New Concepts in Romanian Aeronautical Activities

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- Current capabilities in Romanian aeronautical industry
- R&D capabilities in aeronautics
- Romanian National R&D Program
- Development strategy for 2020
- Romanian Aeronautical Industry Beyond 2020
Romanian aeronautical industry – main characteristics

...Before
- complementary capabilities distributed at national level
- integrated development system – product orientated
- major national interest in both civil and military programs
- centralized allocation of resources

Now ...
- decentralization of all industrial capabilities – privatization
- no major national development program in industry (incl. aeronautics)
- major national interest in acquisition programs (incl. aeronautics)
- major national policies orientated towards EU integration (national R&D Program)
Current Capabilities in Romanian Aeronautical Industry

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Current Capabilities in Romanian Aeronautical Industry

Product development - civil

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Current Capabilities in Romanian Aeronautical Industry

Product development - military

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Current Capabilities in Romanian Aeronautical Industry

R&D INSTITUTES

- INCAS
  Bucharest

- COMOTI
  Bucharest

- S.C. SIMULTEC SA
  Bucharest

- S.C. STRAERO SA
  Bucharest

- S.C. INAV SA
  Bucharest

- CPC A
  Craiova

- S.C. ELAROM SA
  Bucharest

MANUFACTURING UNITS

- S.C. AEROFINA SA
  Bucharest

- S.C. AEROSTAR SA
  Bacau

- S.C. AEROTEN SA
  Bucharest

- S.C. META V SA
  Bucharest

- S.C. ROMAERO SA
  Bucharest

- S.C. AVIOANE SA
  Craiova

- S.C. IAR SA
  Brasov

- S.C. METAV SA
  Bucharest

- S.C. ROMAERO SA
  Bucharest

- S.C. TURBOMECANICA SA
  Bucharest

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Current Capabilities in Romanian Aeronautical Industry

Industrial capabilities - aerostructures

Large subassemblies
- BAE Systems
- Boeing
- Gulfstream

Large components
- Airbus
- Boeing
- Bombardier

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Current Capabilities in Romanian Aeronautical Industry

Industrial capabilities – systems & other

- Engines (license)
- Landing gears
- Actuators and hydraulics
- Wire harnesses and looms
- Turn and mill parts
- Jigs and tooling
Current Capabilities in Romanian Aeronautical Industry

MRO capabilities

- All major civil aircrafts
- Military aircrafts
- Romanian Air Forces

Vendor Approvals and Certificates have also been granted to the Romanian Aeronautical Companies by major well-known aerospace companies:

- Turbomeca (France)
- Rolls-Royce Plc. (United Kingdom)
- Eurocopter (France)
- BAE Systems (United Kingdom)
- Bombardier-Shorts (United Kingdom)
- General Electric Aircraft Systems (USA)
- Boeing (USA)
- Britten-Norman (United Kingdom)
- Stork-Fokker (the Netherlands)
- Raytheon (USA)
- Israel Aircraft International (Israel)
- Airbus (UK)

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R&D capabilities in aeronautics

National R&D establishments

– **INCAS** – National Institute for Aerospace Research “Elie Carafoli”
– **COMOTI** – National R&D Institute for Gas Turbines

New R&D units – *private R&D sector is growing very fast*

- **GECI International**
- **Stork Aerospace/Fokker Romania**
- *other*

Academic R&D units

– University Politehnica Bucharest – Aerospace Dept.
– Military Technical Academy
– Univ. Brasov/Craiova/…
Romanian National R&D Program

Phase 1 – AEROSPATIAL Program

• Started with pilot phase in 1993
  – Continuity of projects, Stability of management and staff for one decade
  – Since 2001, multi-year budget basis (Govt Decision No. 556/2001) as a National R&D Program

• Work Program for 2001-2006
  – Projects 12-36 months
  – Major areas of space and aeronautics included
  – Basic and applied research
  – Technology development
  – Infrastructure (Centers of excellence)
  – International cooperation
  – Open only for national organizations, but gives incentives for international cooperation
  – Stimulates consortia institutes-universities-industry
  – 5 calls for bottom-up projects, 2 for top-down
Romanian National R&D Program

Phase 1 – AEROSPATIAL Program

Romanian National R&D Program

ROSA
AEROSPATIAL Program

Research & Development Units

INCAS
Bucharest

COMOTI
Bucharest

INAV
Bucharest

STRAERO
Bucharest

ELAROM
Bucharest

Manufacturing Units

AEROFINA
Bucharest

AEROSTAR
Bacau

AEROTEH
Bucharest

AVIOANE
Craiova

IAR
Brasov

METAV
Bucharest

ROMAERO
Bucharest

TURBOMECANICA
Bucharest

Universities

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AEROSPATIAL Program – facts and figures

• Number of financed projects:

• Participant organizations (Romanian) : 121

• Professional staff involved: 856 full time equivalent

• Funding:

• Co-financing: 31% - private and public partners

• Actors: R&D institutes, universities, companies, NGO’s, SME’s – public and private
Romanian National R&D Program

Phase 2 – Romanian National R&D Program – PNC2 (2007 ...)

1. Implementation and financing agencies under ANCS coordination

   **ANCS** - Government’s specialized body with the mission to formulate, apply, coordinate, monitor and evaluate R&D and innovation policies, in accordance with the Government Strategy.

   **ANCS – area of responsibilities:**
   - technology transfer and innovation
   - scientific research and technological development;
   - international S&T collaboration;
   - development of research institutions, human resources and infrastructures;
   - diffusion and dissemination of R&D results;
   - public promotion and awareness of RDI activities.

2. Based on “National Strategy for R&D and Innovation for 2007-2013”

   **Strategic objectives:**
   - Promoting the creation and development of S&T knowledge, with view on obtaining high level, internationally competitive, S&T results;
   - Increasing the competitiveness of the Romanian economy, by promoting the diffusion and transfer of S&T knowledge and the innovation processes with strong economic impact;
   - Increasing the quality of life, through the development of S&T solutions with high benefits for society.

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Romanian National R&D Program – PNC2

Programe 1. Human Resources
Increasing the number of researchers and improving their professional performances

Programe 2. Capacities
Development of RDI infrastructures and their better connection and use at national and international level

Programe 3. Ideas
Generation of high level S&T results, contributing to a higher international visibility and recognition for Romanian research

Programe 4. Partnerships in priority RDI fields
Promotion of S&T partnerships leading to innovative technologies, products and services, for solving complex problems in key application areas

Programe 5. Innovation
Promotion of industry-led research, technological development and innovation, based on the absorption of research results, for improving economic competitiveness and the quality of life

Programe 6. Promoting institutional performance
Promoting the continuity and stability of R&D institutions, through the development of their own strategies, in accordance with the National RDI Strategy

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Romanian National R&D Program

Public expenditures during 2000-2010

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Development Strategy in Aeronautics for 2020


Strategic Development Directions

- Extension of the process of redesigning industrial capacities and structures, by developing and encouraging co-operation with well-known foreign partners, backed by the market economy consolidation and the establishment of a competitive environment;

- Restructuring of the under-used capacities by diminishing losses and ensuring substantial productivity;

- Revival and efficient deployment of the national research and technological development potential;

- Increase competitiveness by promoting strategic alliances, holdings, group companies, aiming to include the Romanian Aeronautical Industry in the globalization process, also by developing complex exports.
Development Strategy in Aeronautics for 2020

Industry Action Plan (ver.1 - 2006)


• Access to the programmes financed by the European Community.

• Collaboration based on the R&D programmes included in the National Plan for Research-Development-Innovation

• Maintaining an active “critical mass” of personnel highly qualified in research and technological development

• Extension of the capability of integrating connected areas and of associating complementary capabilities

• Preservation and consolidation of the traditional markets by supplying products/services of high quality, at competitive prices, to customers having a minimum of funds
Some results/outputs

- Pilot project for new regional transportation system (CNTAR)
- Participation in major EU activities (EU FP6/7 and JTI-Clean Sky)
- New partnerships for international cooperation – MoU for HELENA
- Higher international visibility for existing capabilities (EREA, ACARE, ASD, IMG4,..)
Major topics of interest for R&D – industrial interest (OPIAR leadership)

- Smart airframe structures
- New actuation systems
- Advanced materials
- Cost-effective manufacturing processes
- Type certification for civil aeronautics
Development Strategy in Aeronautics for 2020

Clean Sky participation – INCAS Cluster

Following the process of selection of Associate Partners to the JTI “Clean Sky”, INCAS Consortium is part of the following platforms:

- **SFWA** – Smart Fixed Wing Aircraft
- **GRA** – Green Regional Aircraft (in cooperation in CIRA+ consortium)

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Development Strategy in Aeronautics for 2020

CNTAR – Regional Transportation System

SATs in Romania

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Development Strategy in Aeronautics for 2020

CESAR
Cost-Effective Small Aircraft

Central-European Aeronautical Research Initiative

RESTARTS
Raising European Students Awareness in Aeronautical Research Through School-Labs

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Development Strategy in Aeronautics for 2020

Planned future focus of industrial and research activities

- Action plan for full integration in supply chain of Airbus and Boeing for ROMAERO and AEROSTAR Bacau.
- Clever exploitation of existing technologies (mainly metal based components) and developing of new capabilities in composites.
- Extension of MRO activities for both civil and military programs
- International partnership for the development of a regional aircraft, with potential partners in Europe and/or Asia.
- International partnership for a new generation of small aircraft CS-23 (12 pax.), based on AeroTAXI program at national level.
- Stronger integration with new emerging resources for manufacturing in Romanian locations (Fokker, Premium Aerotec, etc.)
- Off-set activities as a result of several public acquisitions

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Romanian Aeronautical Industry Beyond 2020

• New strategy for Romanian aeronautical industry – work in progress, due in 2011

• Strategic partnership in the development of a next generation of regional aircraft

• Full integration of the industrial development strategy with R&D strategy at national level

• Clear progress towards ACARE goals based on a unified action plan supported by a national strategy

• Higher synergy for development of human resources for aeronautical industry

• Higher visibility for existing capabilities and R&D potential
  • AEROSPATIAL conferences (see AEROSPATIAL 2010 at http://www.incas.ro/AEROSPATIAL_2010 )
  • Caius Iacob conferences (see Caius Iacob 2011 )

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Thank you for your attention!