The Aeronautic Sector in Andalusia

Present and Future Trends

July, 2010
Hélice Foundation

- Was created in 2005 at the initiative of the Andalusia Regional Government with the participation of 44 patrons including public institutions and private companies.

- Basic Objective: To promote the development of the aerospace sector in Andalusia supporting not only its patrons but all the agents in the sector.

- Acts as the aeronautic cluster in the region publicly recognized by local and national institutions.

- Nowadays it has 14 patrons (7 institutions, 7 private companies) and an Industrial Assessor Committee (29 companies).

**Main Activities:**

- To facilitate a better knowledge of the aeronautical sector by releasing periodical documents as the magazine “Aeronautica Andaluza” (every 3 months), the annual Statistics of the Sector and the annual Report of Hélice Foundation.
Hélice Foundation : Main Activities

- To reduce the possible weaknesses in the sector facilitating mergers between companies, advising international companies about their possibilities in the region and promoting the institutional support of the Local Government.

- To provide Services to the local companies, with the aid of EADS CASA : Hélicenet Portal and Sapecma.

- To promote the sector abroad, in collaboration with Extenda Regional Agency: International Aeronautic Fairs, Visits of foreign companies o cluster to Andalusia..etc.

- To take part as associated member of National Aeronautic Association (ATECMA/TEDAE) and through them in the European ASD. Member of EACP (European Aerospace Cluster Partnership)

- To collaborate with Universities and Technological Centres as ETC (Knowledge Transfer Entity) recognised by the Local Government or AEI (Innovation Enterprises Association) by the Central Government.

- To promote training courses with local providers and Institutions according to the detected needs in the sector. It also collaborates with the Regional Government for the definition of new ruled formation to provide the market with a better skilled professionals.
ENTERPRISES AND INSTITUTIONS
Andalusian Aeronautic Cluster

CLUSTER DESCRIPTION

Nucleus
Subcontractors
Supporting Institutions

FACTS & FIGURES

Statistics
Present & Future Programs

SUMMARY
Aeronautic sector by provinces

Sevilla 73%
Cádiz 17%
CLUSTER NUCLEUS
NUCLEUS

Total Staff 2,900
Total Turnover 1,053 M€

San Pablo y FAL A400M
Tablada

Airbus Military

Airbus

El Puerto

2,435

465
CLUSTER SUBCONTRACTORS
SUBCONTRACTORS(I)

**Mechanics & Equipment**
- Companies: 40
- Staff: 1578
- Turnover: 141M€

**Assemblies**
- Companies: 11
- Staff: 1980
- Turnover: 144M€

**Composites**
- Companies: 3
- Staff: 163
- Turnover: 13M€

**Electric & Electronic Material**
- Companies: 11
- Staff: 436
- Turnover: 34M€
128 Subcontractors

5886 Total Employment

488M€ Turnover

Engineering & Consulting

Companies: 27
Employment: 585
Turnover: 45M€

General Aviation

Companies: 8
Employment: 424
Turnover: 70M€

Test & Technical Analysis

Companies: 11
Employment: 201
Turnover: 8 M€

Services

Companies: 17
Employment: 519
Turnover: 33 M€
CLUSTER SUPPORTING INSTITUTIONS
FACTS & FIGURES

STATISTICS
Since 2001 Aeronautic turnover in Andalusia grew by 211.3% (1046.2 million euros) and employment has risen by 131.2% (4,986 employees)

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<td>2009</td>
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Total figures: Nucleus + subcontractors
Qualification Personnel Breakdown
total employees 8,786

- 52% Skilled Workers
- 13% Others
- 35% Managers, Engineers & Graduates
Activity Personnel Breakdown

total employees 8.786

- Production: 55%
- Engineering: 21%
- R&D: 4%
- Quality: 9%
- Logistics: 7%
- Commercial: 2%
Employment in Andalusia in 2009 accounted for a 24.7% of the nation’s, in second place behind Madrid.

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<tr>
<th>AUTONOMOUS COMMUNITY</th>
<th>YEAR 2006</th>
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In 2009 Andalusia accounted for a 24.1% of the total turnover of the national aeronautical sector and remained in second place behind Madrid.

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<th>YEAR 2006</th>
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OEMs outsource new workloads
OEMs rely upon subcontracting
Productivity Evolution

Productivity Steady Growth

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<tr>
<th>Year</th>
<th>Nucleus</th>
<th>Auxiliaries</th>
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<tr>
<td>2009</td>
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Programs and opportunities of future:

- A330 MRTT Boom
- UAVs
- Space
- ETC...
EF 2000 Typhoon

Right hand wing: most of the parts are made in Andalusia, machined parts, metal parts, tubing,... More than 300 wings delivered.

Slats (for the whole fleet). Made of SPF between EADS CASA Cadiz and Seville plants.

Wing Fairings

Landing Gear doors

Dass Tip Pod

Main Wing Subassemblies: Leading Edges, Trailing Edges, Main Root Rib, Apex.

1000 L. Tank. More than 400 tanks already delivered.

Moron Air Base: ASTA training center, operations and maintenance
Present and Future Programs

- **C–212, CN235, C295 EADS CASA Light and Medium Transport**

- **C–212**
  Only FAL made in Seville.

- **C–235**
  FAL, Forward Fuselage, Rear Fuselage, Horizontal and Vertical Stabilizers, Rudder and Elevators, Center Wing, Flaps, Ailerons, O.W. Leading Edge, Belly Fairing, Upper Fairing and Engine Cowlings.

- **C–295**
  FAL, Forward Fuselage, Rear Fuselage, Horizontal and Vertical Stabilizers, Rudder and Elevators, Center Wing, Flaps, Ailerons, O.W. Leading Edge, Belly Fairing, Upper Fairing.
C295
Assembly Subcontracting Breakdown

- SACESA
- SACESA
- ICSA
- TAI 235
- OGMA 295
- FIBERTECHNIC
- AEROSUR
- IAe
- AEROSUR
- MTAD
- SK10
- SK3000
- PZL
Present and Future Programs

A400M

- FAL including flight Test and Training Center
- Horizontal Stabilizer
- Vertical Stabilizer (only some parts)
- Elevator
- Engines Nacelles
- Flaps Fairings
A400M MTAD SUBCONTRACTING WORKLOAD

A400M NON RECURRENT
€ 13.5 M

A400M RECURRENT
€ 1 M
Present and Future Programs

• **Airbus Programs**
  - **A320**: Horizontal Stabilizers, Section 18
  - **A330/340**: Horizontal Stabilizer, Elevators, passenger doors, Section 13
  - **A380**: Horizontal Stabilizer, Elevators, Belly Fairing, MLG Doors

• **Other Programs**
  - **B737**: Rudder
  - **B777**: Aileron and Flaperon
  - **B787**: Horiz. Stabilizer Design, F. Torsion Box Panels
  - **Bombardier CRJ700**: Horizontal and Vertical Stabilizers, elevators
  - **Embraer 145**: Engine Cowlings
  - **Embraer ERJ190**: Central Box and winglets
Present and Future Programs

• Future Programs

• **A350**: Horizontal Stabilizer, Elevator, Belly Fairing, Section 19.1

• **A330 MRTT Boom**: Andalusia participates in the 35% of the A330 A/C modification and another 14% in Boom fabrication. Actual Customers: Australia, Saudi Arabia, AEU, UK and possible USA.

• **UAVs**: Andalusia is working hard to obtain the new EADS Centre of Excellence of UAV in Spain.
UAS Capabilities

✓ Technologies validation for manned aircraft (avionics and onboard systems)
✓ Validation of new ATC/ATM techniques
✓ UAS (Unmanned Aircraft Systems) validation
✓ UAS applications: search and rescue, disaster and emergency management, wild fire detection and monitoring, industrial surveillance, terrain mapping...
ATLAS Experimental Flight Center

- Airfield + Airspace
- Light and Tactical UAS (< 650 Kg MTOW)
- Aircraft navigation, guidance and control technologies validation
- UAS regulation and certification
- Accreditation for UAS crew and technical staff
- Unique scenario for research and technology development

Airfield (15 Ha)

- Main runway: 800m x 18m
- Auxiliary grass runway: 400m x 15m
- Control station for mission support
- Separated hangars: offices, workshops
- Logistic and technical support
SCAN UAV
Light surveillance aerial system
• 1-2 kg payload capacity
• 2 h endurance
• Electric engine

VIEWER UAV
Light surveillance aerial system
• 2-4 kg payload capacity
• 2 h endurance
• Electric engine

X-VISION UAV
Medium range surveillance aerial system
• 5-10 kg payload capacity
• 3 h endurance
• Bicilindric two-stroke engine
Summary

- Andalusia enjoys a sustained growth in the aeronautic sector.
- The aim is to maintain this path in the next decade increasing the added value by empowering its engineering workforce.
- Growth should come through the Auxiliary sector. Leading companies rely upon subcontractors to carry out both: new and old programs.
- Strategic Goal is to be considered as a world reference point regarding Military Transport and Mission Aircrafts.
- Strategic Lines for development: New and Composite materials, Training and Simulation, On-board equipment (mission), UAVs, MROs.