDP changes below 1%.

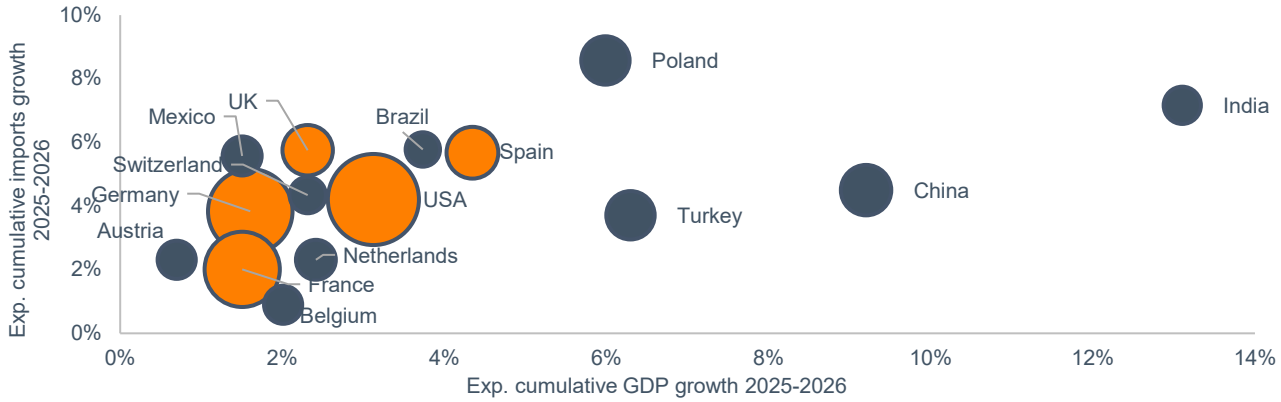
US tariffs and market diversification

- In 2025, trade relations between the U.S. and EU were marked by rising tariff tensions. The agreement reached in July 2025 imposed U.S. tariffs of 15% on almost all major categories of imported European manufactured goods, including industrial machinery and with few exemptions[8].
- This is bad news for **Italian mechanics, which in the last decade saw exports to the U.S. grow steadily**, surpassing volumes sold to Germany. Machinery exports now account for one-fifth of total exports to the U.S., generating a sectoral trade surplus of nearly €11 billion.
- The damage from U.S. tariffs is mitigated by the **low substitution rate** of Italian sales with U.S. domestic production: with a 15%[9] tariff, only 7% of Italian machinery exports to the U.S. would be replaceable in the medium term[10].
- Factors limiting negative impact include **high specialization**, often in niche sectors, and the limited presence of U.S. competitors with adequate production capacity. Asian manufacturers, except Chinese giants, are not yet able to compete with European companies on technology and product customization, Meanwhile, within the EU, German companies in the sector would be harmed to the same extent as Italian ones.
- Given weak European growth and trade tensions with the U.S., **geographic diversification of Italian machinery exports is essential** to reduce dependence on a few countries.
- Emerging markets with strong GDP growth prospects and significant demand potential for Made in Italy products include **China, India, and Turkey** (see **Chart 4**). At the same time, countries with rapidly expanding industrial bases, such as **Indonesia, Nigeria, and Mexico**, are already increasing imports of Italian machinery and climbing the ranking of major destination markets.
- In addition, the free trade agreement between the EU and **Mercosur countries** (Brazil, Argentina, Uruguay, Paraguay) represents another opportunity for industrial machinery exports. The sector accounts for about one-third of Italian exports to Mercosur countries[11] and would be among the main beneficiaries of the elimination of tariffs on European products.
- However, entering new markets also requires **updating business models, cultural**

[6] Source: OECD, World Economic Outlook Volume 1.
[7] CDP's calculations on ISTAT data.
[8] For example, aerospace, shipbuilding and pharmaceutics.
[9] The value of the tariffs imposed following the agreement reached between the US administration and the EU Commission.
[10] Source: CDP's calculations on BACI-CEPII data.
[11] Source: ICE Annual Report 2024-2025

approaches, and managerial skills. This can be particularly challenging for smaller companies, which often lack the resources needed to pursue medium-to long-term international expansion strategies in complex environments.

Chart 4 – Expected growth in demand for major destination markets of instrumental mechanics



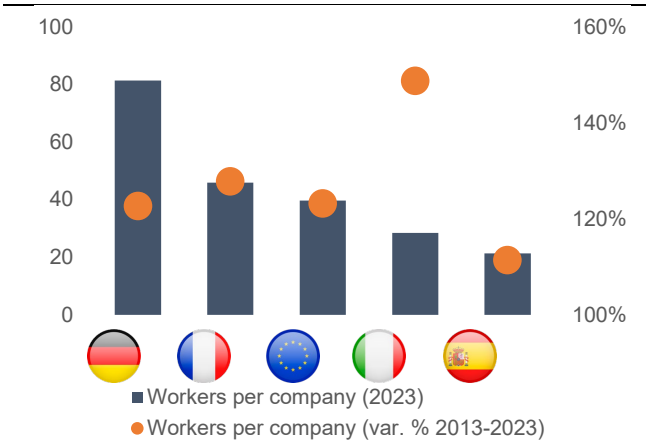
The fifteen largest importers of Italian machinery are shown; the top five are highlighted in orange.
The size of the bubbles is proportional to the sector's export share.
Source: CDP's calculations based on OECD and ISTAT data

3. Structural tendencies and future developments

Sectoral consolidation

- The **average size** of the Italian machinery companies, 28 employees in 2022, is **significantly larger than the manufacturing average** (11 employees), but still **well below European standards**: the EU average is 40% higher, and Germany nearly triple (see **Chart 5**).
- Despite a **+150% increase in average size** over the last decade, the gap remains significant, also due to a strong contraction in the number of manufacturing companies[12].
- So far, the small size has not been a critical factor for the competitiveness of the national machinery sector: labor productivity in Italian companies is in line with the EU average and has grown significantly in recent years[13]. International market results confirm the success of the strategic positioning of Italian production, which focuses on highly specialized segments whose market size is consistent with the limited company scale.
- Nevertheless, looking ahead, the small size represents, as previously noted, **a structural limitation to penetration into new markets**—beyond advanced economies—

Chart 5 – Average dimension of machinery companies in the EU



Fonte: CDP's calculations on Eurostat data

[12] Between 2013 and 2023 the number of enterprises decreased by 25%, compared to an 18% decline in France and 3% in Germany. In Spain, on the contrary, there was an increase of 11%.

[13] Between 2012 and 2022, value added per employee increased by 29%, and gross profitability by 20%. Source: ISTAT 2025 data.

characterized by higher entry barriers and, therefore, to greater growth potential beyond the niches already served. Diversification would also allow for broader business coverage against specific risks of various kinds, including geopolitical ones.

- The small size also makes machinery manufacturers **a relatively easier target for acquisitions** by industrial or financial players interested in acquiring specific know-how to expand their product portfolio but not necessarily inclined to enhance the positive externalities that these companies generate for the rest of the national ecosystem, particularly in terms of innovation. This includes **ties with universities and research centers**, as well as productive relationships and exchanges with user and supplier companies.
- Therefore, there is an opportunity to promote strategic consolidation paths for the sector through **horizontal and vertical aggregations**. In the first case, by merging companies operating in the same field or in different production areas but with potential technological or commercial synergies; in the second, by supporting evolutionary dynamics already present in Italian manufacturing, such as consumer goods companies expanding upstream into machinery manufacturing.

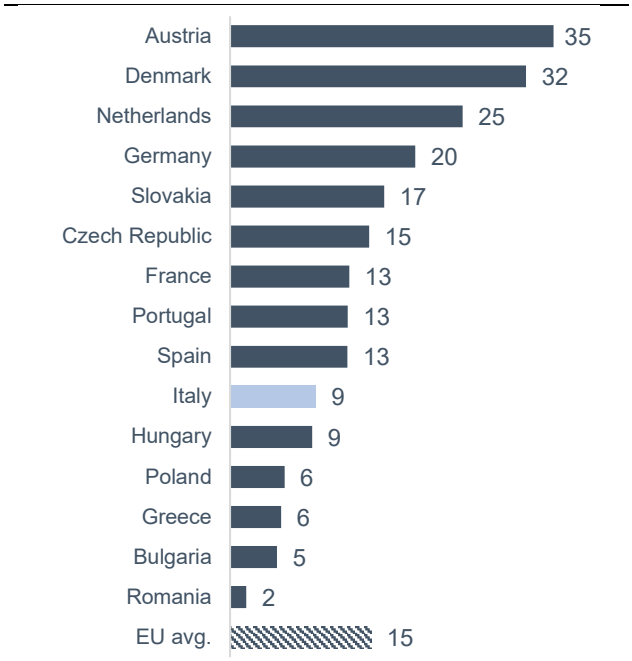
Digitalization e servitization

- Rapid technological changes require **adequate investments in technology and human capital** to keep pace with transformations integrating **mechanical, electronic, and digital components and skills**, while ensuring quality and customization.
- These trends drive the industry toward advanced **automation solutions**, with widespread adoption of **cutting-edge digital technologies**, enabling **new functions and business models**.
- **Artificial Intelligence (AI)** is expanding significantly from cognitive elaboration to **manufacturing and logistics**, making machines more autonomous, adaptive, and intelligent.
- **Collaborative robots** and robotic arms integrated with AI and machine learning systems – designed to work side by side to human in shared environments – increase automation rates and broaden applications, from manufacturing to agriculture, commerce, and transport.
- **Humanoid robots** are still in an embryonic stage. They are designed to replicate human appearance, movements, and behaviors, and are expected to have a significant impact both in industrial robotics and in service robotics, particularly in healthcare and in activities related to hospitality and entertainment
- Advanced systems for product and process configuration, human-machine interaction technologies, and **software infrastructures** for smart data management enable remote monitoring, predictive maintenance, and real-time digital simulations via **digital twin** tools.
- These developments optimize processes and organizational structures, increasing efficiency, modularity, and flexibility, and opening multiple business opportunities capable of increasing the value of the product's intangible component through **servitization models** such as pay-per-use and pay-per-result.
- Despite higher adoption rates of advanced digital technologies compared to the national manufacturing average, Italian mechanics lags behind leading European peers. AI **integration** in processes involved **just over 9% of Italian companies in 2024**, far from Germany (20%) and the EU average (see **Chart 6**)[14].

[14] CDP'calculations od Eurostat data (2024).

- Moreover, **the gap is not solely attributable to the smaller size of Italian companies** (which does play a role, as investments in AI are positively correlated with size), as it is observed across all employee classes.
- The delay in adopting advanced digital solutions is also reflected in a **lower integration of digital technical skills within the workforce of Italian instrumental mechanics companies**. Only one in four employs IT specialists, a figure that places the country among the lowest positions in the European ranking.
- There is therefore room for improvement and intervention to support Italy's innovation ecosystem, so that the well-established Italian manufacturing tradition in machinery production can renew itself by **leveraging the potential offered by the ongoing technological revolution.**

Chart 6 – IA adoption among machinery companies (% on total sector, 2024)



Fonte: CDP's calculations on Eurostat data.