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DAP
PIEDMONT AEROSPACE CLUSTER

THE AEROSPACE SECTOR IN PIEDMONT

In Piedmont, aerospace is a strategically important sector, where tradition, innovation and expertise are available to major international players through a complete supply chain characterized by know-how, technical capabilities and high-level manufacturing.

Piedmont offers a unique ecosystem and is a strategic hub featuring strong collaboration between institutions, enterprise, academia and scientific research: a complete pipeline of skills and qualifications, high-level manufacturing, process and service companies, unique products and engineering know-how, an excellent education and training system, and a well-organized supply chain.

COMPETITIVE ENVIRONMENT

In recent years, Piedmont has grown to take a central role in the aerospace sector both in Italy and internationally, through an effective strategy that shortens the distances in the production chain between major sector players based in the area, and a nucleus of hundreds of SMEs.

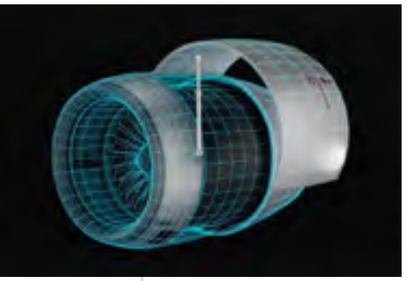
This is the context in which the Piedmont Aerospace Cluster stands, representing a benchmark for SMEs and a connection point with large companies, institutions, research and academia.

It is part of the Piedmont Aerospace Cluster to facilitate the coming together of large companies and SMEs in order to combine synergies to better respond to the challenges put forward by the aerospace sector.

In this competitive environment, the region's big players (**Leonardo, Avio Aero, Thales Alenia Space, Mecaer, Collins Aerospace and Altec**) head up the development and production of avionics and electronic systems, radar, flight simulators, rocket propulsion, scientific satellite systems and space infrastructure, aircraft engines, actuation systems, aircraft, and aircraft sections: their work ranges from civil transport and scientific applications to telecommunications and defense.

The synergy between Piedmont's major companies, SMEs, research centers and the academic world - in particular Politecnico di Torino (technical state University) and University of Turin - makes it possible to constantly train new, highly specialized professionals whose talents contribute to scientific and technological advancement.

Integral to and benefiting from this production chain are not only major enterprises, but also all the SMEs specialized in the production of parts, components, or entire systems for the aviation and space sector.



CHALLENGES / NEW ECONOMY

In the aviation sector, Piedmont has played - and continues to do so - a key role in many international programs, including: Falcon 2000, Eurofighter Typhoon; F-35, GE90, GE9x, Catalyst.

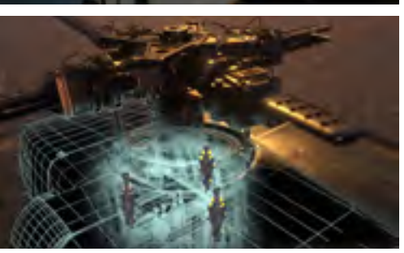
In the space field, new technologies for lunar, Martian and deep space exploration are being developed in Piedmont: more than 50 percent of the habitable modules of the International Space Station (ISS), including the Cygnus/PCM system, originate from this region.

In the near future, Piedmont will lead European companies in the development of the Lunar Gateway, a project sponsored by NASA, ESA, JAXA and CSA, and will play a central role in many programs, including the Artemis mission that will return astronauts to the Moon. After leading ExoMars 2016, Piedmontese industry is working on the upcoming mission to explore Mars.

The Green Deal is driving towards the third era of air transport, with the aim of achieving carbon neutrality in aviation by 2050. The challenge is balancing growth in connectivity, to provide an efficient mobility service to society, with a comprehensive global response to the climate emergency.
Several community initiatives have been introduced or expanded in scope, including the Clean Aviation Joint Undertaking (CAJU), Europe's leading public-private partnership established to develop and demonstrate technological solutions devoted to the goal of climate neutrality.

The carbon-neutrality goals of civil aviation have resulted in the beginning of an important and disruptive new innovation cycle: the future of many Italian companies in the aviation sector, both civil and military, will depend on their ability to contribute to the development of a new aviation paradigm, with non-polluting aircraft, engines, and systems that will dominate the market in the coming decades.

In Piedmont there is a center of excellence for the provision of engineering and logistics services to support operations and utilization of the International Space Station and the development and implementation of planetary exploration missions.



PIEDMONT ECOSYSTEM

The aerospace ecosystem in Piedmont is complemented by post-secondary technical specialization training in mechatronics and aerospace, and formal academia with the University of Turin and Politecnico di Torino. The latter welcomes about 1,650 students annually to the bachelor's degree program in aerospace engineering alone, and nearly 1,100 to the master's degree program.

Rounding out the panorama are more than 40 startups active in the aerospace field, the incubators 2i3t, 13P, Enne3 and the ESA Business Incubation Center Turin (ESA BIC), and accelerators such as the Diana program (NATO's startup accelerator), and Takeoff, the program dedicated to startups developing solutions and services in the aerospace sectors: these are the cornerstones of innovation, and the technological future of the sector in Piedmont.

EXPERTISE

Heritage, technology innovation and specialization are key features of Piedmont's complete aerospace supply chain.

- Human space and robotic exploration
- Space mission operations
- Aircraft Design, Manufacturing & Support
- Aerostructures, components, systems
- Propulsion systems and components
- Interior equipment and furnishing
- Landing systems
- Electrical / electronic components
- Avionics
- Machinery, tools and mechatronics
- Special processes and materials
- Design, analysis, engineering
- UAV/UAS/OPV
- Logistics Support / MRO
- Simulation, testing and certification
- Space systems
- Orbital infrastructures
- Payloads
- Moon/Mars exploration infrastructures
- Scientific Satellites
- Ground systems and equipment

450
companies

35,000
employees

6
international key players

8BN €
renenues

THE NUMBERS

The turnover of the Piedmont aerospace sector is growing: it already stands at around **8 billion** Euros today (for **450** companies in the sector, who employ around **35,000**).

Six international key players: Leonardo, Avio Aero, Collins Aerospace, Mecaer, Thales Alenia Space, Altec.

The entirety, **80%**, of the production of the big players in the space sector goes to the United States, while **85%** of aviation production is purchased by the United States, Europe, Southeast Asia, and the Middle East.

PIEDMONT AEROSPACE CLUSTER

An integrated system of companies, universities, and research centers with technological capabilities and cutting-edge scientific skills. Public entities and trade associations ensure effective coordination of support and promotion policies for the cluster. Since 2005, Piedmont Aerospace Cluster has involved all relevant stakeholders with the aim of enhancing the competitiveness of Piedmont's aerospace industry. It is one of the founders of the National Aerospace Technology Cluster (CTNA), federating Italy's leading aerospace hubs.

Sustainability and green aviation, cybersecurity, space economy, advanced & urban air mobility, Industry 5.0, and Artificial Intelligence: these are some of the topics that represent the challenges which large companies and SMEs in Piedmont know they will face in the years to come. The function of the Piedmont Aerospace Cluster, in addition to creating partnership opportunities between SMEs and large companies, is to bring together the different sectors where innovation is developed: a key element in strengthening the evolution of the ecosystem of technologies, and internationalization processes.

Collaboration leads to envisioning the future product, and stimulating the supply chain to be part of these processes, where all players in the value chain must bring their contributions in order to foster the introduction of new technologies for the future and, no less importantly, attract investment, and stimulate economic development.

OUR MISSIONS

- We guarantee coordination and a long-term vision for public and private investment in technological innovation.
- We provide a united and identifiable collective identity.
- We are the interface with institutions and third parties.
- We share technological scenarios and stimulate the aggregation and development of integrated projects.
- We foster innovation and promote support for research programs, especially towards SMEs.
- We create more value across the supply chain, by strengthening collaboration between different players.
- We support the identification of training needs and requirements, and develop new high-quality curricula.
- We promote participation in national and European projects.

GOVERNANCE

General Assembly

1 REPRESENTATIVE FROM EACH MEMBER

- Approves the operational plan and budget
- Approves the admission of new members

Governing Body

17 REPRESENTATIVES

Drafts the operational plan and budget, and coordinates its implementation

5 representatives from large companies
4 representatives from SMEs
2 representatives from universities
5 representatives from public bodies
1 representative research bodies

NETWORKING

Agreement with regional incubators i3P, Enne3, 2i3T, ESA BIC Turin: Piedmont Aerospace Cluster guarantees FREE membership for the first two years for startups in the incubators.

Partnership with CEIP in the organization of Aerospace & Defense Meetings, the only international business convention for the aerospace and defense industry, held in Turin, and more generally for the internationalization of the regional aerospace system.

Membership of AICQ, an association that spreads the culture of quality in Italy: it offers opportunities for our members to access specific training, events, and knowledge.

Dap is a member of and/or participates in many national and international networks and associations, both directly and through industrial and institutional members of the cluster.

Piedmont Aerospace Cluster, on behalf of the Piedmont Region, is a member of the NEREUS network, and participates in the most important European initiatives, such as ACARE, Sesar, Clean Sky, and ASD. **Piedmont Aerospace Cluster's public ID number in the Transparency Register is: 220569343143-76.**

Piedmont Aerospace Cluster was one of the founders of CTNA, the national aerospace cluster, bringing together all the main players in the national aerospace system: large, medium and small companies, research centers and universities, national institutions, national agencies and platforms, and regional clusters. The CTNA Strategic Plan is in keeping with European aerospace policies, with particular reference to HORIZON 2020.

Piedmont Aerospace Cluster cooperates with regional entities working in the field of innovation, such as the MTCC, Torino City Lab, and innovation clusters.

MEMBERS

SME associates of the Piedmont Aerospace Cluster are active both in the aviation and space sector; many of them are focused not only on the aerospace sector, but also on automotive and mechanical engineering; some of them are part of large international groups, such as Teseo, part of the Eiffage Group, and Altec, which is a public-private company owned by the major European space company, Thales Alenia Space and the Italian Space Agency.

Institutional bodies

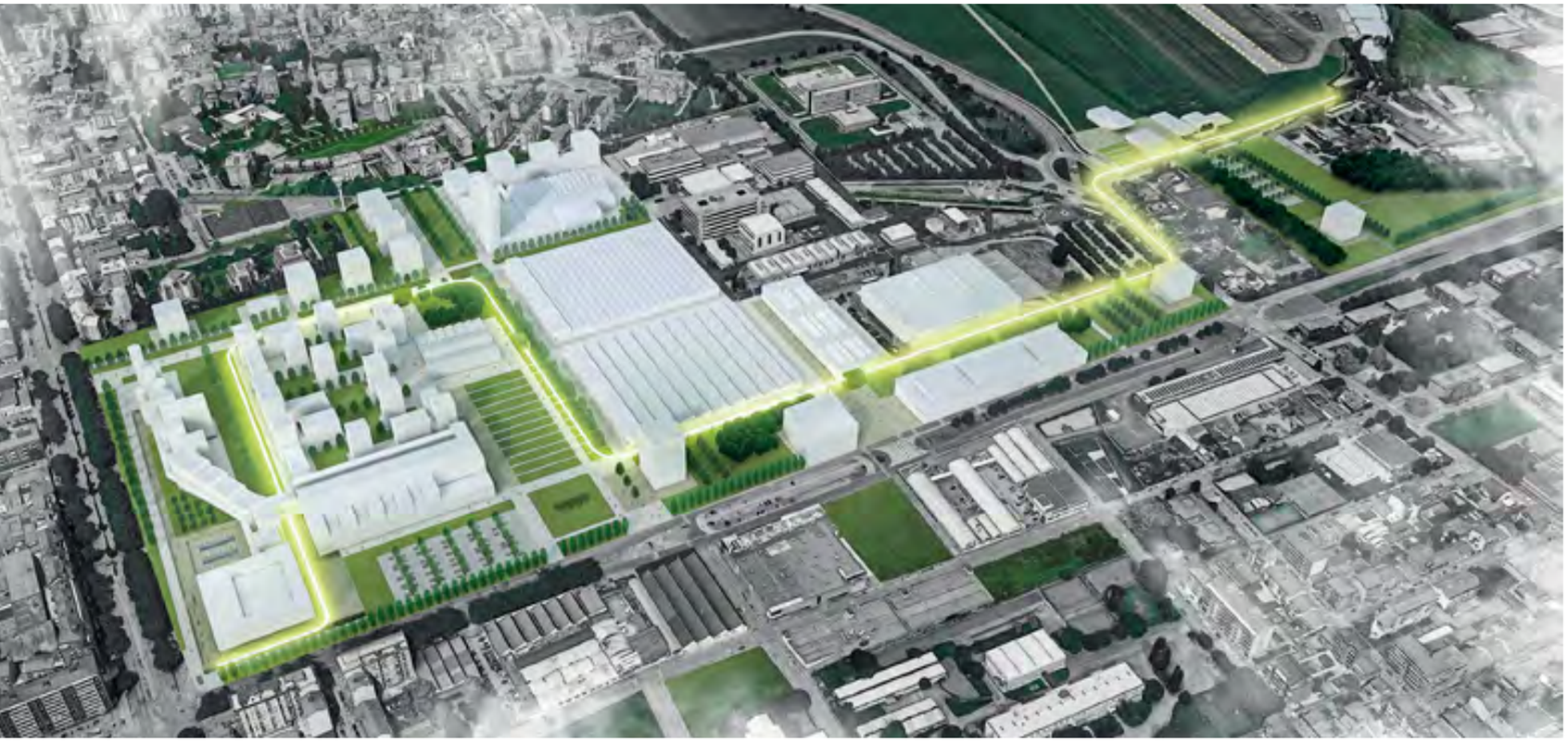
Trade associations

Key players

Large companies

Academy and research centers

Other companies



LA CITTÀ DELL'AEROSPAZIO

AEROSPACE CITY

The Piedmont Aerospace District is actively collaborating in the project for the emerging "Aerospace City" in Turin's Corso Marche, which represents a major urban and industrial redevelopment project entirely dedicated to the aerospace sector, and will be its largest production and R&D center in Italy, designed by Leonardo and Polytechnic University of Turin, and supported by the Piedmont Regional Government and other national and regional institutions.

When completed, Turin will be home to the leading Italian aerospace production center with laboratories, a start-up incubator, and SMEs that will transform an area of over 200,000 square meters near the city center into an international research and development center for hybrid and electric propulsion, human-machine interfaces, and the development of Artificial Intelligence. The initiative consists of twelve independent sub-projects. The first to start will be research and technology transfer laboratories with enterprises, promoted by Polytechnic University of Turin.

Over 10,000 square meters dedicated to activities involving technological development and innovation. This will be followed by the creation of a multi-functional infrastructure totaling over 16,000 square meters to accommodate the establishment of incubators and accelerators, SMEs and high-tech start-ups.

Aerospace City is the result of a partnership between public and private bodies in which 50 percent of investment is earmarked for public and general interest works. More than 4,100 total jobs are planned, including 1,100 new jobs in industrial activities, with about 380 million Euros of R&D investment in the coming years.

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