AUSSEN
WIRTSCHAFT

BRANCHENPROFIL ITALIEN

MACHINERY/ICT/INDUSTRY 4.0

INDUSTRY AND MARKET SITUATION
TRENDS AND DEVELOPMENTS
TAX CREDITS, INCENTIVES AND OTHER POLICIES
OPPORTUNITIES FOR AUSTRIAN COMPANIES
KEY STAKEHOLDERS, EVENTS AND FAIRS

AUSSENWIRTSCHAFTSCENTER MAILAND
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Eine Information des

AußenwirtschaftsCenters Mailand
T +39 02 87 90 911
F +39 02 877 3189
E mailand@wko.at
W wko.at/aussenwirtschaft/it

fb.com/aussenwirtschaft
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Herausgeber, Medieninhaber (Verleger) und Hersteller:
WIRTSCHAFTSKAMMER ÖSTERREICH / AUSSENWIRTSCHAFT AUSTRIA
Wiedner Hauptstraße 63, 1045 Wien
Redaktion: AUSSENWIRTSCHAFTSCENTER Mailand, T +39 02 87 90 911
E mailand@wko.at, W wko.at/aussenwirtschaft/it

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Ein Service der AUSSENWIRTSCHAFT AUSTRIA

1. Executive Summary

The last few years posed manifold challenges for the manufacturing sector all over Europe, in particular also in Italy: the effects of the COVID-19 pandemic led to supply chain disruptions, delays, and shortage of key materials. In combination with high energy costs and inflation as direct consequences of the war in Ukraine, the market environment further weighed on businesses.

In this complex and uncertain context, a growing number of companies realized the importance of investing in 4.0 capital goods and in digital technologies (hardware and software); not only to guarantee business continuity, but also to increase their sustainability from an environmental, social, and economic point of view. In the next years, the industry 4.0 market in Italy is expected to keep growing, especially among small and medium enterprises, which still need to start and/or speed up their digitization process. One of the main growth drivers is represented by the incentive measures of a Transition 4.0 plan on new innovative and technological solutions with a low environmental impact. These funds will be available until 2026, together with € 14 billion allocated by the EU Recovery and Resilience Plan for Italy.

This report analyses the status quo of Italian machinery and equipment, robotics, and ICT sector, with a focus on main digital technologies (cloud computing, Artificial Intelligence, IoT and 3D printing). Current trends and future developments, including digital servitization, sustainability, smart working and deglobalization, as well as business opportunities and critical success factors for Austrian companies in these fields are presented.

2. Industry and market situation

Italy is Europe's second manufacturing country after Germany, and the seventh worldwide.
Italian manufacturing involves nearly 400.000 companies, employing almost 4 million people.
Its manufacturing system is mainly based on small and medium enterprises and industrial clusters able to supply high-quality and tailor-made products. Italy is also among the world leading exporting countries and its enterprises play a key role in global value chains, usually more upstream (as manufacturers of components and semi-finished products) rather than downstream (as final assemblers).
After being highly affected by the Covid-19 outbreak in 2020, Italian manufacturing had steadily recovered to pre-pandemic activity levels, becoming one of the main drivers of industrial growth in the Eurozone.

Italian manufacturing sector has been undergoing a deep transformation. First, the pandemic crisis highlighted the key role of digital technologies in guaranteeing business continuity, reducing supply chain disruption, and better responding to the rising demand for customized products by increasing flexibility and efficiency of production system. In 2022, the Ukraine invasion and the consequent high energy costs and inflation combined with the evident effects of climate change led to an increase of environmental and social sustainability awareness both in companies and in customers. At the same time, many companies are currently experiencing a skills shortage, especially in engineering and technology occupations.
To face the new challenges and ensure their competitiveness, a growing number of firms are investing new 4.0 capital goods, machinery, plant, factory equipment for use in production and in digital technologies (hardware and software).
In the following chapters, an overview of machinery and equipment industry with a focus on robotics, ICT sector, industry 4.0 market and related digital technologies in Italy is presented.

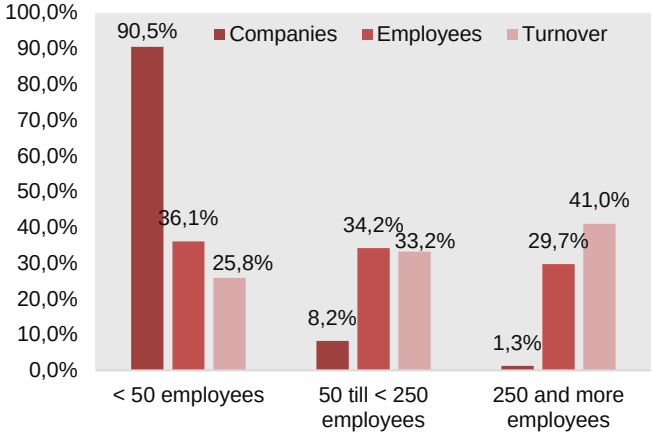
Italian machinery and equipment sector

The Italian machinery and equipment sector is one of the most important driving forces of the Italian economy. The sector plays an important role in Italy both from a quantitative point of view, in terms of employment, added value and international trade, and from a strategic point of view, as its products, which are capital goods, transmit technological innovation to all branches of industry and to other sectors of the economy.

Italy is among the world-leading countries in terms of production levels and export strength related to this sector: the "Bel Paese" is the **second-largest producer of machinery and equipment in Europe** after Germany, with an added value twice as high as its British and French competitors.
Italian manufacturers in this field are worldwide well-known for their flexible, creative, customized, and innovative solutions with extremely high technical standards. Moreover, they offer products with technical assistance, maintenance and global consultancy services. In this way, they can satisfy a great variety of specific needs and serve markets that differ in terms of geographical location, production needs and industrialization.

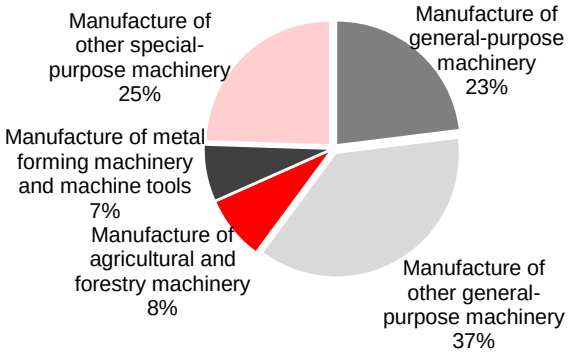
As shown in the following charts based on data of the Italian Institute of Statistics ISTAT, most of companies belonging to this sector (around 90.5%) have less than 50 employees, while 1.3% employ more than 250 people and are responsible for over 40% of the total industry turnover.
The Italian industry of machinery and equipment is quite complete and diversified, as it covers, albeit with different relative weights, the manufacturing of machines for every type of industry, from machine tools to those for plastics, or for wood, or for textile industry.

Structure of machinery and equipment sector in Italy (2020): companies, employees, and turnover



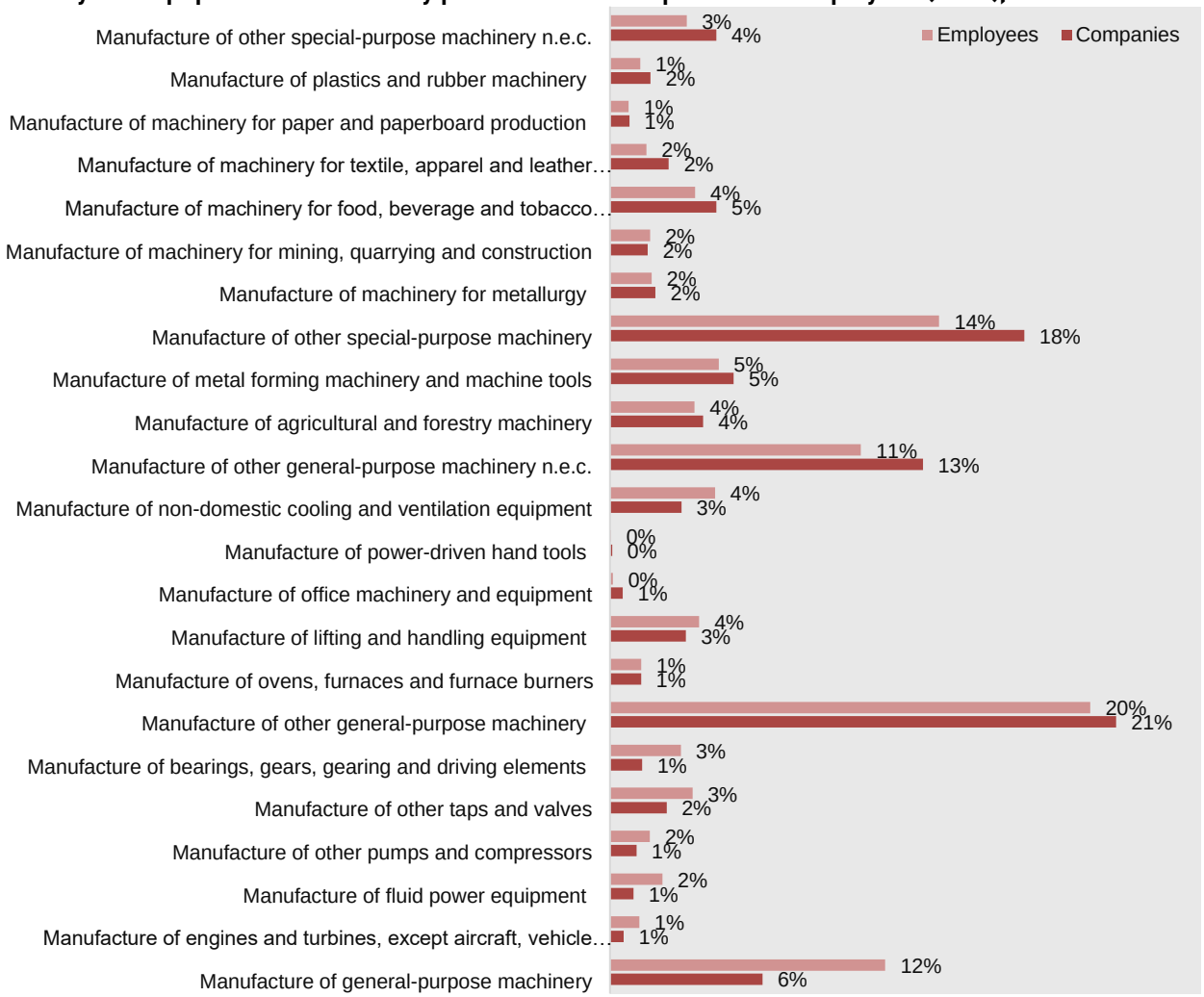
Source: ISTAT

Turnover by sector of Italian mechanical engineering in bn EUR (2020)



Source: ISTAT

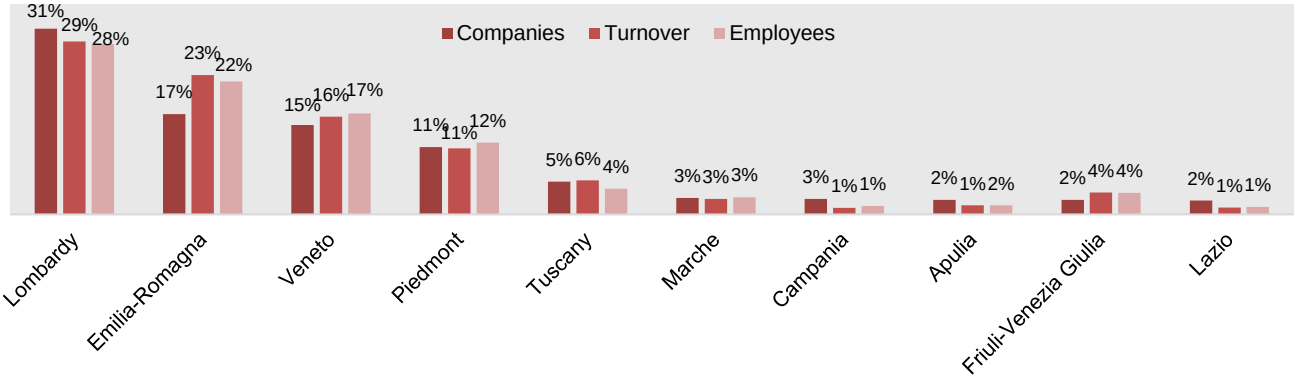
Machinery and equipment sector in Italy per number of companies and employees (2020), values in %



Source: ISTAT

Italian machinery and equipment companies are mainly located in Lombardy, followed at some distance by Emilia-Romagna, Veneto and Piedmont, as shown in the following chart.

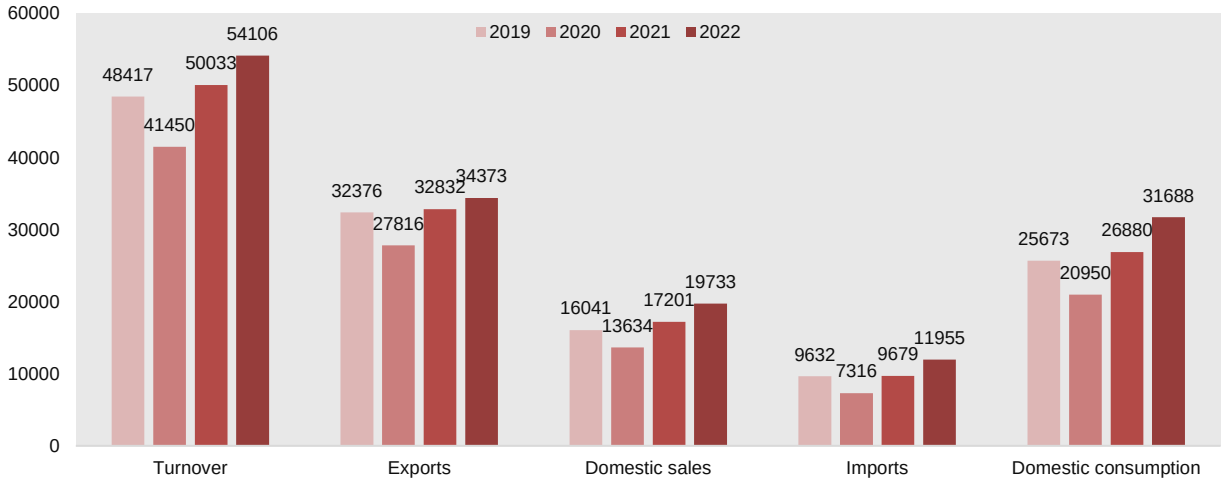
Top 10 regions for number, turnover and employees of machinery and equipment companies, values in %



Source: ISTAT

Despite the shortage of electrical and electronic components, expensive energy prices and uncertainty caused by the conflict between Russia and Ukraine, 2022 resulted to be a very positive year for the Italian machinery and equipment manufacturers. According to the data elaborated by the Italian association Federmacchine, the sector turnover reached the value record of 54.1 billion euros, growing by 8.1% compared to the previous year. This extraordinary outcome was mainly due to the increase of export (+4.7%) and above all of domestic sales (+14.7%). The Italian consumption recorded the highest value of 31.7 billion euros (+17.9%), pushed by the 4.0 incentive measures. Its expansion rewarded not only local producers, but also importers (+23.5%) which held 38% of the market share. In 2023, the positive trend should continue, albeit at a slower pace, due to the reduction of tax credits in new 4.0 assets, as established by the Transition 4.0 plan (for further details see the dedicated chapter).

Evolution of the Italian capital goods sector from 2019 to 2022. Data in million EUR



Source: Federmacchine

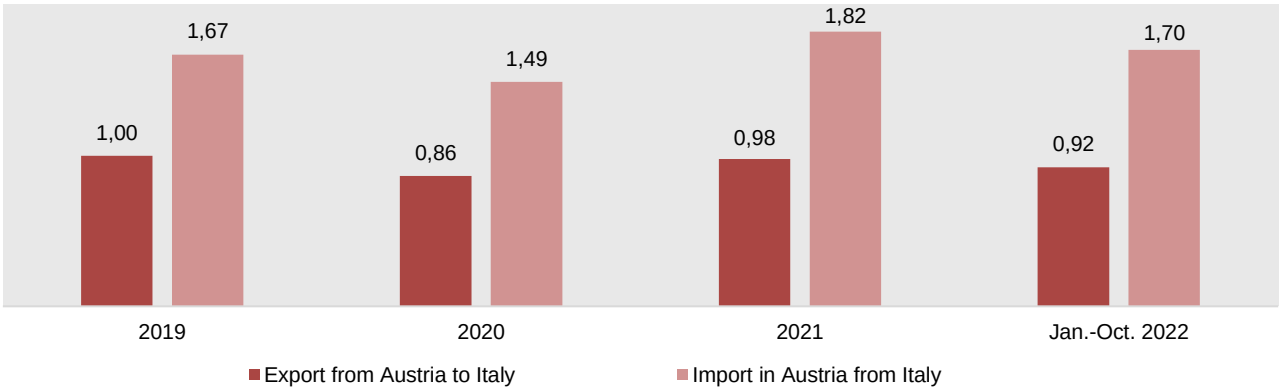
One of the main distinctive characteristics of the Italian capital goods industry is the high **export propensity**. After reaching the peak of 73.5% in 2013, the export/turnover ratio began a gradual return to normal levels at around 67%. In 2022, the extraordinary high internal demand, stimulated by the incentives of Transition 4.0 plan, led to a decrease in the ratio to 64%.
Since exports tend to be about more than three times higher than imports, the trade balance of the Italian machinery industry has always been extremely positive for Italy, which reached the value record of 23 billion

euros in 2018 and in 2021. Among the sectors with positive balances, the machinery and mechanical appliances one gives by far the largest contribution to the Italian total goods trade balance and, for this reason, plays a key role and is one of the strengths of the Italian economy.

Bilateral trade Italy - Austria

After experiencing a significant decline in the pandemic year 2020, exports and imports of machinery and equipment (NACE code C.28) between Italy and Austria recovered and surpassed the pre-pandemic levels. According to Italian Institute of Statistics (ISTAT), bilateral trade is expected to hit a new record in 2022: in the period January-October 2022, export from Austria to Italy grew by +19.5% compared to the same period of the previous year, while import in Austria from Italy increased by +13.5%.

Exports and imports of machinery and equipment n.e.c. (NACE code C.28) between Italy and Austria in EUR bn



Source: ISTAT

Selection of top Italian manufacturers of machinery and equipment per sector

Manufacture of fluid power equipment
Ceme, Trivolzio (PV)
Walvoil, Reggio Emilia
Manufacture of bearings, gears, gearing and driving elements
Bonfiglioli, Calderara di Reno (BO)
Comer Industries, Reggiolo (RE)
Manufacture of other general-purpose machinery
DAB pumps, Mestrino Padova (PD)
Epta, Milan
Interpump, Sant'Ilario D'Enza (RE)
Merlo, Defendente di Cervasca (CN)
Riello, Legnago (VR)
Salvagnini, Monticello (VC)
Manufacture of metal forming machinery
Ficep, Gazzada Schianno (VA)
Mario Frigerio, Milano
Manufacture of other machine tools
Biesse Group, Pesaro
Breton, Castello di Godego (TV)
SCM Group, Rimini (RI)
Manufacture of machineries and plants for packaging sector
Aetna Group, Villa Verucchio (RN)
Coesia, Bologna
IMA, Ozzano dell'Emilia (BO)
Marchesini Group, Pianoro (BO)
Manufacture of machinery for metallurgy
Danieli & C. Officine Meccaniche, Buttrio (UD)
Tenova, Castellanza (VA)
Manufacture of machinery for food, beverage and tobacco processing
CFT Group, Parma
SIPA, Vittorio Veneto (TV)
Manufacture of agricultural and forestry machinery
Argo Tractors, Fabbrico
Stiga, Castelfranco Veneto (TV)
Manufacture of machinery for paper and paperboard production
Fosber, Monsagrati (LU)
Toscotec, Marlia (LU)

Manufacture of machinery for textile, apparel and leather production
Itema, Colzate (BG)
Lonati, Brescia
Savio, Pordenone
Manufacture of plastics and rubber machinery
Costruzioni macchine Luigi Bandera, Busto Arsizio
Piovan, S. Maria di Sala (VE)
Manufacture of other special-purpose machinery
Elettric80, Viano (RE)
SACMI, Imola (BO)
SITI B&T Group, Formigine (MO)

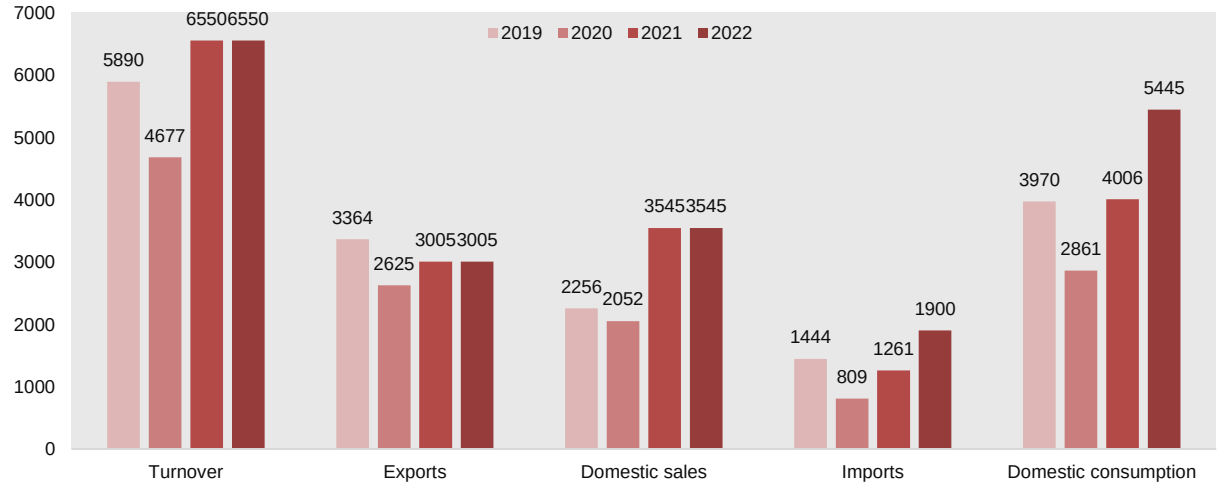
Focus: Italian machine tool market and industry

Machine tools are enabling production technologies which can provide companies with competitive advantages in terms of quality, productivity and efficiency, thus increasing competitiveness and productivity of manufacturing system. Companies of this sector were among the first in Italy to adopt Industry 4.0 technologies and are now often stimulating and supporting process and product innovation for their customers.
As stated by the industry association UCIMU, in the last years large enterprises in Italy have renewed their fleet of machine tools, which, in most cases, include interconnected technologies. On the other hand, the average age of machine tool park in an Italian small and medium enterprise, is quite elevated. Thus, the need to renew their fleet/ machine park, also by exploiting the incentives for 4.0 assets of the Transition 4.0 plan, is still very much given. These companies are mainly located in Lombardy, Veneto, Emilia-Romagna und Piedmont, and they are active in the field of manufacturing of machinery and mechanical products, metal products, automotive, electrical and electronic products, and production and processing of metals.

Italian machine tool industry

The Italian machine tool sector has always been one of the main strengths of Italian manufacturing industry. In 2021, Italy achieved the **fourth** place among the **machine tools exporting countries** and the **fifth** place among the **machines tools manufacturers**. The Italian machine tool industry is mainly composed by small-sized companies, with a strong propensity to export and a high-quality product offering. Most of the machine tool manufacturers are in Lombardy (over 44%), North-East (Veneto, Friuli-Venezia Giulia and Trentino-Alto Adige/Südtirol - nearly 21%), Emilia-Romagna (19%) and Piedmont (about 11%), thus mirroring the geographical distribution of the Italian manufacturing system. As shown in the following chart, 2022 was an extraordinary year for the sector, as all indexes recorded growth, especially imports (+50.7%) and domestic consumption (+35.7%), which fully recovered from sharp fall of 2020.

Evolution of the Italian machine tool industry from 2019 to 2022 in EUR Mio.



Source: UCIMU-SISTEMI PER PRODURRE

Bilateral trade of machine tools between Italy and Austria

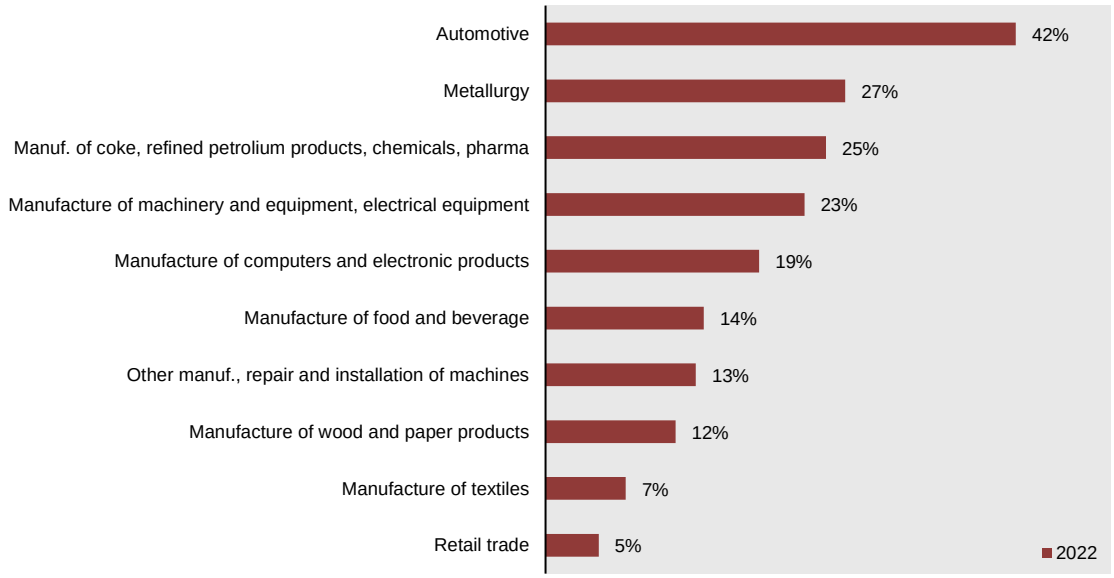
Austria and Italy are among the major machine tool manufacturing and exporting countries in the world and they are tight by strong and long-lasting business relationships.
The "Bel Paese" represents an important market for Austria, as it was the **fourth** machine tool consuming country in the world in 2021. According to the ISTAT statistics and UCIMU elaborations, Austria is among the top 10 major machine tool suppliers. In particular, Austrian metal forming machine tools are very appreciated by the Italian clients, as Austria is the second major importer of this type of machine after Germany.
On the other hand, Austria is also one of the top 20 markets for Italian machine tools exports with a share of 1.7% of the total.

Robotics in Italy

Italy is one of the most important players at global level in robotics sector in terms of research excellence, industry production and market. According to the World Robotics Report 2022 published by International Federation of Robotics, the country is the **second largest robot market** in Europe and the **sixth major one in the world** after China, Japan, USA, Korea and Germany.

According to ISTAT statistics, almost 9 out of 100 companies in Italy used robots in 2022, with a preference for industrial robots (6.2%) over service ones (4.1%).
Diffusion depends on the size of the company: large enterprises (29.8%) are much more likely to use robots than small (12%) and medium ones (24%), as they have an easier access to capital to make the necessary investment.
Robots are most frequently used by manufacturing companies (19%) and by companies located in North-East (10.2%) and Nord-West (9.8%) of the country.

Italian companies using robots per sector in 2022, values in %

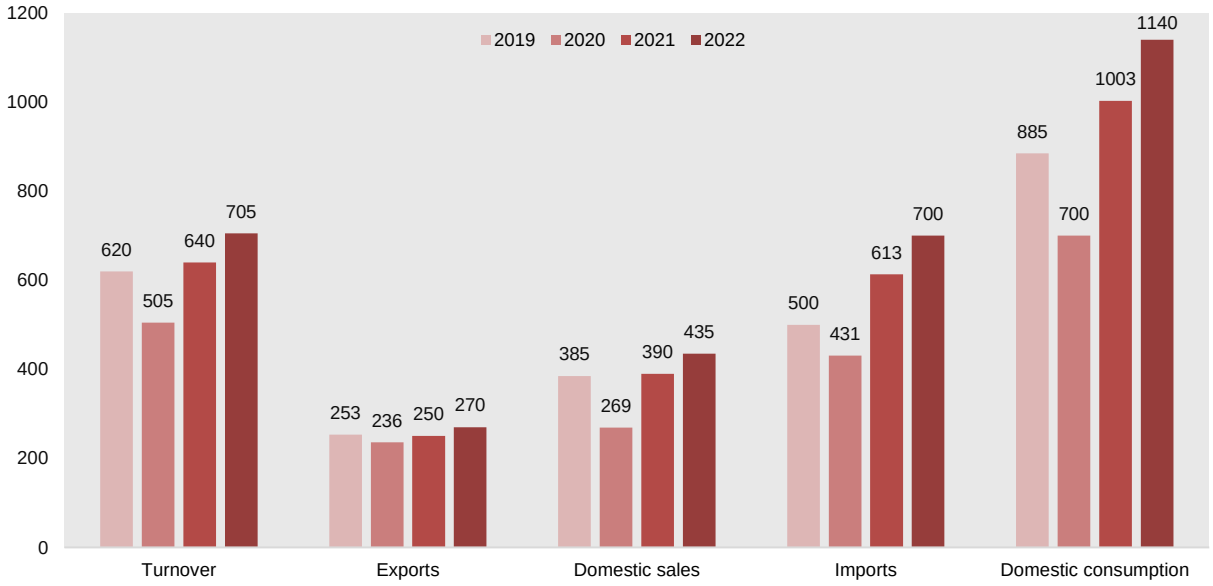


Source: ISTAT

Service robots are mostly diffused in large enterprises (18.7%) and they are mainly applied in manufacturing sector (7.3%), specifically in automotive (20.5%), petrochemicals (12%) and machinery and equipment (10.2%).
Industrial robots are also more common in large enterprises (22.5%) and in manufacturing sector (15.8%).
Considering the type of sector, industrial robots are mainly employed in automotive (41.4%), metallurgy (24.4%), manufacture of machinery and equipment (20.2%). Other major industry customers are petrochemicals (17.4%) and food and beverage (14%).

After the outbreak of Covid-19 pandemic and the geopolitical tensions occurred in the last years, the adoption of robots by Italian businesses reached new record levels, because of the need to increase products quality levels, resources efficiency (sustainability), as well as resilience and flexibility of productive systems. Other important drivers were the need to improve work safety, reduce labour costs, satisfy the growing demand of customized products, and difficulties in finding employees for repetitive work. The high robots demand was driven by the effects of the outstanding recovery of Italy's economy and earlier purchases due to the gradual reduction of tax credits for 4.0 assets in 2021 and 2022.
The two traditional barriers to the adoption of robots by companies, namely high capital expense costs and lack of necessary specialized skills, are now gradually overcome thanks to the integration of digital technologies, which enable robots to be easier-to-use, more autonomous, and cheaper due to the reduction of the total cost of ownership.

Evolution of the Italian robotics industry from 2019 to 2022 in EUR Mio.



Source: UCIMU-SISTEMI PER PRODURRE

Italian robotics industry
The Italian robotics supply chain counts 104,000 companies, employing a total of 429,000 employees.
Italy can boast a prominent brand of robot producer (Comau), and the presence of many excellent system integrators, which are considered among the best in the world by international experts. These companies have a high know-how and long-lasting experience in customizing arms, components and software of standard robots coming from other countries (typically Japan, Korea and Germany) and adapting them based on the specific application and customer needs.
The country is worldwide recognized for the excellence of its scientific research in the field of robotics, produced and published by universities and research institutes with high international reputation, hosting world's leading experts in robotics, such as Barbara Mazzolai, Cecilia Laschi and Bruno Siciliano.

Over two third of the companies operating in the robot and automation industry are in Lombardy and in Piedmont, which boasts the highest share of turnover and employees, as a consequence of high concentration of large enterprises (e.g. Comau, Prima Industrie, Leonardo) located there.
Industrial robot manufacturers in Italy are mainly specialized in the production of handling robots. In particular, handling for molding plastics is the industrial robotics application mostly produced by the Italian companies. Other important market segments are welding and cutting robots.

Further information on companies, universities and R&D institutes active in robotics can be found in the report 100 Italian Robotics & Automation stories promoted by Enel and Fondazione Symbola.

Focus: Robotics trends and future developments in Italy

According to the Italian robot experts, the main three future trends of the sector are soft robots, humanoid robots and collaborative robots, which are at the center of research of Italian research institutes such as Italian Institute of Technology (IIT), Research Center "E. Piaggio" of the University of Pisa, and Biorobotics Institute of Scuola Superiore Sant'Anna in Pisa. Italy is at the forefront in bio-robotics, which takes inspiration from the nature to develop a new generation of robots. An example is "plantoid", which is the first worldwide robot inspired by plants developed by IIT.
Robot-makers are instead focusing on increasing safety in the interaction between operators and robots, integrating new functionalities (such as predictive maintenance, automated refilling of the material, mobile robots) and developing robots for office, hospitals and other service companies.

Focus: A robot valley in Genoa

The Italian Institute of Technology (IIT), one of the leading research institutes for robotics in the world, is creating the first European robotics valley in Genoa. The institute established new industrial robotics labs, where researchers can test and develop new technological transfer solutions in collaboration with SMEs and corporates, including Ansaldo Energia, Danieli Automation, Camozzi Group and Leonardo.
In this area, the Italian government established the first national technology transfer pole for robotics called RoboIT, which will operate on a Hub & Spoke model.
The valley is made up not only by research and technology centers, but also by large companies. In 2021, Leonardo has opened in Genoa a new industrial digital hub dedicated to robotics, as well as High Performance Computing, Cloud, Big Data, Artificial Intelligence, cybersecurity and cyber resilience.

Italian ICT industry

ICT is a very important and broad industry in Italy, including over 100,000 companies and employing nearly 400,000 people. Companies belonging to this sector are mainly active in delivering ICT services (software production, telecommunication, IT consulting and information services), while only 6% are involved in the ICT manufacturing, meaning production of computers, electronic components, telecommunication equipment and ware.

The Italian ICT sector comprises many businesses of every shape and size, from branches of major multinationals to local SMEs. There is a high concentration of medium-large companies in ICT manufacturing (9.8% of the total against 3.9% of ICT service), especially active in the production of telecommunication equipment, cable & wire harnesses and equipment, and electronic components, due to the presence of few large multinational companies operating in these fields (e.g. STMicroelectronics, SIAE Microelettronica, Olivetti).
Most businesses in the ICT service sector are instead SMEs employing fewer than 9 people.

From a geographical perspective, ICT companies are mainly located in the norther part of the country, especially in Lombardy, Veneto, Piedmont and Emilia Romagna. The region of Milan plays an important role, as nearly one-fourth of ICT businesses are placed here. Lazio is also another important region for ICT companies, as there are major opportunities to do business with central government bodies.

The ICT sector stands out for its strong propensity for research and innovation. For this reason, it is not a coincidence that one out of two Italian startups and innovative SMEs is active in this sector, and especially in the software programming, IT consulting and information services activities.
Almost 30% of them are in Lombardy and 22% in Milan, confirming the importance of this region and this city in the Italian innovation ecosystem.

Italian companies active in ICT sector

Sectors	Turnover (2020)	Number of companies (Q3 2022)	Number of employees (Q3 2022)	Number of innovative startups and SMEs (October 2022)
ICT manufacturing	**17 770 591**	**6,383**	**88,633**	**172**
Manuf. of electronic components and electronic boards	5 986 449	2,020	36,226	85
Manuf. of computers and peripheral equipment	1 288 176	1,622	9,827	30
Manuf. of telecommunications equipment	2 923 352	960	19,224	38
Manuf. of audio and video consumer electronics products	530 330	380	2,536	14
Manuf. of cable & wire harnesses and equipment	7 042 284	1,401	20,820	5
ICT Services	**85 221 093**	**106,221**	**540,710**	**7,249**
Software publishing	251 559	842	5,643	177
Telecommunications	31 526 070	7,989	81,513	45
Software, IT consulting and related activities	42 535 413	50,659	338,063	5,773
Information services activities	10 908 051	46,731	115,491	1,254
Total ICT sector	**102 991 684**	**112,604**	**629,343**	**7,421**

Source: ISTAT, Registro Imprese

The ICT market in Italy

According to the Digital Transformation Academy Observatory of Politecnico di Milano, ICT budget of Italian companies has steadily increased since 2015 and ICT spending recorded a robust growth rate of +4% in 2022, despite the complex context characterized by geopolitical uncertainty, energy crisis, and high inflation.
However, ICT budget and spending depend on industry, company size, and business location.
About a half of ICT investments tend to be attributable to service sector, nearly a quarter to manufacturing, while the remaining quarter is divided almost equally between distribution and the public sector (PA, health and education).
The ICT market is heavily concentrated in the north-west of the country, especially in Lombardy, which is the region with the highest share of ICT market values, followed by Lazio. These regions are particularly important for ICT businesses, as they host the financial and political capitals of Italy as well as most of the private sector firms of the country, including multinationals. It is not a coincidence that the metropolitan city of Milan is the first Italian province for revenues of the sector, followed by Rome and Turin.
Further information on the ICT service sector in Italy can be found in ICT Booklet pushed by ICE.

Focus: A Data Valley in Emilia-Romagna

Emilia-Romagna is an Italian region world-known for its numerous excellences, including food, automotive with the renowned motor valley (e.g., Ferrari, Lamborghini, Ducati), packaging machinery with the so-called packaging valley, and the world's major district for the production of ceramic floor and wall tiles with its "tile valley".
By constantly investing in innovation and technology, the region was able to create a data valley, which hosts companies and research institutes focused on Big Data and Artificial Intelligence, but with practical applications in many sectors, including ecological transition and fight against climate change, digital transition, healthcare, urban times and logistics, sustainable businesses and production processes, agriculture. The main players of the Valley are Leonardo, which is one of the most powerful supercomputers in the world, the European Centre for Medium-Range Weather Forecasts (ECMWF) Data Centre, the new CINECA-INFN complex (National Institute of Nuclear Physics), and the Competence Center Industry 4.0 BI-REX.
The Emilia Romagna Data Valley is becoming a European Big Data and digital hub that will concentrate over 80% of the Italian supercomputing capacity and 20% of the European one.

Selection of top Italian companies in ICT

Software, IT consulting and related activities
Almaviva, Rome
Cedacri, Milan
Elmec, Brunello (VA)
Engineering - Ingegneria Informatica, Rome
Exprivia, Molfetta (BA)
Deda Group, Trento
Digital Value, Rome
GPI, Trento
Infrastrutture Wireless Italiane, Milan
Lutech, Cinisello Balsamo (MI)
Maggioli, Santarcangelo di Romagna (RN)
Maticmind, Milan
Reply, Turin
Teamsystem, Pesaro
Var Group, Empoli (FI)
Zucchetti, Lodi

Telecommunications
Fastweb, Milan
Irideos, Milan
Opnet, Rome
Telecom Italia, Rome
Wind Tre, Milan

Manuf. of cable & wire harnesses and equipment
La Triveneta Cavi, Brendola (VI)
Prysmian Group, Milan

The list of top 100 Software & service companies in Italy elaborated by IDC Italia is available at the following link or by contacting AußenwirtschaftsCenter Mailand (mailand@wko.at).

Industry 4.0 in Italy

The digital revolution of the Italian industrial sector officially started in 2016 with the launch of the first Italy's national strategy "Industry 4.0 National Plan", which established policy measures to incentivize the adoption of digital technologies in the Italian business world. Since then, the Industry 4.0 market in Italy has grown four times in five years. In 2020, the Covid crisis did not affected the digital investments, but, on the contrary, recorded a growth. Companies indeed realized the value of these technologies in increasing resilience to their business and value chains. According to the Industry 4.0 Observatory of Politecnico di Milano, the Italian industry 4.0 market has further expanded in 2021, reaching a value of over 4.5 billion euros.
In the last years, Italian manufacturing companies mainly focused their investments on connectivity and data acquisition projects (**Industrial Internet of Things** or I-IoT), which is currently the most widespread industry 4.0 technology. This is a key enabler of the digital transition, whose adoption was largely stimulated by the Italian government through favorable incentive measures. The second most adopted technology is **Industrial Analytics** and in particular those solutions using Machine Learning and Artificial Intelligence.
Cloud Manufacturing, Advanced Automation and **Advanced HMI** (Human-Machine Interface) are rapidly accelerating their spread with sustained double-digit growth rate.

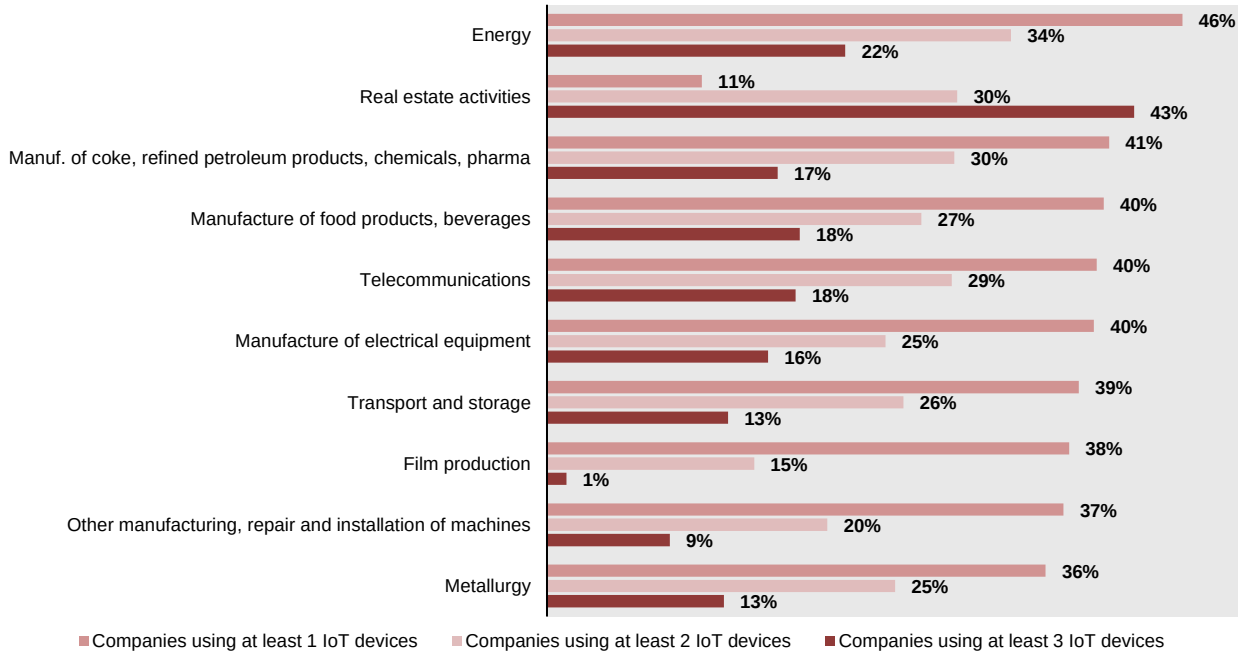
Besides technologies, **consultancy and training services** related to industry 4.0 projects conducted in Italy or carried out by Italian companies abroad is also increasing its market share. Operational consultancy services are mostly driving the market, while strategic one is still niche.

IoT – Internet of Things

Italy is among the top 8 countries in Europe for devices and systems controlled via Internet (IoT) used by companies with at least 10 employees (32.3% in 2021 against EU average of 29%).
The Internet of Things market in Italy reached a value of 7.3 billion euros in 2021 and it is rapidly expanding. Italian companies, consumers and public administration are increasingly interested in managing remotely assets and smart devices as well as in delivering new services and advanced functionalities, thus creating new business models based on servitization. Services related to IoT solutions represent over 40% of the overall IoT market in Italy.

As shown in the following chart, the major client industry for IoT devices is the energy sector (45.9%), followed by real estate activities (42.5%), petrochemicals (40.7%) and food industries (40.3%).

Top 10 sectors using at least 3 IoT devices in 2021, values in %



Source: ISTAT

According to ISTAT statistics, the most common use of IoT devices in 2021 was for security purposes such as, for example, smart alarm systems (74.6%) and for the maintenance of machines or vehicles through sensors monitored or controlled via Internet (29.9%).
The uptake of IoT solutions is higher among large businesses, which tend to use them to improve production and management efficiency (59%), whereas only 30.5% of small ones use them for this purpose.
The incidence of companies that use IoT devices for production processes is high in food, beverage and tobacco industry (52.9%), metallurgy (50.2%), and inpetrochemicals (48.3%). This application is instead less used by automotive (24.3%), textile and clothing (36.6%), and wood and paper (42.4%).

The IoT market is forecast to grow in the next year, also driven by the numerous investments planned by the Italian Recovery and Resilience Plan, whose resources that may affect the IoT sector amount to 29.78 billion

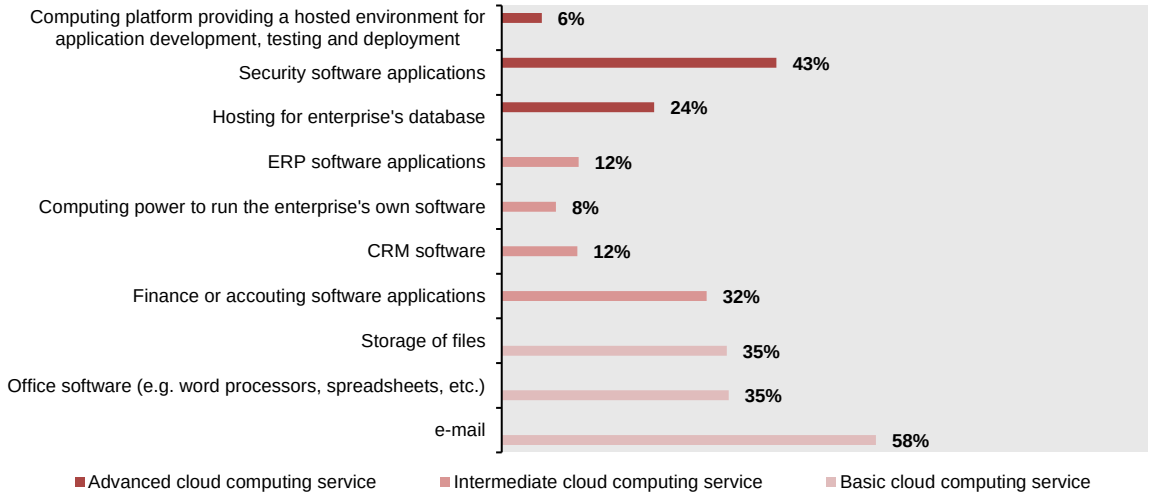
euros. These resources are allocated for different areas, including Smart Factory (€ 14 billion), Assisted Living and telemedicine (€ 4 billion), Smart City (€ 5.9 billion), Smart Building and Smart Grid (€ 3.6 billion).

Cloud Computing

In the last years, Italy had a strong increase in cloud-computing adoption, which led the country to be among the leaders in Europe in this dimension. This acceleration affected not only large enterprises, but also state agencies and small to medium enterprises that are the backbone of the Italian economy.
According to the Cloud Transformation Observatory of Politecnico di Milano, the cloud market in Italy exceeds 4.5 billion euros in 2022, registering a growth of +18%, which can be attributed to the organic growth and partially to the price inflation. Public & Hybrid Clouds services are the main component of cloud expenditure (65%), followed by Virtual & Hosted Private Cloud (20%) and Data Center Automation (15%).
Focusing on Public & Hybrid Cloud services, Software as a Service (SaaS), Infrastructure as a Service (IaaS) and Platform as a Service (PaaS) hold 28%, 25% and 12% of the overall market, respectively.

According to the ISTAT statistics, 6 out of 10 companies in Italy purchased at least one cloud computing service in 2021 and 51.9% of Italian enterprises adopted intermediate and advanced ones (35% the EU27 average, 75% the European 2030 target).
Basic cloud services were mainly bought by small enterprises, while the adoption of medium-high level cloud services was quite widespread among companies of any size.
The most acquired basic service was the cloud to host company's e-mail systems (57.9%) followed by cloud for office software (35.1%) and for storing files (34.8%). The share of companies adopting security software applications (e.g. antivirus program, network access control) was also high (42.5%).

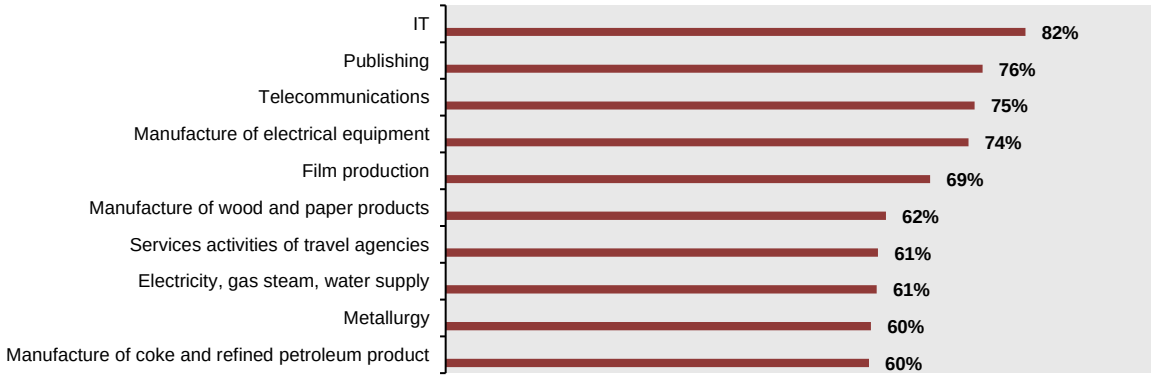
Use of cloud computing services bought by Italian enterprises in 2021, by type of service



Source: ISTAT

Unsurprisingly, enterprises purchasing cloud computing services (80.6%) are mainly in ICT sector. However, cloud services are also widely adopted by manufacturing (61.9%), especially in the electrical sector (74.1%).

Top 10 sectors purchasing at least one cloud computing service in 2021, values in %



Source: ISTAT

Selection of Italian cloud providers

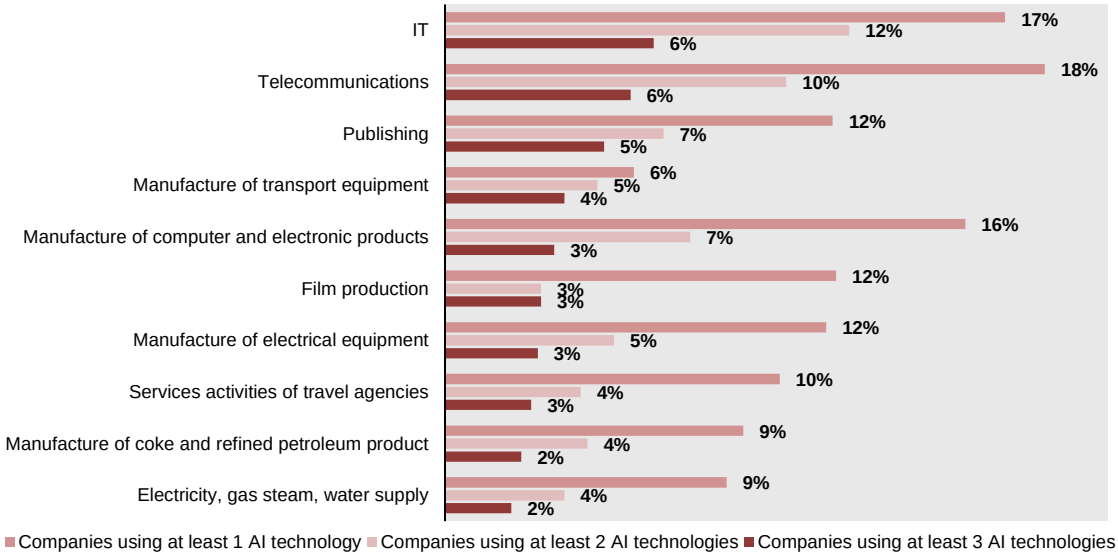
Aruba, Ponte San Pietro (BG)
Cdlan, Milan
CoreTech, Milan
Elmec, Brunello (VA)
Fastweb, Milan
Host.it (Vianova), Turin
Hosting Solutions, Florence
Irideos, Milan
It.net, Assago (MI)
Keliweb, Rende (CS)
Naquadria, Piacenza
Netalia, Genoa
Netsons, Pescara
Noovle (TIM), Milan
Reevo, Brugherio (MB)
Register, Florence
Retelit (Brennercom), Milan
Seeweb, Milan
ServerPlan, Cassino (FR)
Tessellis, Cagliari

Artificial Intelligence

Artificial Intelligence (AI) is gaining a growing interest in Italy. According to Artificial Intelligence Observatory of Politecnico di Milano, the Italian AI-market was worth 500 million euros in 2022, and it is expected to further expand, also thanks to the increasing availability of easy-to-use AI solutions on the market.
The diffusion and maturity of AI projects depends on the size of the company. AI technologies are mostly adopted by large-scale businesses, while only a small incidence of SMEs has already implemented them.
AI business projects are mainly dealing with intelligent data extraction and data processing to get usable information from documents and from internal and external communications. Other important areas are related to interpretation of written and spoken language (language AI) and to recommender systems.
However, the use of AI technologies is mainly related to the specific economic activity of the company. According to 2021 statistics by ISTAT, 39% of manufacturing companies are using AI systems for automation purposes, while the extraction of information from text documents is the most widespread AI-related activity among service companies (44.3%).

According to ISTAT, 6.2% of Italian companies used AI technologies in 2021, slightly below the EU average of 8%. As shown in the following chart, these technologies are mainly widespread in ICT-related sectors, such as telecommunications (18.1%), IT (16.9%) and manufacturing of computer and electronic products (15.7%).
AI is instead less diffused in companies active in the fields of transport and storage (3%), real estate activities (3.2%), construction (5.2%), wholesale and retail trade (5.5%), and in manufacturing of textiles (4.5%), metallurgy (5.1%), food, beverages and tobacco (5.6%), and automotive (5.7%).

Top 10 sectors of companies using Artificial Intelligence technologies in 2021, values in %



Source: ISTAT

AI technologies are mainly used by companies for production processes to enable predictive maintenance or production quality control (31.8%). In particular, this application is mainly used by automotive sector (82.9%), followed by petrochemicals (64.8%), textile and clothing (61.2%) and machinery and equipment (59.2%).
Other main AI-based business applications are for IT security (26.6%), customer assistance functions or customized promotional campaigns (24.0%) and business management through data analysis to support investments or to make sales forecasts (21.6%).

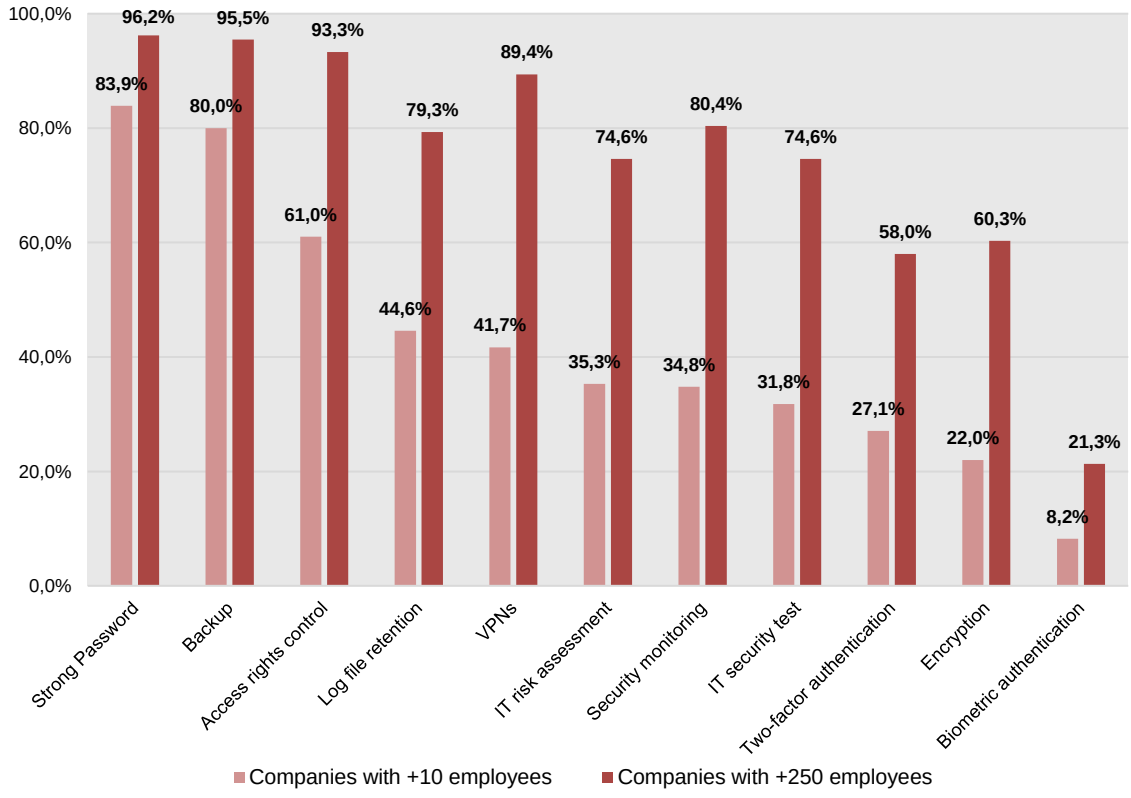
The Italian ecosystem of companies, institutions and universities dealing with the development or use of AI technologies was mapped and listed by the Agency for Digital Italy (AgID) in collaboration with the Italian association for Artificial Intelligence (AI*IA). The map and the list are available at the following link.

Cybersecurity

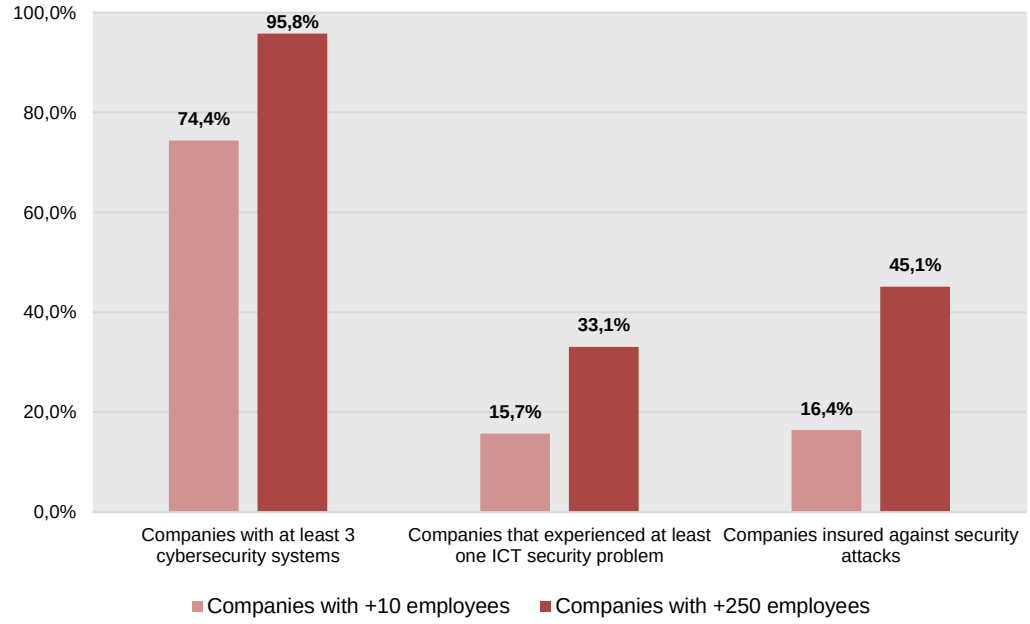
In the last years, growing number of firms in Italy have undertaken or increased expenditure and budget for information security activities to face the constant growth of cyber threats and attacks. Now cybersecurity is the main digital investment priority for Italian companies of any size.
Cybersecurity & Data Protection Observatory of Politecnico di Milano estimated that the value of Italian cybersecurity market in 2022 was 1.86 billion euros (+18% vs 2021), representing 0.10% of the Italian GDP.
As reported by the Observatory, the main expenditure is dedicated to Network & Wireless Security, followed by Endpoint Security and Cloud Security.

According to 2022 statistics by ISTAT, 74.4% of Italian companies with at least 10 employees use at least three ICT security measures, in line with the European average (74.0%).
Cybersecurity concerns more large-sized companies (45.1% vs 44.6% of EU27 average) than small and medium ones (14.4% vs 22.6% of EU27 average). Big firms tend to take out insurance against cyber incidents to defend themselves, whereas most small and less complex companies use less sophisticated security measures, such as strong password authentication and data backup. Advanced and sophisticated security measures, necessary, for example, for the analysis and prevention of security incidents, are less adopted. Sophisticated security measures, such as the encryption use or biometric methods for identification and authentication of users, are even more limited.

Cybersecurity measures used by Italian companies in 2022, values in %



Italian companies and cybersecurity in 2022, values in %



The industries most affected by cyber-attacks in Italy are health and pharma, energy, public administration and entities. To reduce national cyberattack risks and favour the development of new cybersecurity tools, techniques, and practices, the Italian government established in 2022 the National Cybersecurity Strategy 2022-2026 and the relative implementation plan, which aims at achieving 82 measures by 2026.

The Ministry of Economy and Finance (MEF) established € 420 Mio. to strengthen the digital resilience and the raising of the cybersecurity levels of the information systems. Other € 130 Mio. are dedicated to finance the operational management of cybersecurity projects. Moreover, the Italian Recovery and Resilience Plan envisaged € 623 Mio. cybersecurity competences for PA and funds for research and ecosystem for this field.

Selection of Italian cybersecurity companies

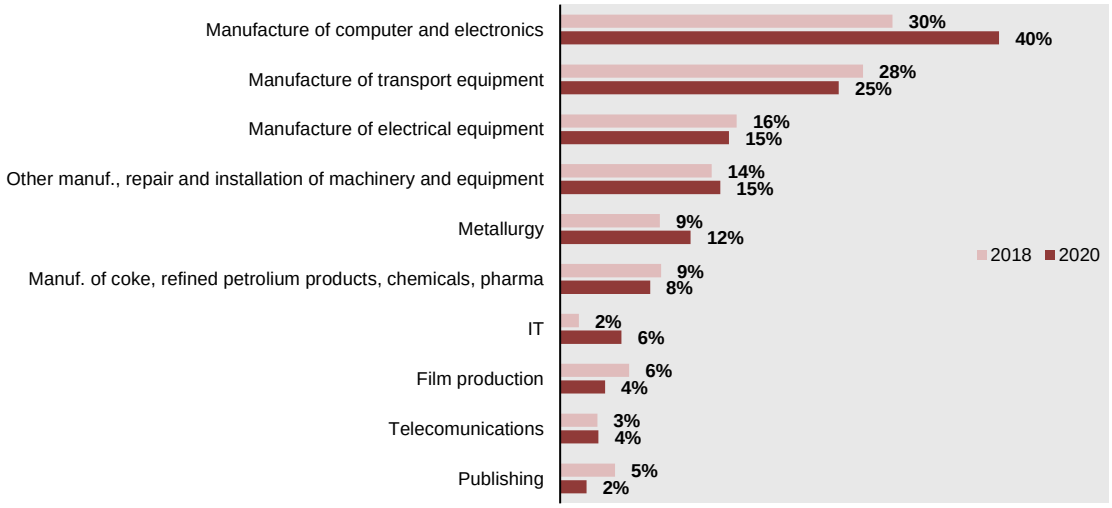
7Layers, Milan
Actalis (Aruba), Ponte San Pietro (BG)
Axitea, Milan
Cleafy, Milan
CoDe RTD, Turin
Cy4Gate, Rome
DGS, Rome
Exein, Rome
IKS TN, Rovereto (TN)
Kopjra, Bologna
Qascom, Bassano del Grappa (VI)
Swascan, Cernusco sul Naviglio (MI)
Telsy (TIM), Turin
Tnet, Milan
Toothpic, Turin
Vantea Smart, Rome

New Production Technologies (Additive Production, 3D Printing)

Additive manufacturing is increasingly adopted by Italian companies, which are progressively aware of its potential, especially after the recent pandemic crisis. As a matter of fact, this technology increases resiliency of companies by reducing time to market and accelerating the resolution of problems in the supply chain related to emergency management.

According to 2020 statistics by ISTAT, Italian companies using 3D printing in their production processes, directly or through services provided by third parties, were only 4.7% in 2020, thus recording a slight growth compared to 2018 (4.4%). This technology is mainly adopted by large-sized enterprises (14.7%, against a 3.9% of SMEs) and by manufacturing companies: the sectors in which 3D printing is mostly used are among companies manufacturing computers and electronics products (40%), transport equipment (27.6%) and electrical equipment and appliances for domestic use (15.4%).

Top 10 sectors using 3D Printing in 2018 and 2020, values in %



Source: ISTAT

According to the 2021 report "Knowledge, use and future development of additive technologies" promoted by Additive Manufacturing Observatory of SPS Italia, prototyping, eventually combined with production of small batches and customized products, is the main area of use of this technology, mainly due to its ability of providing cost-effective solutions.
FDM-Fused Deposition Modeling (48.8%) and Powder Bed Technique (43.9%) are the most used technologies, while material jetting is considered by 40% of respondents as the most promising one for the future due its potential advantages (high resolution and productivity), despite some current limitations.
The study identified service bureaus (54%) and university research centers (36%) as the most relevant stakeholders for the spreading of additive manufacturing, as companies turned to them to test specific additive manufacturing technologies without huge upfront investments.
The major obstacle to the spread of this technology is a lack of know-how and skills within the company (56%), followed by difficulties related to investments for the implementation, perceived as high (20%).

Italian Additive Manufacturing industry
The majority of companies dealing with AM (Additive Manufacturing) in Italy are service and engineering providers, AM testing centres and AM software companies. There are also numerous producers of high-quality filaments for additive manufacturing, mainly due to the leadership of the Italian industry in the plastics sector.
The five main client sectors are Automotive (31.5%), Aerospace (16.9%), Biomedical (12.4%), Jewellery & Fashion (3.4%) and Furniture & Design (3.4%).

Selection of Italian 3D printer manufacturers and industrial filament extrusion systems
3ntr, Oleggio (NO)
DWS, Thiene (VI)
Prima Additive (Prima Industrie), Turin
Roboze, Bari
Sisma, Piovene Rocchette (VI)
WASP, Massa Lombarda (RA)

Selection of Italian AM service providers
Additiva Lab (metals), Modena
BEAMIT (metals), Fornovo di Taro (PR)
CRP Technology (polymers), Modena
Prosilas (polymers), Civitanova Marche (MC)
Skorpion Engineering (polymers), Moncalieri (TO)
Spring (ploymers), Monteviale (VI)
The FabLab, Milan

Selection of AM material manufacturers
Legor (metals), Bressanvido (VI)
Progol3D (metals), Trissino (VI)
Eumakers (polymers), Barletta (BT)
FiloAlfa (polymers), Turin

3. Trends and future developments

Industry 4.0 and digital technology markets are expected to grow in the next years, despite the complex geopolitical context, the shortage of raw materials, high energy costs, and rising inflation. According to the Digital Transformation Academy Observatory of Politecnico di Milano, large-sized companies in Italy are planning to invest in information security systems, Business Intelligence, Big Data and Analytics, and Cloud, while only a small share are focusing on customer profile software (CRM) and management software (ERP). Digital investments of SMEs are instead oriented towards Big Data Analytics, Smart Working, and Industry 4.0.
The main driver of growth of industry 4.0 and digital transformation markets in the next years will be the Italian Recovery and Resilience Plan, which allocated € 14 billion to finance the Transition 4.0 plan and its incentive measures for business investments in digital solutions.
Another important growth factor is sustainability in its broadest sense. ESG (Environmental Social Governance) criteria are indeed gaining an increasing attention in Italy. Investors are progressively including them within their investment assessments and valuation decisions, while companies are incorporating sustainable development objectives into their business growth strategies, in order to reduce financing costs and increase corporate value and competitive advantage on the market. In this context, digital technologies can be used to measure and track sustainability progress, enable resource optimization, reduce carbon footprint and emissions, and implement circular economy processes.
Moreover, digital technologies are key enabler for the development of new business models based on services (servitization), the improvement of work environment, the enhancement of employees' skills, and the redesign of production and supply chains.
In this context, Italian companies are progressively shifting towards a new industrial paradigm, the so-called **Industry 5.0**, which integrates and uses digital technologies to create a more sustainable, human-centric, and resilient business environment for the future.

Servitization 4.0

In order to reduce the effects of the pandemic and related lockdowns, Italian manufacturing companies started to use digital technologies to create innovative services to be added into their traditional product offers. This shift towards business 'as-a-service' models enables manufacturing enterprises to enhance their corporate value and competitive advantage.
4.0 services can provide benefits both to customers, who can maximize machinery and equipment performance and lower the total cost of ownership, and to service providers, which can gain increased revenues and better margins over a longer time span.
According to the survey conducted by Industry 4.0 Transition Observatory of Politecnico di Milano in 2021, Italian companies are slowly exploiting opportunities enabled by the connection of machinery in order to detect failures or malfunctions (28%), enable preventive maintenance (less than 25%), improve energy management of machineries (less than 10%), or enable predictive maintenance (3%). Nearly 50% of 4.0 services providers are machinery manufactures, followed by third party providers (e.g. SW system developers), manufacturers of complex systems that integrate different systems (HW) and first tier suppliers. The most advanced level of servitization, Manufacturing-as-a-Service (MaaS), is still unknown to most Italian manufacturing companies. However, this new paradigm could spread soon and replace the traditional production model.

Skills shortage and 4.0 work

After the outbreak of pandemic, Italian companies were forced to freeze layoffs and hiring, and reduce the concentration of human presence in the same working spaces. To safeguard and protect the health of all workers while guaranteeing business continuity as much as possible, enterprises strove to perform their activities online by introducing **smart working**. Some organizational settings were changed to give employees

greater autonomy, flexibility, and versatility. Moreover, businesses started to **invest in people's digital literacy and training**, to avoid suspending operations.
Remote and virtual work has been largely applied to office work, but less in operational job. Even if direct jobs cannot be done remotely, some manufacturing companies exploited the possibility to carry out in a remote way part of direct and support activities, such as training, audit/control, monitoring of production lines/plants, maintenance and testing of machines and systems, and shopfloor management.
Companies that have decided to carry out these activities in a remote way have exploited benefits, such as an increase of flexibility, timeliness in response to problems, an improvement of workers' satisfaction and work-life balance, although in some cases stress and workload increased too.
With the economic recovery, companies returned to hire people, however discovering that the job market has been changed by the pandemic, and their ability to attract talent has significantly decreased. Moreover, unlike other European nations, the labor market in Italy has structured weaknesses. In Italy, the number of Neet (people under 30 Neither in Employment or in Education or Training) is the highest in Europe, and the employment rate is among the lowest. In addition, population is decreasing and aging, while the phenomenon of emigration of young and often qualified people is not stopping. Therefore, companies are **struggling to find personnel**, especially highly specialized one in manual sectors, and digital professionals. The most in-demand jobs are above all in the field of cybersecurity and Big Data & Analytics.
Motivating, engaging, and keeping employees inside the organization is another current issue for companies. After the pandemic, the phenomenon of "**Great Resignation**" arrived also in Italy. Turnover rate increased, especially in some specific categories such as recent graduates, junior profiles and digital professionals, which are looking for a better work-life balance, and greater levels of flexibility and autonomy.
A key topic in Italy is **workplace security and safety**, which significantly improved thanks to the advent of digital technologies. For example, exoskeletons can support workers in carrying out labor-intensive operations, while robots can replace operators in the most dangerous jobs, thus reducing risks and guaranteeing business continuity. Augmented Reality (AR) and Virtual Reality (VR) can support operators' daily activities or training by delivering further information not available in the real environment (i.e. text, images) through mobile or wearable devices. IoT technologies can also create safer work environment by monitoring production systems, environmental parameters and enabling remote maintenance.

Smart technologies for sustainability

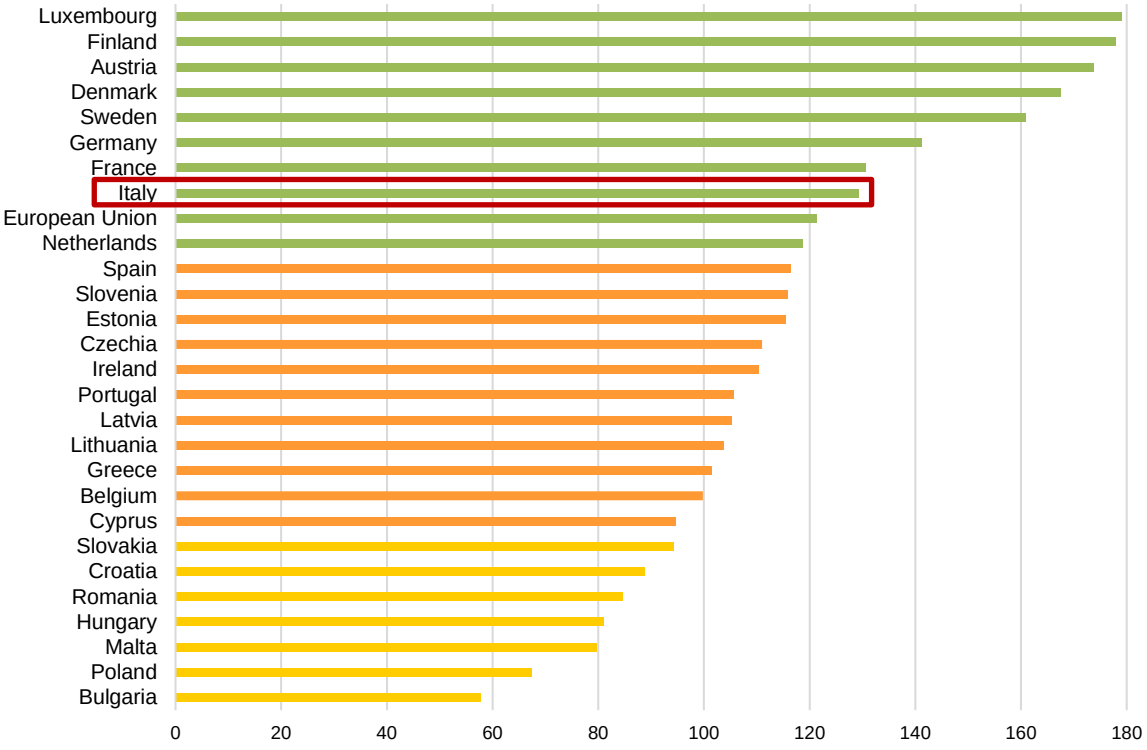
According to the Digital Transformation Academy Observatory of Politecnico di Milano, 4 out of 10 businesses of any size, especially medium-sized ones, are planning to increase ICT budget in 2023 (+2.1%), as digital technologies are increasingly considered an essential asset not only for guaranteeing business continuity, but also for achieving Sustainable Development Goals (SDGs).
Manufacturing companies in Italy are also becoming growingly aware of the importance of sustainability and the relative competitive advantage it can offer. The main drivers to the development of sustainability projects are the possibility to respond to customers' needs, anticipate market trends and to build a sustainable brand image.
The level of sustainability awareness depends on firms 'size. 60% of Italian large enterprises have already defined plans and specific roles dedicated to sustainability, whereas only 29% of SMEs are at this stage.
More than a quarter of companies, regardless of size, are in a "starter" phase of definition of sustainable goals. Only few large enterprises and a third of SMEs have not yet implemented concrete actions in the field of sustainability or have not yet considered sustainability goals.
The most adopted digital technologies to carry out sustainability projects are Advanced Automation and Industrial IoT, followed by Industrial Analytics, Cloud, Additive Manufacturing and Advanced HMI.
Digital technologies are particularly effective in monitoring consumptions of resources (such as water, material, energy) and process wastes, scraps and polluting emissions. Traceability, enabled by smart technologies, is also important for sustainability, as it guarantees transparency along the supply chain.

The most common barriers to implementing sustainable practices are lack of corporate culture, lack of knowledge in expected benefits, and complexity of waste management laws.

Circular economy and digital technologies

In the recent years, Italy has so far successfully positioned itself as one of the leading European countries in circular economy. According to the 4th CEN Report on circular economy in Italy 2022, the country ranks first among the five major European economies (Italy, France, Germany, Poland, and Spain) in this field.
In the last five years, despite the pandemic and it consequent negative impact on sustainability, the country continued to improve its performances in resources productivity, waste management and material consumption.
As confirmed by the Eco-Innovation Index 2022 elaborated by the European Commission, Italy's leadership in circular economy was the result of successful efforts made by the government in implementing policies dedicated to eco-innovation and circular economy, with a specific focus on ecolabelling, waste management, bioeconomy, and green industry.
Further information on companies and R&D institute successfully implementing circular economy solutions can be found in the report 100 Italian Circular Economy stories promoted by Enel and Fondazione Symbola.

Eco-Innovation Index 2022 of EU Member States



Source: European Commission

According to the Circular Economy Report by Energy & Strategy Group of Politecnico di Milano, most Italian companies has already undertaken the transition towards a circular economy model in recent years, even if many are still in an initial phase. The main drivers towards the adoption of circular economy practices are generally related to business development needs for SMEs and to customer requests for large enterprises. The presence of incentives, laws and or regulations aimed at supporting the green transition are also very important. By focusing on sectors, those most advanced in pursuing circular economy practices are food & beverage and machinery & industrial plant engineering. Building & infrastructure and furniture industry are placed in an intermediate transition position, while consumer electronic, textile, and automotive industries are still in an initial transition phase, as they are mainly related to traditional linear economy model.

Digital technologies can support the transition towards a circular economy model, as they can facilitate the design of sustainable products, processes, manufacturing cycles and business models in order to optimize

consumption of resources and reduce waste generated non only in the production process, but also along the supply chain. Moreover, they can increase knowledge, connections and information sharing, and enable reuse, remanufacturing and repair.
According to the circular economy strategy and targets defined, companies can identify and select the most suitable set of digital technologies. Those mostly used for circular economy purposes, especially in plan engineering industry, are simulation and 3D printing. Autonomous robots and Cloud Computing are applied in various sectors, whereas Cybersecurity and Artificial Intelligence are little employed. RFID and Machine Learning technologies are instead mainly used in sectors such as furniture and construction.

Deglobalisation

Before the covid crisis, some mega-trends such as international complex geopolitical instability, protectionist policies, sustainability, and digital transformation started rising companies' awareness in risk of relying on complex and long supply chain. This risk has intensified after the pandemic and Ukraine war outbreak, which led to an increase in production and transport costs as well as difficulties in procuring key materials and products. As a result, companies started to consider and develop new supply chain strategies, such as reshoring, diversification, and regionalisation.
According to a survey conducted by research group Re4It in 2022, about 30% of Italian companies that offshored their production (partially or totally) are changing their localization strategy and are planning a production backshoring in the next years, whereas 55% continues to keep unchanged location choice. About 16% are instead opting for a change of production location abroad (nearshoring o further offshoring).
Companies that have mainly decided for production and supply backshoring are mainly SMEs belonging to textile & clothing, machinery and electrical equipment, and metallurgy sector.

4. Tax credits, incentives and NRRP

The main tax credits on investments in new assets, digitalization, green sustainability and research and development, as well as an overview of Italy's Green New Deal and the National Recovery and Resilience Plan (NRRP) are reported below. For specific questions or updated information on this topic, please contact AußenwirtschaftsCenter Mailand (mailand@wko.at).

Transition 4.0 plan

In order to further sustain digital transition and increase productivity, competitiveness and sustainability of Italian production system, especially in the post-pandemic recovery phase, the Italian Ministry of Economic Development launched different Industry 4.0 plans since 2016. The aim was to foster investments in new technologies, research, development, innovation and in digital and managerial skills.
In 2020, the government developed a new Transition 4.0 Plan with the intention of reducing uncertainty and favouring medium and long-term investments. The initial endowment of the plan (€ 24 bn) was enlarged thanks to the Italian Recovery and Resilience Plan funds (€ 13.38 bn) and this enables an extension of some incentive measures until 2025.

The tax credits of Transition 4.0 plan apply in three equal annual instalments as of the year in which the assets come into operation or are interconnected to the company's system of production management or supply network. In case of industry 4.0-related assets, a declaration made by the legal representative certifying the fulfilment of all requirements and technical characteristics as established by the law is needed. If the 4.0 assets have a value higher than € 300,000, a third-party technical evaluation report issued by an engineer or by an industrial expert is required.

Tax credits for new high-tech tangible assets related to "Industry 4.0" (included in Annex A of Law n. 232/2016)

Yearly investment ceiling	Tax credit rate	
	01.01.2022 – 31.12.2022[1]	01.01.2023 – 31.12.2025[2]
Up to € 2,5 million	40%	20%
€ 2,5 – € 10 million	20%	10%
€ 10 – € 20 million	10%	5%

Tax credits for new intangible assets related to "Industry 4.0" (included in Annex B of Law n. 232/2016), including expenses for services incurred in connection with the use of cloud computing solutions

Yearly investment ceiling	Tax credit rate			
	01.01.2022 – 31.12.2022[3]	01.01.2023 – 31.12.2023[4]	01.01.2024 – 31.12.2024[5]	01.01.2025 – 31.12.2025[6]

[1] Tax credit can be extended until 30.09.2023, if the assets are ordered and 20% down payment is made by 31.12.2022.
[2] Tax credit can be extended until 30.06.2026, if the assets are ordered and 20% down payment is made by 31.12.2025.
[3] Tax credit can be extended until 30.06.2023, if the assets are ordered and 20% down payment is made by 31.12.2022.
[4] Tax credit can be extended until 30.06.2024, if the assets are ordered and 20% down payment is made by 31.12.2023.
[5] Tax credit can be extended until 30.06.2025, if the assets are ordered and 20% down payment is made by 31.12.2024.
[6] Tax credit can be extended until 30.06.2026, if the assets are ordered and 20% down payment is made by 31.12.2025.

Up to € 1 million	50%	20%	15%	10%

Transition 4.0 plan introduced new tax credits for companies investing in research and development, innovation and design-related activities. Moreover, these tax reliefs can be combined with other measures. Further information and criteria for the correct application of each of these tax credits are established in the decree of 26 May 2020.

Tax credits for Research & Development

Type of investment	**Tax credit rate**	
	01.01.2021 – 31.12.2022	**01.01.2023 – 31.12.2031**
R&D investments (theoretical research, industrial research, experimental development)	20% - up to € 4 million per year	10% - up to € 5 million per year

Tax credits for technological innovation and design

Type of investment	**Tax credit rate**	
	01.01.2021 – 31.12.2023	**01.01.2024 – 31.12.2025**
Investments in technological innovation aimed at creating new or substantially improved products or production processes	10% - up to € 2 million per year	5% - up to € 2 million per year
Investments in design and aesthetics activities for the conception and realization of new products and samples in the sectors such as textile and fashion, footwear, eyewear, goldsmith, furniture and furnishing and ceramics	10% - up to € 2 million per year	5% - up to € 2 million per year

Tax credits for green or digital investments

Type of investment	**Tax credit rate**		
	01.01.2021 – 31.12.2022	**01.01.2023 – 31.12.2023**	**01.01.2024 – 31.12.2025**
Investments in technological and green innovation aimed at achieving either a green or digital 4.0 transition	15% - up to € 2 million per year	10% - up to € 4 million per year	5%- up to € 4 million per year

"Nuova Sabatini" is one of the most popular measures aimed at supporting SMEs of any productive sector in making investments for the purchase or lease of new machines, equipment, plants, capital goods for production use, as well as hardware, software and digital technologies through an eased admission to a bank loan and a direct contribution to cover loan interest.
The "Nuova Sabatini" Law was refinanced by Transition 4.0 Plan with further € 900 million up to 2027.
In case of **4.0 investments**, the contribution is increased by 30%.
Since 1st January 2023, new resources are dedicated to finance **green investments** of Italian SMEs related to the purchase or leasing of new machinery, plant and equipment for production use, with low environmental impact, as part of programs aimed at improving the eco-sustainability of products and of production processes.

Italy's Green New Deal

Italy's Green New Deal was introduced with the 2020 Budget Law following the strategy of the European Green Deal. A fund of € 4.24 billion was allocated to the plan for the period 2020-2022, in order to support and incentivize innovative projects and investment in environmental sustainability. Moreover, a fund of over € 20 billion was set up for the period between 2020 and 2034 to relaunch central government investments related to circular economy, decarbonisation, energy saving, emission reduction and environmental sustainability. For the five-year period 2020-2024, € 500 million per year have been allocated to Italian municipalities, in the form of grants for investments in public works to improve energy efficiency and sustainable development.

In the decree of 11th June 2020, a new fund has been set up to finance industrial research, development and experimental projects aimed at the transition of production activities towards a circular model through the creation of new products, processes or services or the improvement of the existing ones, for example:

- product and process innovations in terms of efficient use of resources and waste treatment and transformation
- prototype design and experimentation of integrated technological models aimed at strengthening the paths of industrial symbiosis
- systems, tools and methodologies for the development of technologies for the supply, rational use and sanitation of water
- innovative technological tools capable of increasing the lifetime of products and making the production cycle more efficient
- experimentation of new models of intelligent packaging (smart packaging) that also include the use of recovered materials
- multi-light material selection systems, in order to increase the recovery and recycling rates of small and light materials

Eligible projects must also be carried out within one or more locations in Italy, foresee eligible expenses and costs not lower than € 500.000 and not higher than € 2 million, and have a duration of no less than 12 months and no more than 36 months. The deadline of this incentive is 31 December 2023.

In November 2022, the Italian government set up a new incentive intended to support companies in the implementation of research, development and innovation activities concerning decarbonisation, circular economy, urban regeneration, climate risk adaptation and mitigation, and reduction of plastics use and replacement of plastics with alternative materials. The measure finances projects involving investments in Italy, with a value not lower than 3 million and not higher than 40 million, and with a duration between 12 and 36 months.

Further resources to the green transition are envisaged by the Italian Recovery and Resilience Plan.

The Italian Recovery and Resilience Plan: Next Generation Italia

The Italian Recovery and Resilience Plan (Piano Nazionale di Ripresa e Resilienza), created by the Italian government and approved by the European commission in July 2021, defines actions and interventions to overcome the economic and social impact of the pandemic, which hardly hit the country in 2020.
The plan envisages a broad and consistent package of reform and investments in order create a fairer, greener and more inclusive country, with a more competitive, dynamic and innovative economy.
In addition to the € 191.5 billion assigned to Italy by the Recovery and Resilience Facility, the plan includes € 30.6 billion from the Complementary Fund, € 26 billion from the Development and Cohesion Fund and € 13 billion from the REACT-EU program, which will be spent in the years 2021-2023 in accordance with EU regulations.

The Italian Recovery and Resilience Plan is made up of 6 missions:

1. Digitalization, innovation, competitiveness and culture
2. Green revolution and ecological transition
3. Infrastructure for sustainable mobility
4. Education and research
5. Inclusion and cohesion
6. Health

The first mission related to **Digitalization, innovation, competitiveness and culture** is the second largest item of expenditure of the plan, accounting for more than 20% of total resources. Its goal is to simplify and digitalize public administration, create ultra-fast networks, accelerate 5G installation nationwide, increase competitiveness of manufacturing sector through digital transition and invest in tourism and culture 4.0.

As Transition 4.0 Plan is the main key tool to boost digitalization among companies, the plan envisages €13.38 billion of Next Generation EU resources (grants) in order to support the provision of its incentive measures. In addition to these resources, a further € 5.08 billion from the Complementary Fund are assigned to this plan.

Another industrial policy instrument aimed at strengthening the competitiveness of the Italian manufacturing sector are the so-called "Innovation Agreements" financed with 1 billion euros by the plan.
This measure focuses on financing **strategic investment projects in industrial research and/or the experimental development** of particular added value and relevance.
The government can provide subsidies and grants to companies and research centres, for the development of R&D projects aimed at creating new products, processes, services or at improving them through the use of key enabling technologies identified by the "Horizon Europe" program:

- Manufacturing technologies
- Fundamental digital technologies, including quantum technologies
- Emerging enabling technologies
- Advanced materials
- Artificial intelligence and robotics
- Circular industries
- Clean low carbon industry
- Rare and non-communicable diseases
- Industrial plants in the energy transition
- Industrial competitiveness in the transport sector
- Clean, safe and accessible mobility and transport
- Smart mobility
- Energy storage
- Food systems
- Bio-innovation systems in the bio-economy
- Circular systems

R&D projects, which can be also joint with other stakeholders, must include expenses and eligible costs of at least € 5 million, have a duration of no more than 36 months and be launched after the submission of the application for subsidies to the Ministry of Enterprises and Made in Italy.

Green Revolution and Ecological Transition is the mission with the largest allocation of resources, namely 31% of the total. Its goal is to achieve Italy's green and ecological transition and increase Italy's commitment to the ambitious objectives of the European Green Deal. In particular, the mission envisages investments aimed at improving circular economy and waste management, increasing Italy's share of renewable energies, including

the launch of hydrogen-based solutions, enhancing the electricity grid and water supplies, incentivizing energy efficiency in public buildings and fighting against climate change and hydrogeological instability.

Specifically, € 600 million are allocated to circular economy flagship projects for the treatment and recycling of refuse coming from strategic supply chains, such as electric and electronic, paper and carton, textile, and plastic industry. Moreover, a fund of € 250 million is dedicated to encouraging and stimulating the growth of startups focused on green transition sectors (renewable energy, sustainable mobility, energy efficiency, circular economy, waste treatment, batteries).

The Italian Recovery and Resilience Plan allocated 16.12% of its resources to the fifth mission **Education and research**, whose goal is to upgrade and innovate the Italian educational system as well as support research, particularly in the field of digital technologies and in the ecological transition.

Specifically, € 1.6 billion are dedicated to the creation of national research and development champions on specific key enabling technologies through the collaboration between universities and companies, while € 1.3 billion are assigned to the creation and strengthening of innovation ecosystems and to the establishment of local R&D leaders.

The mission envisages also a fund of € 1.61 billion to finance 15 major research and innovation programs, carried out through partnerships between universities, research centres and companies and an enhancement of € 300 million to the resources for the National Innovation Fund, which is managed by the Loans and Deposits Fund and whose scope is to support the development of venture capital for Italian startups.

Further information on the Italian Recovery and Resilience Plan can be found at the following websites:

- EU-Recovery in Italien - So profitieren Sie von den Aufbau- und Resilienzplänen
- WKÖ-Recover.MAP – Jetzt neue Chancen nützen
- Italia Domani, the official website dedicated to the plan

5. Opportunities for Austrian companies

Italy is one of the largest economies in the world and its domestic market offers several business opportunities. An important strength is its geographical proximity to Austria, which reduces risk of supply chain disruptions, experienced by many organizations during the lock-down phase. As a result, Italian businesses are trying to mitigate this risk and give resilience to their supply chain, also by diversifying suppliers and by adopting nearshoring or regionalization strategies.
After the strong GDP contraction registered in 2020, Italian economy had extraordinary recovered, becoming one of the main drivers of economic growth in the Eurozone.
This new "renaissance", combined with the incentive measures of Transition 4.0 plan, available until 2026, is pushing business investments in new, digitalized and interconnected assets (machineries, plants, equipment) and digital technologies, thus disclosing opportunities for Austrian companies active in these fields.

4.0 assets, machineries, and robots
As confirmed by the industry association UCIMU, there is still a large number of Italian SMEs that need to renew their machine park. This represents an interesting business opportunity for Austrian manufacturers belonging to this sector, especially those providing **digital interconnected machinery with low environmental impact**, which are incentivized by the Transition 4.0 plan.
Austrian products are highly appreciated and recognized for their high-quality level in Italy. It is no coincidence that Austria is among the top 8 importers countries in Italy for machinery and equipment sector and the second major importer of metal forming machine tools after Germany. Considering the machine tool sector, the main users are companies in the field of machines and mechanical products, metal products, automotive, production and first processing of metals, and electrical and electronic products.
Potential clients are mainly located in in the regions of Northern Italy, in particular Lombardy, Veneto, Emilia Romagna and Piedmont. Beyond being close to Austria, these regions are called "pentagon of the Italian economic development" as they drive the Italian economic system.
Italy is among the largest user countries of **industrial robots** in the world and the demand keeps growing, especially in metal and machinery sectors, automotive, electronics, food and beverage, plastics and chemicals. Collaborative industrial robots are increasingly adopted by Italian companies, also by small businesses with minimum production batches. The association UCIMU observed a growing widespread use of **collaborative robots** in welding, and in new sectors, such as the furniture industry, logistics, cosmetics or pharmaceutical.

ICT and digital market
ICT market in Italy is forecast to increase in the next years, driven by the IT market, while telecommunications is expected to keep decreasing, as a consequence of the contraction of prices due to high competition of operators. By focusing on digital technologies, the transition is advancing in Italy, but at different rates, depending on sector and size of companies. While large corporates have embraced digital transformation, Italian SMEs are mainly lagging behind. In the manufacturing sector, the sectors of oil & chemical, computer and electronics, machinery and equipment, and automotive tend to be above the average in the adoption of 4.0 technologies.
In the next years, business investments in digital solutions will be further driven by Transition 4.0 plan and funds of Italian Recovery and Resilience plan, which allocates € 14 billion for this scope.
Cloud computing has taken on a central role in digital transformation and is expected to further increase by double-digit until 2025. This technology is highly diffused in computer and electronics (76%), machinery and equipment (74%), wood and paper sectors (62%), while food and tobacco (56%), and textile and clothing (57%) are lagging.
Even if it is still a niche market compared to other digital technologies, **cybersecurity** is strongly accelerating, especially after the outbreak of the Russian/Ukrainian conflict and the current geopolitical dynamics. In this context, a sustained growth of investments in IT security solutions is expected in the next years, as companies increasingly need to protect business from a rising number of cyber-attacks.
Big data and Industrial IoT market will also continue to grow, driven by the need to collect, manage and exploit data. The current main users of IoT are companies in coke, oil and chemical products (41%), food and tobacco

(40%) and machinery and equipment (39%). On the contrary, its use in textile and clothing (29%), computer and electronics (33%) and wood and paper (34%) is less diffused.
Digital transformation of companies is supported by a broad and diverse innovation ecosystem, composed by business associations, universities, tech clusters, research institutes and large corporates. These stakeholders are opened to develop an international network of relationships aimed at favouring open innovation and the share of ideas, knowledge, resources and skills. In order to ease and encourage this innovation exchange between Austria and Italy, Wirtschaftskammer Österreich – WKÖ - signed strategic partnerships with Politecnico di Milano and IED (European Institute of Design). For further information, please contact AußenwirtschaftsCenter Mailand (mailand@wko.at).

Green sustainability, energy transition and circular economy
The current context, characterized by high energy prices, shortage of critical materials, increasingly frequent natural disasters and compelling requests from consumers and customers to fight climate change, led a growing number of Italian companies to adopt measures to increase their sustainability and efficiency.
4.0 sustainable investments are incentivized by the government, thus disclosing interesting business opportunities for companies providing green-tech solutions aimed at energy efficiency and circular economy.
About 40% of Italian Recovery and Resilience plan resources are dedicated to green transition, especially in the field of energy efficiency of buildings, sustainable mobility and renewable energies, circular economy, and land and water management.
The report "Energiewirtschaft in Italien" summarizes key data, information, trends and development of the energy sector in Italy. Please contact AußenwirtschaftsCenter Mailand (mailand@wko.at) if you are interested in the report or for further information on opportunities and funds in the green economy industry.

Critical success factors

Doing business in Italy can be sometimes challenging, not only because of the numerous regulations, but also for the culture. As in most southern European countries, business is here based on relationships and human interaction, and mutual trust between future business partners is essential. Speaking Italian is also a great plus in gaining new customers.
Italy is also well known for the complicated regulatory environment, complex bureaucracy, and heavy corporate tax burden. In addition, there are regulatory disparities for the same business activity among different regions.
Without a comprehensive understanding of local laws, regulations and business practices, companies can face possible delayed entry, rising costs, or even tax penalties.
In this context, Austrian companies are recommended to initiate the search for potential business partners via AußenwirtschaftsCenter Mailand (mailand@wko.at) by making an inquiry or by participating in events on this topic.

4.0 assets, machineries, and robots
With reference to machinery and equipment, competition can be high, as the sector is one of the excellences of 'Made in Italy'. Critical success factors are understanding customers 'needs and offering **tailor-made solutions** with a focused attention to technology, productivity, and efficiency, without forgetting the environmental impact. Moreover, becoming an active partner by proactively supporting customers in their optimization process can be a value added.
As a result of the increasing shortage of skills in Italy, especially in engineering and technology fields, **easy-to-use solutions** tend to be preferred over complex ones.

ICT and digital market
Expanding into Italy's IT market is not easy as competition is very intense, due to the presence of a large number of players. Moreover, buyers in the country are risk-adverse and tend to prefer well-established brands or

software providers that they have already worked with, thus posing high barriers to new entrants. Price sensitivity can be high for the more widespread and standardized products.
In order to lower these obstacles and be less subjected to price-based competition, it is essential to **differentiate** one's products (e.g. functionalities, features and services) in order to better respond to specific client needs.
Companies can also leverage on **productivity improvement and cost efficiencies** provided by the software solution, which can lower client's competition pressure on the market and increase opportunities for business expansion. Another key aspect for Italian companies is to have software user interfaces, websites and landing pages in the **Italian language**.
Before investing in new functionalities, it is advisable to test solutions in the region of **Südtirol**, where most of the population uses German as their first language. Here Austrian companies can adapt their products and services, find the right partner, gain first clients and collect recommendations.
AußenwirtschaftsBüro Bozen is available for locally supporting your business expansion in Südtirol/Trentino.

6. The way towards clients

The choice and the design of the right marketing strategy is a prerequisite for any company wishing to perform a successful business in Italy. In general, companies with their own sales branch and their own sales representatives are performing better than those providing their products through an importer or directly send them from their home country. Establishing and developing long-lasting business relations with customers, suppliers and business partners is indeed a key success factor in the Italian market. For this reason, hiring Italian-speaking people who understand the local practices and find the right contacts is highly recommended when entering the Italian market.
However, before opening a branch in Italy, it is advisable to know about products and companies already serving the market.
AußenwirtschaftsCenter Mailand supports Austrian companies with a wide range of services:

- Market researches and industry information
- Intermediator with potential business partners
- Advice on legal and tax issues
- Support in setting up a branch
- Individual project support
- Networking and industry-specific events

Further information on our services, event program and latest news regarding Italy are available on our website.

Possible distribution channels

Companies should select the right distribution channels depending on their objectives and constraints as well as the customer service level they want to guarantee. However, strengths and weaknesses of intermediaries, the distribution channel adopted by competitors and norms and laws should be also considered.
Indirect distribution channels bring numerous advantages, including lower costs and commercial risks, higher geographical spread of products, immediate market access, and avoiding cultural conflicts.
One of the most widespread indirect distribution channels in the manufacturing sector is still the involvement of sales representatives or industrial representative companies. The number and the choice of sales agents to hire depends on the width of the product portfolio, geographical coverage, competences and reputation required, and the level of dependency risk. It is usually difficult to cover the entire market with a single representative unless a big-sized agency with a well-developed distribution network is selected.
Sales agents enable companies to keep the market entry costs low and to benefit from their existing contacts and their consolidated experience in the Italian market.
The following sales channels could be selected:

- direct selling
- general importer
- wholesalers at regional level
- e-commerce, mail order
- branch

A representative office in Italy can be established depending on the type of product and / or service.
For further information on the Italian commercial agency law and on drafting contracts please contact AußenwirtschaftsBüro Rom for our reports Italienisches Handelsvetreterrecht and Ein Unternehmen in Italien gründen - Vertretungsvergabe.

Tender databases for public contracts

After the publication of the EU directives 2004/17 / EG and 2004/18 / EG, all the Italian public procurement laws had been changed accordingly. 2001 constitutional reform (so-called federalization of the republic) established that regions are actually the main responsible for procurement laws, while the Italian state has competence only within the fields of safeguard of competition, ordinary jurisdiction, large cross-regional contracts and public authorities' procurement procedures. Nevertheless, it is advisable to check whether any regional provisions include any peculiarities.

Further information on the Italian public tenders can be found in CONSIP, INFO APPALTI and TELEMAT websites or contact AußenwirtschaftsCenter Mailand (mailand@wko.at).

Procurement procedures

Public contracts are regulated in Italy in the Code of Public Procurement Law (Legislative Decree No. 50 of April 18, 2016). The allocation and execution of public contracts must take into account the principles of cost-effectiveness, efficacy, impartiality, equal treatment, time limits, transparency and free competition.
As part of the award of a public contract, the tender notice must include the following information:

- requirements to be met for participants
- main characteristics of the services
- the way the contract partner is selected
- contract type
- exclusion

Furthermore, in the case of public contracts, a qualification certificate from special certification bodies is required. This certificate is intended to demonstrate that the company have necessary economic, financial, technical and organizational requirements needed to participate in the award procedure. This evidence can also be provided by the European Single Procurement Document (ESPD).

Company formation, taxes, recruitment

Our reports Firmengründung und Steuern in Italien and Ein Unternehmen in Italien gründen - Vertretungsvergabe include detailed information on how to set-up a branch or company in Italy, company law, tax law, labour and social law, incentives for innovative start-ups, M&A deals, and a list of German-speaking lawyers and tax advisors. The reports can be requested to AußenwirtschaftsCenter Mailand (mailand@wko.at).

Intellectual Property

The protection of intellectual property rights is also a key topic and an essential tool in the internationalization process of companies.
The report Italian Intellectual Property Law (in English) provides an overview, in line with recent legislation, of the rights recognized in Italy over intangible assets and the specific means of protection provided for them.
In case of interest on the report or specific questions on this subject, please contact AußenwirtschaftsBüro Rom (rom@wko.at).

7. Industry 4.0 ecosystem

Industry 4.0 National Network

In 2016, the Italian Industry 4.0 Plan established the creation of an Industry 4.0 National Network with the aim of spreading and promoting 4.0 technologies and culture, as well as supporting companies in their digital transformation process. The Italian Industry 4.0 Network is made up of different hubs distributed all around Italy, which can be contacted by companies according to their needs.

- **77 Digital Business Hubs** (Punti d'Impresa Digitale or PID) managed by the Italian Chambers of Commerce Unioncamere. They offer companies basic Industry 4.0 concepts and an assessment of their digital maturity level. According to the results obtained and the digital needs identified, they orient companies towards innovation hubs, competence centers and/or technology transfer centers.
- **100 Innovation Hubs** managed by the main Italian industry associations (21 by Confindustria, 21 by Confcommercio, 30 by Confartigianato, 28 by CNA). These hubs provide companies with basic training courses on specific technologies and digital solutions according to their digital maturity level and their digital needs. Moreover, they coordinate their activities with competence centers and technology transfer centers to orient enterprises towards the most suitable hub.
- **8 Competence Centers**, which are public-private partnerships financed by the Italian government, universities and private companies. Their aim is to support companies in advanced training activities or in the development of innovative industrial R&D projects aimed at creating and/or improving products, services and/or processes through the application of advanced Industry 4.0 technologies. Competence center are specialized in specific 4.0 technologies or sectors according to local competences and know-how characterizing the area where they are placed.

Summary of the services offered by the different hubs of the Italian Industry 4.0 Network

Activities	PID	Innovation Hubs	Competence centers
Spread Industry 4.0 (I4.0) culture	✓	✓	
Map of the digital maturity level of companies	✓	✓	✓
Training courses on basic I4.0 competences	✓		
Orientation towards Innovation Hubs and Competence Centers	✓		
Training courses on specific I4.0 technologies applied to sectors		✓	
Orientation towards the most suitable Competence Center and/or technology transfer center		✓	
Advanced training courses at demo productive lines			✓
Development of industrial R&D projects concerning I4.0 technology			✓

8 Competence Centers in Italy

ARTES 4.0, Pontedera (PI)
Focus: advanced robotics and enabling digital technologies & 4.0 systems

Bi-Rex, Bologna
Focus: Big Data and Artificial Intelligence applied to manufacturing and life science

CIM 4.0, Turin
Focus: advanced manufacturing technologies for aerospace and automotive sectors with a specialization in Additive Manufacturing

Cyber 4.0, Rome

Focus: cybersecurity

MADE, Milan
Focus: digital technologies applied to the manufacturing sector to enable a smart, connected, and sustainable factory

MediTech (Mediterranean Competence Centre 4 Innovation), Naples
Focus: Advanced Transportation Systems, biotech, construction, energy and ICT sectors

SMACT, Venice
Focus: "light" digital technologies suitable for local industrial system and Artificial Intelligence of Things

Start 4.0, Genova
Focus: security, safety and cyber security for harbor, transport, energy and water infrastructure sectors and for production systems

Map of the Competence Centers in Italy

Italian Smart Manufacturing Cluster

The Italian Smart Manufacturing Cluster aims at fostering and sustaining innovation of the Italian manufacturing system towards the development of new products, services, processes, and technologies in order to strengthen its competitiveness and growth. The cluster created a community composed by large-sized companies, SMEs, universities, R&D centres, and associations, in order to favour close relationships between industry, research and national and regional public institutions.
The cluster also established seven research projects called Technical-Scientific Thematic Groups (GTTS) focused on key topics, such as customization, industry sustainability, upskilling and cross-skilling, efficiency, innovation and flexibility of manufacturing systems.

As part of the cluster strategy, some companies' members (ABB, Tenova - Ori Martin, Hitachi Rail SpA, Ansaldo Energia, Wartsilia Italia, HSD Mechatronics) were selected for the design and construction of **Lighthouse Plants**. These production factories are either build from scratch or restructured in order to be entirely based on industry 4.0 technologies and their aim is to become a national and international benchmark for all companies willing to pursue industry 4.0 and digital transformation. Furthermore, they will constantly evolve in the years to always improve their processes and solutions.
Lighthouse Plants owners collaborate with various stakeholders, such as suppliers, integrators, institutions, and research centres to develop specific R&D projects concerning the practical application of industry 4.0 technologies in specific sectors.

8 Italian lighthouse plants

Lighthouse plants of ABB	Location: Dalmine (Bergamo), Frosinone e Santa Palomba (Rome) Aim: implementation of Industry 5.0 and "supersmart society" paradigm
Lighthouse plant of Ori Martin and Tenova	Location: Brescia Aim: producing steel 4.0 through a cyber physical factory based on a hybrid cloud system
Lighthouse plants of Hitachi Rail SpA	Location: Naples, Pistoia and Reggio Calabria Aim: producing trains of the future through the development of new innovative transport solutions and the implementation of a PLM (Product Lifecycle Management) system
Lighthouse plants of Ansaldo Energia	Location: Genoa Aim: implementation of MES (Manufacturing Execution System) and MOM (Manufacturing Operations Management) system and increase of digital supply chain integration
Lighthouse plant of Wartsilia Italia: Opificio Digitale – Smart Manufacturing Ecosystem	Location: Trieste Aim: introducing Supply Chain 4.0 through a Smart Manufacturing ecosystem and sharing knowledge and technologies among companies, universities and research centres
Lighthouse of HSD Mechatronics	Location: Pesaro Aim: creation of a new generation of elettrospindle 4.0 and a prototype zero-defect production line

Regional Smart Manufacturing Clusters

Regional Smart Manufacturing clusters are focused on strategic fields of sectoral and/or technological specialisation for the economic development of regional industrial systems.
Regional clusters related to manufacturing and ICT are listed below gathered by region.

Region	Regional technology clusters for smart manufacturing or ICT
Abruzzo	**IAM** (Automotive and Metalworking Innovation)
Apulia	**DHITECH Scarl** - High Tech District **MEDISDIH Scarl** - Regional Mechatronic District and Digital Innovation Hub of Apulia
Basilicata	**Cluster Lucano Automotive – Smart Manufacturing ETS**
Calabria	**"ICT Calabria" Innovation Pole**
Emilia-Romagna	**Innovate Clust-ER** (service innovation cluster) **Mech Clust-ER** (Mechatronics and Automotive cluster)
Friuli-Venezia Giulia	**Cluster Comet** (Mechatronics and Engineering) **Cluster DITEDI** (Digital Technologies District of Friuli Venezia Giulia)

Liguria	**SIIT SCpA** (Smart Integrated Technology Systems) **Research and Innovation Center SOSIA**
Lombardy	**Lombardy Cluster Smart Factory Association (AFIL)**
Marche	**Cluster Marche Manufacturing** **i-Labs** (industry information innovation)
Piedmont	**MESAP** **Polo Innovazione ICT**
Tuscany	**Advanced Manufacturing 4.0 District (GATE 4.0)**
Trentino-South Tyrol	**Hub Innovazione Trentino** **Polo Meccatronica**
Veneto	**Consorzio M3** (precision mechanics, micro-technologies and additive manufacturing) **Improvenet** (ICT for Smart Manufacturing)

Universities, R&D institutions and science and technology parks

Universities, research centres, and science and technology parks are playing an important role in fostering the digital and green transition of Italian manufacturing system and in supporting companies in the adoption and implementation of industry 4.0 technologies and innovation.
A selection of relevant drivers of innovation are listed below in alphabetical order.

Universities

Politecnico di Bari (Polytechnic University of Bari)	Focus on engineering Centre of excellence in computational mechanics
Politecnico di Milano (Polytechnic University of Milan)	Centre of excellence in engineering, architecture and design It ranks fifth in Design, tenth in Architecture, thirteenth in "Engineering & Technology" worldwide according to the QS World University Rankings by Subject 2022
Politecnico di Torino (Polytechnic University of Turin)	Focus on engineering, especially applied to manufacturing and automotive It ranks 33th university in the world in "Engineering & Technology" according to QS World University Rankings by Subject 2022.
Scuola Superiore Sant'Anna di Pisa and **University of Pisa**	Scuola Superiore Sant'Anna di Pisa with its Biorobotics Institute and University of Pisa with the Research Center "E. Piaggio" have a large and honoured international reputation in the field of research in advanced robotics and bioengineering studies. Scuola Superiore Sant'Anna di Pisa ranks first in Italy, seventh in Europe and fourteenth globally according to the Young University Rankings 2022 released by THE Times Higher Education
University of Naples Federico II	Department of excellence in Electrical Engineering and Information Technologies, whose professor Bruno Siciliano is one of the most important robotics experts in the world

Focus: Politecnico di Milano

Politecnico di Milano (Polytechnic University of Milan) is one the most outstanding technical universities in Europe, and the largest Italian university in Engineering, Architecture and Design, with nearly 45,000 students. Established in 1863, the university has two main campuses in Milan and other five ones located in nearby cities across Lombardy and Emilia Romagna.

Research plays a central role in the university's mission and is carried out in more than 250 well-equipped labs, divided into large infrastructures (e.g. wind tunnel), interdepartmental labs and departmental labs.

The School of Management of Politecnico di Milano manages more than 30 Digital Innovation Observatories, whose aim is to broaden and deepen the practical knowledge about new digital technologies in order to share it with companies and public authorities.
One of the Digital Innovation Observatories is the Industry 4.0 Transition Observatory, which is the Italian competence center for Industry 4.0 as its aim is to help managers and entrepreneurs to understand the opportunities offered by the adoption and implementation of digital technologies in the manufacturing sector.

Politecnico di Milano favours the exchange of experiences, knowledge, reciprocal contamination, and entrepreneurial networking through:

- PoliHub, the Startup Accelerator of Politecnico di Milano specialized in deep-tech sector.
- Cefriel, the technology transfer center of excellence for innovation, research and training in ICT.

The university commits to supporting the manufacturing system in exploiting the possibilities offered by the energy transition, new production technologies, collaborative robotics and the circular economy.
Due to its strong knowledge and high expertise in manufacturing and its tight relationships with the industrial sector, several large manufacturing companies (e.g. ABB, Camozzi Group, Comau, STMicroelectronics) established joint research centers with Politecnico di Milano, which are long-term strategic partnerships aimed at joining forces and efforts in research and technological transfer activities.

Moreover, the university supports several institutions and associations (e.g. MADE competence center, Smart Factory Cluster, AFIL – Lombardy Cluster Smart Factory Association, Digital Innovation Hub Lombardy) by providing them with its technological and technical expertise.

In 2021, Politecnico di Milano collaborated with the national Loans and Deposits Fund (CDP) for the creation of **Tech4Planet**, the new national technology transfer centre, which aims at sustaining the development of new startups created within laboratories and research centres and focused on sectors such as energy-tech, circular economy, sustainable manufacturing, smart mobility and water management.

Cooperation agreement between Politecnico di Milano and WKÖ

A collaboration agreement between the Austrian Chamber of Commerce (WKÖ) and Politecnico di Milano was established in March 2019. These two institutions signed a Letter of Intent, where they declared to undertake sustained efforts to further research and develop activities between Politecnico and Austrian companies, professional associations, institutions, research organizations and universities.
The aim of this strategic partnership is to create awareness of business opportunities to enhance the international competitiveness of Austrian companies while taking advantage of the experience of Politecnico in collaborating with companies to generate creative innovations 'Made in Europe'.

AußenwirtschaftsCenter Mailand, together with its offices in Padua, Rome and Bolzano, is encouraging and facilitating B2B cooperation between Politecnico and Austrian companies through various initiatives and events. For further information, please contact AußenwirtschaftsCenter Mailand (mailand@wko.at).

Science and technology parks and R&D institutions

AREA SCIENCE PARK - Trieste
Strategic focuses of this science park include digital transformation, industrial development, innovative materials, and circular economy. AREA coordinates the activities of the Digital Innovation Hub Friuli-Venezia Giulia (Industry Platform 4 Friuli Venezia-Giulia - IP4FVG), and it hosts the incubator Innovation Factory, which supports startups, especially in the fields of digitalisation and ICT, culture and creativity, life science and circular economy.

ART-ER Attractiveness Research Territory - Bologna
ART-ER is the consortium promoting industrial research and technology transfer and managing Rete Alta Tecnologia with its 98 laboratories and centres, and EmiliaRomagnaStartUp, collecting startups and innovative SMEs of the region.

Città della Scienza - Naples
Città della Scienza is one of the most important science and technology parks in South Italy.
Moreover, it manages D.RE.A.M. – Design and REsearch in Advanced Manufacturing, a large workshop, training and competence centre focused on new digital manufacturing technologies, computational design, health accessibility and innovation in production and distribution processes.
Città della Scienza together with University of Naples Federico II set up Campania New Steel, the first certified business incubator in the South Italy.

COMONExT - Lomazzo (CO)
COMONExT is a science and technology park, an innovation hub and startup incubator focused on digital transformation and Industry 4.0 technologies. It hosts more than 120 innovative enterprises, of which one third are startups.

Fondazione Bruno Kessler (FBK) - Trento
FBK is one of the main research institutes in Italy and manages 11 centres focused on e.g. digital industry, cybersecurity, sustainable energy and sensors &devices.

Galileo Visionary District - Padova
This science and technology park focuses on design, communication & marketing, innovative materials and acceleration of startups through StartCube. It is the point of reference for the innovative and digital transformation in Veneto and in the North-East Italy.

Italian Institute of Robotics and Intelligence Machines (I-RIM) - Pisa
I-RIM is a no-profit institute, established as an association, that aims at promoting the development and the use of the robotics and intelligent machines technologies in order to improve working conditions and people well-being.

Italian Institute of Technology (IIT) - Genova
IIT is one of the leading research institutes for robotics in the world and it is internationally known as an excellence in bioinspired soft robotics, whose lab is directed by Barbara Mazzolai, one of the worldwide pioneers in the development of soft robots. Its basic and applied research focuses also on Computational Sciences, Nanomaterials and LifeTech.

Kilometro Rosso Science Park - Bergamo
Kilometro Rosso is one of the leading private innovation hubs in Europe focused on various technological sectors, including advanced innovation services, materials, energy & sustainability, engineering, ICT and mechatronics. It

hosts also a campus of University of Bergamo and 48 companies, including Brembo and Italcementi HeidelbergCement Group.

NOI (Nature Of Innovation) Techpark - Bozen
NOI Tech Park focuses its research and technology transfer on green, alpine, food, digital and automotive/automation sectors. It hosts 30 technological and experimental labs, a startup incubator and the subsidiaries of three international research centres, including Fraunhofer-Italia, which conducts applied research for SMEs in the field of automation & mechatronics.

AußenwirtschaftsCenter Mailand (mailand@wko.at) can support Austrian companies by providing them with the most suitable contact names and useful information concerning Italian universities, R&D institutions and science and technology parks.

Industry associations

Industry associations are very important institutions in Italy, as they regularly publish sector statistics, trends, and news. Moreover, they organize initiatives, fairs and events, also with a specific focus on innovation and digital trends. It is usually available on their website the list of company members, which can be useful for Austrian companies looking for Italian customers, suppliers or partners.
A selection of main industry associations related to machinery and digital sectors is listed below.

Name of the association	Sector	Member companies and further information
ANIMA E anima@anima.it	Mechanical engineering industry	It represents more than 1,000 member companies, whose revenues amounted to € 48.7 billion and employing + 221,000 people
Federmacchine T +39 02 26 255 201 E federmacchine@federmacchine.it	Machinery and equipment	
ACIMAC T +39 059 510336 E segreteria@acimac.it	Plant, machinery and equipment for ceramic, heavy clay and refractories industries	Most of the member companies is in the provinces of Modena and Reggio Emilia, where the world's most important ceramic manufacturing cluster is located. Italy holds 50% share of world production. This is also one of the Italian sectors with the highest propensity to export (about 75%).
ACIMALL T +39 02-89210200 E info@acimall.com	Woodworking machinery and tools	Acimall represents 140 member companies It organizes Xylexpo, an international exhibition for woodworking technology and components for the furniture industry which takes place every two years in Fiera Milano Rho.
ACIMGA T +39 02 2481262 E info@acimga.it	Machinery for the graphic, paper and converting industry	Italy is among the top three exporters in the world in this sector with a market share of about 10%. With its 62 members, ACIMGA represents over 60% of the total industry turnover in the sector and 70% of export turnover.

ACIMIT T +39 02 4693611 E info@acimit.it	Textile machinery	Italy is one of the main manufacturers and exporters in the world in this sector, totalizing 2,4 billion euros and employing 12,900 people. ACIMIT members are available at the following LINK.
AMAFOND T +39 02 7750219 E info@amafond.com	Foundry suppliers	Amafond represents 90 companies for a total turnover of 1,45 billion euros.
AMAPLAST Contact details	Plastics and rubber processing machinery and moulds	It represents over 170 companies, publishes the bimonthly technical magazine MACPLAS, and organizes every three years the international exhibitions PLAST and GREENPLAST in Milan.
ASSOMAC T +39 038 178 883 E office@assomac.it	Footwear, leather goods and tanning machines technologies	The 135 associated companies export Italian technology in over 130 countries in the world
CONFINDUSTRIA MARMOMACCHINE – ASSOMARMOMACCHINE T +39 02 315360	Machinery, complete plants, tools and complementary products to quarry and processing natural stones	AssoMarmoMacchine represents over 320 associated companies
FEDERTEC T +39 02 29010411 E federtec@federtec.it	Mechatronics systems and components for fluid power, power transmission, control and smart automation of products and industrial processes	The total turnover of FEDERTEC associated companies is about 12 billion euros and over 60% of national production is exported.
GIMAV T +39 02 33007032 E gimav@gimav.it	Machinery, equipment and special products for glass processing	The total turnover of GIMAV member companies, accounts for approx. 80% of the Italian industry's total turnover and for 77% of the Italian industry's total exports
UCIMA T +39 059 512146 E segreteria@ucima.it	Packaging machinery	The over 100 member companies are mainly located in Emilia Romagna, Lombardy, Veneto and Piedmont
UCIMU-SISTEMI PER PRODURRE W https://www.ucimu.it/en/home/ Contact details	Machine tool, robots, automation systems and ancillary products (NC, tools, components, accessories)	UCIMU has over 200 associate member companies, which account for over 70% of the Made in Italy of the sector. The association organizes every two year the international biennial BI-MU in Milan and is supporting the organization of the world trade show of the sector EMO Milano, which takes place every six years in Milan.

Ascomut T +39 02 7750254/5 E info@ascomut.it	Firms importing and distributing machine tools, tooling, ancillary equipment and accessories, measuring machinery and instruments in Italy	Ascomut members can be searched at the following LINK either by name, by the products and / or by brands that these companies deal with.
AITA T +39 02 26255353	Additive Manufacturing	AITA (Italian Association of Additive Manufacturing) represents the Italian Additive Manufacturing sector (producers of machines, end-users, enabling technologies suppliers, service centres, universities, research centres, etc.). AITA members are listed at this LINK.
AIxIA (Italian association for Artificial Intelligence)	Artificial Intelligence	It has developed a map of ecosystem of Italian companies developing or using AI.
Clusit E info@clusit.it	Cyber Security	Member companies are listed at this LINK.
AIdAM T +39 02 24416431	Mechatronic automation	The over 65 member companies are specialized in the construction of special machinery, robotics, vision systems and intelligent components
ANIE Automazione T +39 02 3264252 E anieautomazione@anie.it	Technologies for factory, process and network automation	The over 100 member companies can be searched by name, by region and /or by product category at this LINK. It is the founding partner of SPS Italia, the industrial automation fair held every year in May in Parma.
ANIPLA T +39 02 39289341 E anipla@anipla.it	Automation	ANIPLA members are multinational companies, associations and universities, including Politecnico di Milano.
Intellimech T +39 035 0690366 E info@intellimech.it	Mechatronics, automation, ICT, robotics	Member companies of Intellimech are both SMEs and large multinational companies, including e.g. ABB, Brembo and Siemens.
Anitec-Assinform T +39 02 0063 28 1 E segreteria@anitec-assinform.it	Information and Communication Technology (ICT), including hardware, software, IoT, Big Data, Cloud, fintech	It represents over 700 companies (about 200 direct members and 500 indirect members).
Assintel T +39 02 7750.231-235 E info@assintel.it	ICT	Assintel is a member of Confcommercio and its associates are listed at the following LINK.
SIRI T +39 02 26255.257 E segreteria@robosiri.it W https://www.robosiri.it/	Robotics and automation	It represents research institutions, universities, manufacturers, integrators, importers operating in the robotics and automation sectors. SIRI is also a member of IFR.

8. Special events and fairs

As establishing close relationship is very important in the Italian business culture, trade shows and fairs are good opportunities to find and meet potential customers, and partners.
Fairs and events with focus on **Industry 4.0 and capital goods industry** are listed below in alphabetical order.

A&T (Automation & Testing)
Location: Turin / Vicenza
Frequency: every year
Industries: testing & metrology, smart manufacturing, smart logistics, additive manufacturing, production control, process control

BI-MU
Location: Milan Rho Fiera
Frequency: every 2 years
Industries: machine tools, robotics, automation, digital and additive manufacturing

EMO Milano
Location: Milan Rho Fiera
Frequency: every 6 years
Industries: metalworking, robotics and automation, tools and auxiliary accessories, mechatronics, additive technologies

Maker Fair Rome – The European Edition
Location: Rome
Frequency: every
Industries: 3D printing, robotics, digital technologies

MECSPE
Location: Parma
Frequency: every year
Industries: machines and tools, treatments and finishes, quality & control, digital factory, Power Drive, automation and robotics, logistics, electronic subcontracting, mechanical subcontracting, additive manufacturing

SPS Italia - Smart Production Solutions
Location: Parma
Frequency: every year
Industries: digital, automation and robotics, electronics, machinery, mechanical

World Manufacturing Forum
Location: Lombardy
Frequency: every year
Industries: latest trends and developments on manufacturing sector

Relevant fairs, conferences and think tanks concerning digital technologies, innovation and startups are listed below in alphabetical order.

Italian Tech Week (tech conference)
Location: Turin
Frequency: every year
Industries: startups, open innovation, digital technologies

SMAU Fair
Location: Milan
Frequency: every year
Industries: startups in ICT and digital, industry 4.0, agrifood, trade and tourism, health, smart communities, open innovation

The European House- Ambrosetti SPA (Think Tank)
Location: Milan
Industries: InnoTech, healthcare, sustainability, industry, digital strategy & transformation, scenarios

We Make Future
Location: Rimini
Frequency: every year
Industries: marketing, digital technologies

AUSSENWIRTSCHAFT AUSTRIA

AUSSENWIRTSCHAFTSCENTER Mailand
Piazza del Duomo, 20
Mailand – Italien
T +39 02 87 90 911
E mailand@wko.at
W wko.at/aussenwirtschaft/it