Campania Aerospace Technological District

A new Network model for the development of the Campania Aerospace Industry
In the Campania economic system, the aerospace industry plays a leading role, both in terms of industrial presence and high technological contents.

The «core» top 30 companies with almost 8,500 employees and a turnover of 1,6 B€, represent a quarter of the national aerospace industry.

The rest of the Supply Chain is made out of more than 150 SME’s which operate in the areas of structure and system design and manufacturing, to aeronautical precision and quality standards.
Campania Region benefits of the presence of academic and scientific institutions with a consolidated know how in the Aerospace field

This translates in a reciprocal **benefits between scientific and industrial bodies** in terms of student education and focusing scientific activities towards industrial needs.

In fact to remain industrially competitive in a global Aerospace market it’s important to pursue continuous technological innovation within the frame of a viable process cost reduction.

The answer to this need is the allocation in the Region of **12%** of the whole budget to R&D activities.
A REGIONAL SYSTEM, NOT A REGIONAL SPACE

The Campania industrial tradition and the presence on the territory of actors of the innovation represented by Universities and Research Centers is not sufficient to further enhance industrial development and to maintain a primary role on the international scenario.

It is necessary that the interactions amongst the different components present on the territory don’t be fragmentary and inconclusive.

This was the rationale to institute the Campania Technological Aerospace District on 30 May 2012 under the auspices of the Italian Ministry of Research.
DAC – THE CAMPANIA TECHNOLOGICAL AEROSPACE DISTRICT

DAC is participated by 159 entities: 22 large industries (as Leonardo, OHB Italia, MBDA Italia, Magnaghi Aeronautica, Geven, Atitech, Telespazio, Vitrociset, ALA, etc.) **18 research organizations** (as CIRA, CNR, ENEA, INAF, Formit, 5 universities), **and 109 SME’s** (most of which grouped into 7 Consortia) and **10 other** kind of organizations

Research funds are focused on strategic projects for Aerospace with an effective fall out on industrial applications.

DAC’s transversal initiative tends to enhance the capabilities of the whole regional network and enhance its visibility with the outside Aerospace world.

DAC is supporting the consolidation of an aerospace education Pole in Campania, finalized to shape profiles and competences which directly meet the Industry needs.
4 different Lists/Sectors are identified in the Aerospace Campania District:

- Commercial Aviation
- General and Business Aviation
- Space and Launchers
- Maintenance, Repair and Operations (MRO)

Enterprises for each DAC sector:
DAC ENTERPRISES AT A GLANCE

Large Enterprises and SMEs for each Sector

Number of enterprises

Commercial Aviation | General and Business Aviation | Space and Launchers | MRO

Large Enterprises | SMEs
## DAC Strategic and Industrial Vision

### “industry and market oriented”

<table>
<thead>
<tr>
<th>Technological Stream</th>
<th>Regional Aircrafts</th>
<th>Business and General Aviation Aircrafts</th>
<th>Mini-Microsatellites and High Speed Systems</th>
<th>Maintenance, Repair and Overhaul</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems Integration</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Structures Integration, Assembly and Maintenance</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Innovative structures</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Interiors and Cabin Systems</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Modelling and Simulation</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Electronic on Board Systems and Payload</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Development of Launch and Re-entry Technologies</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Data Exploitation &amp; Services</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Airworthiness for general light aviation</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Technologies for UAS</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
</tbody>
</table>
TWO PERSPECTIVES FOR GROWTH

VERTICAL ACTIVITIES

Technological Driven Projects

Market & Mgmt Driven Projects

System Growth

HORIZONTAL ACTIVITIES
VERTICAL ACTIVITIES – THE DEFINITION OF PROJECTS

Integrated map of needs (Technology Stream)

From the needs to the strategic programs

- Prioritrary technology needs
- Industrial structure and vision
- Correlation with the research world

Project Leader
#1
#2
#3
#N

DAC
Distretto Aerospaziale
della Campania

From the needs to the strategic programs
To initially implement its vertical role, DAC has defined a strategic plan based on 10 research projects. They were conceived along the main route of research, technological development, and industrial application which the District Associates agreed upon.

<table>
<thead>
<tr>
<th>#</th>
<th>STRATEGIC PROGRAM (RESEARCH, DEVELOPMENT AND EDUCATION)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CAPRI Landing gear with smart (electrical) actuation</td>
</tr>
<tr>
<td>2</td>
<td>CERVIA Methods of virtual certification applied to innovative solutions</td>
</tr>
<tr>
<td>3</td>
<td>FUSIMCO Hybrid Metal/Composite fuselage structures</td>
</tr>
<tr>
<td>4</td>
<td>IMM Multifunctional material Interiors</td>
</tr>
<tr>
<td>5</td>
<td>MAVER Advanced maintenance for regional aircraft</td>
</tr>
<tr>
<td>6</td>
<td>MISTRAL Air-launchable micro-satellite with re-entry capability</td>
</tr>
<tr>
<td>7</td>
<td>SCAVIR Advanced configuration for the development of an innovative regional vehicle</td>
</tr>
<tr>
<td>8</td>
<td>STEP FAR Development of sustainable materials and technologies, robotized drilling, trimming and assembly processes</td>
</tr>
<tr>
<td>9</td>
<td>TABASCO Low cost production technologies and processes for composite structures</td>
</tr>
<tr>
<td>10</td>
<td>TELEMACO Technologies and electronic beam scanning systems within the millimetric band for airborne applications</td>
</tr>
</tbody>
</table>
Industry 4.0 Laboratory
Integrated Health Management Systems
New Generation Smart Interiors
UAV Autonomy and Integration in ATM
Super-hypersonic Business Jets
Innovative Systems for Vertical Take-off
Advanced MRO Technologies
Stratospheric Airship Technologies
Microsatellite with Trajectory-modulated Deployable System
Air Launch Systems for Microsatellites
Earth Observation Sensors and Applications
Nanosatellite-based IOV/IOD
Anti-collision radar sensors for RPAS
### Possible Future Products

<table>
<thead>
<tr>
<th>Regional Aircraft</th>
<th>Business &amp; General Aviation Aircraft (Incl. RPAS)</th>
<th>Micro &amp; Nanosatellites and High Speed Systems</th>
<th>Maintenance, Repair and Overhaul</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Aeronautical Engine Subsystems for Large Passenger Aircraft</th>
<th>Autonomous Flight Systems and Remotely Piloted Vehicles</th>
<th>Systems and Components for Space Propulsion</th>
<th>Space Applications</th>
</tr>
</thead>
</table>

![Regional Aircrafts](image1.png)

![Business & General Aviation Aircraft](image2.png)

![Micro & Nanosatellites and High Speed Systems](image3.png)

![Maintenance, Repair and Overhaul](image4.png)
**Transversal Actions Working Groups**

**Internalisation and relations with other Districts**
- Relations with institutions and cooperations with other Districts;
- Assessment of development topics of international interest;
- Actions for the internationalization and cooperation;
- Know how exchange at international level;

**Professional and High Education**
- Relationships with Education and Research Centres;
- Supporting the competences assessment;
- Valorisation of human resources;
- Publication of research results on international magazines

**Technology Transfer & Communication**
- Agreements on Intellectual Property Rights;
- Management of financial and spin off support;
- Applications for patent issues;
- Management of event and communication campaigns
TRANSVERSAL ACTIONS WORKING GROUPS (CONT’D)

Project & Knowledge Management

- Configuration of project data on a collaborative SW platform (Xmanager);
- Supporting Project Managers in organising and filing project data;
- Management of financial funds and responsibilities;
- Collecting technical and administrative documentation for research proposal filing and project result reporting;
- Preparation of project proposals for co-financing request submittal;
- Planning management by Xmanager;
- Support and assistance for planning, activity progress control and reporting;
- Management of justification document and reports;
- Management of relations with co-financing bodies;
- Coordination and management of the projects both for technical and financial aspects

Dual Use

- Monitoring of potentially dual use technologies;
- Mapping of technological progress for dual use applications;
- Preparation of the documentation suitable to verify and test dual usability
**HORIZONTAL ACTIVITIES – ttm & COMMUNICATION**

Aerospace PARK

1,2 Km - 15 min
HORIZONTAL ACTIVITIES (CONT’D) — TTM & COMMUNICATION

The Welcome Area

Aerospace PARK

The Museum of the Aerospace

The Planetary and the Observatory
The Aviolab Show

- The Aviolab Show was organized by DAC jointly with CIRA to valorise the Campania General Aviation Sector;

- The event was held on CIRA premises in Capua on October 29-30th 2015;

- First of a series of events aiming at offering new opportunities of business to the High Tech Campania excellence;

- The meeting gave the chance to meet and interact with international delegation composed by potential buyers, contractors, partners from 6 countries (i.e. Russia, Ukraine, Kazakhstan, Israel, the UK);
DAC pursues its objectives within a meta-District perspective. In fact it’s one of the founding members of the National Aerospace Technological Cluster (CTNA).

This way the strategic program of DAC is part of a wider system which involves the other Italian Aerospace Districts and the whole Italian Aerospace Industry to coordinate its developments and focus the efforts at national level.

THE META-DISTRICT SCENARIO
HORIZONTAL ACTIVITIES (CONTD)—INTERNATIONALISATION

• EACP Membership which allows sharing of experiences at European and participating to strategic policies of development;

• Maintaining information to Associates relative to International events in the Aerospace field;

• Participating to International Airshows (e.g. Le Bourget, Farnborough, Friedrichshafen);

• Meeting with international aerospace delegation (e.g. Canadian, French, Thai) to favour reciprocal understanding of competences and business opportunities;

• Participation to Aerospace World Congresses (e.g. CEAS, IAC, ICAS, SPHS)
Main European Aerospace Clusters involved:

- **France**
  - Midi Pyrenees
  - Ile-de-France

- **Germany**
  - Hamburg
  - Munich/ Bavaria
  - Niedersachsen Aviation
  - Stuttgart/ Baden-Wuerttemberg

- **United Kingdom**
  - Farnborough Aerospace Consortium
  - Midlands Aerospace Alliance

- **Spain**
  - Hegan

- **Italy**
  - Campania
  - Lazio
  - Lombardia
  - Piemonte
  - Puglia

**DAC is member of EACP, the European Aerospace Cluster Partnership, which fosters sharing experiences and support the implementation of innovative projects and strategic policies of development.**
Within the frame of professional and high education DAC pursues the following objectives:

- To become a reference model for the development of competences in the aerospace sector for the School, the University and the Industry;
- To develop a network on the territory for improving the educational offer;
- To valorise the aeronautical professions promoting training activities within advanced environment of aeronautical production;
- To connect the worlds of the School and Enterprises to disseminate know how, competences and capabilities;
- To promote the introduction in the school of courses on the most advanced technologies (e.g. avionics, composite materials, lean manufacturing)
CONCLUSION

• DAC is acting as a cohesion element amongst Large Enterprises, SME’s, Universities and Research Centres;

• The District was established to favour the development of competitive capabilities within the Campania aerospace industry;

• It supports researches lead by industry, with a concrete industrial fall out in order to efficiently catch market opportunities;

• The District works for enhancing the position of the Campania Aerospace world on an global scenario and is strongly looking for possible international cooperation initiatives in the field of the Aerospace Research
DAC – Campania Aerospace District

The present to design the future