



## ***New Concepts in Romanian Aeronautical Activities***

Catalin NAE

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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

## Current Capabilities in Romanian Aeronautical Industry

### **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





## Current Capabilities in Romanian Aeronautical Industry

### Product development - civil



Aerodays 2011, Madrid, Spain

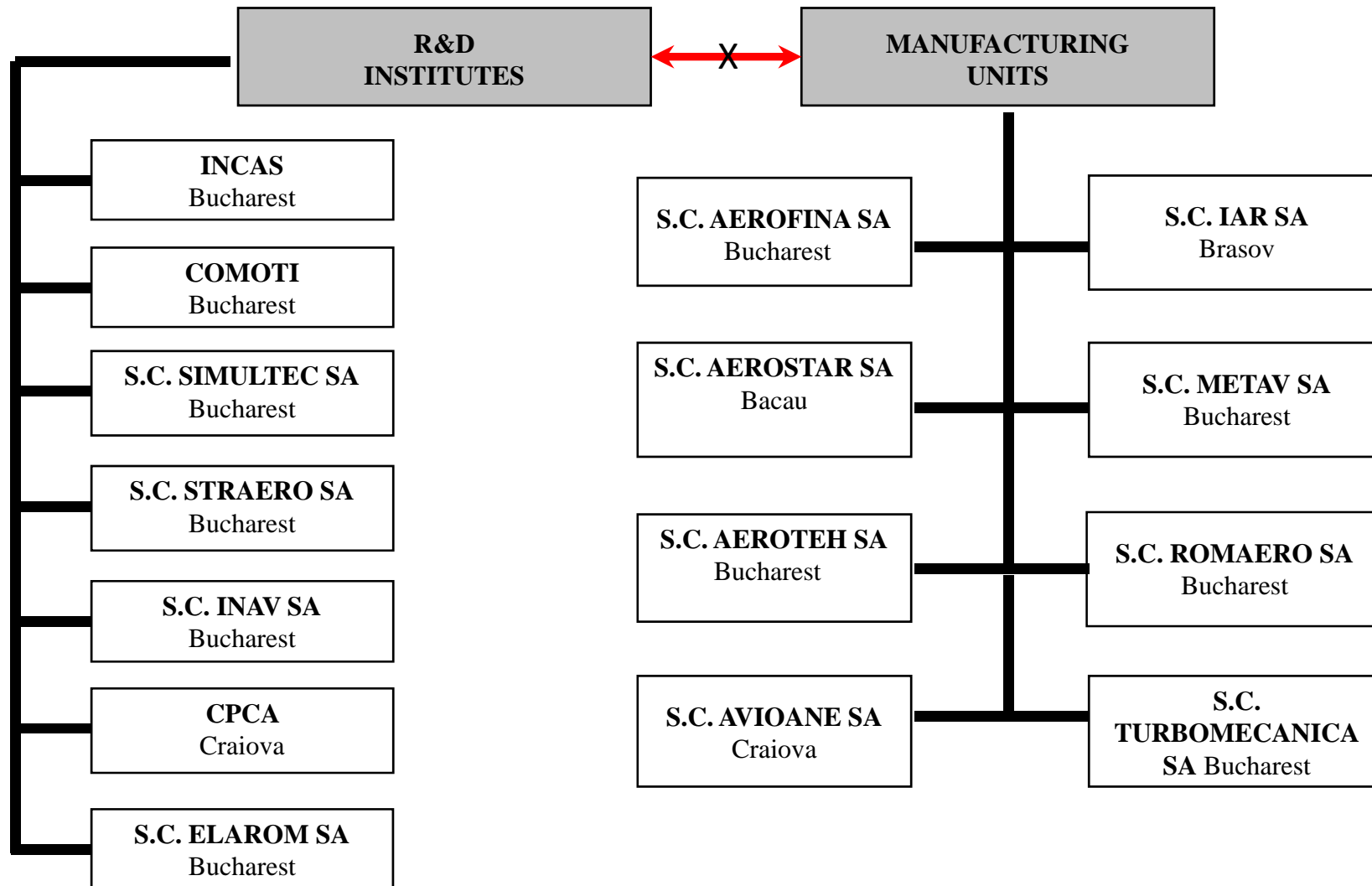
## Current Capabilities in Romanian Aeronautical Industry

### Product development - military



Aerodays 2011, Madrid, Spain

## Current Capabilities in Romanian Aeronautical Industry





## Current Capabilities in Romanian Aeronautical Industry

### Industrial capabilities - aerostructures



#### Large subassemblies

- BAE Systems
- Boeing,
- Gulfstream

#### Large components

- Airbus
- Boeing
- Bombardier

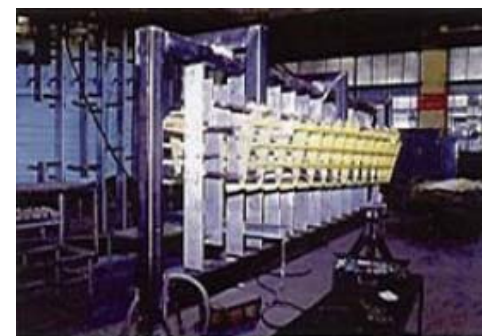
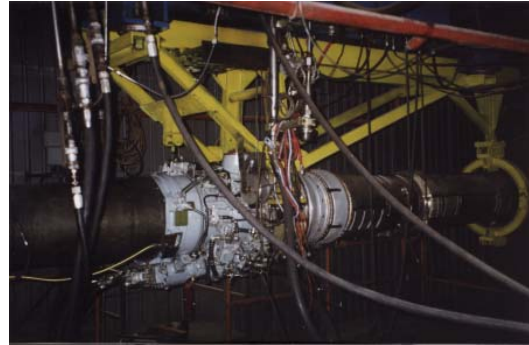




## Current Capabilities in Romanian Aeronautical Industry

### 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)



## R&D capabilities in aeronautics

### National R&D establishments

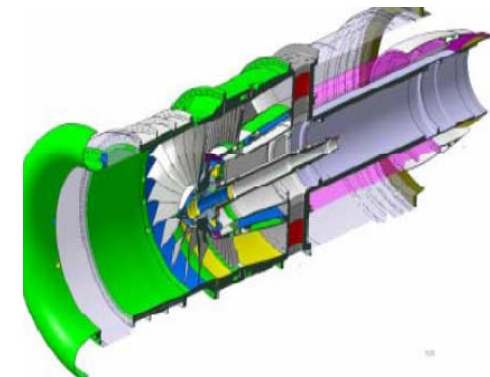
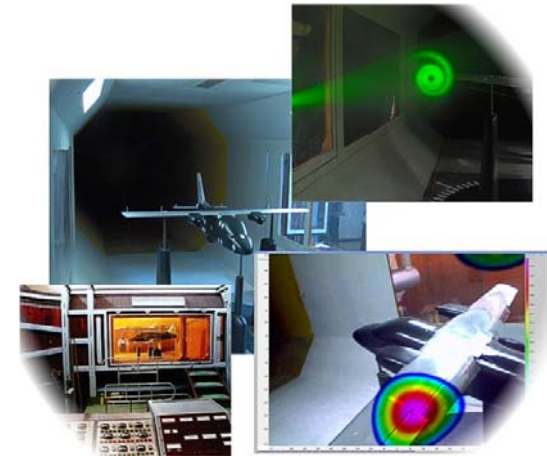
- **INCAS** – National Institute for Aerospace Research “Elie Carafoli”
- **COMOTI** – National R&D Institute for Gas Turbines

### 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

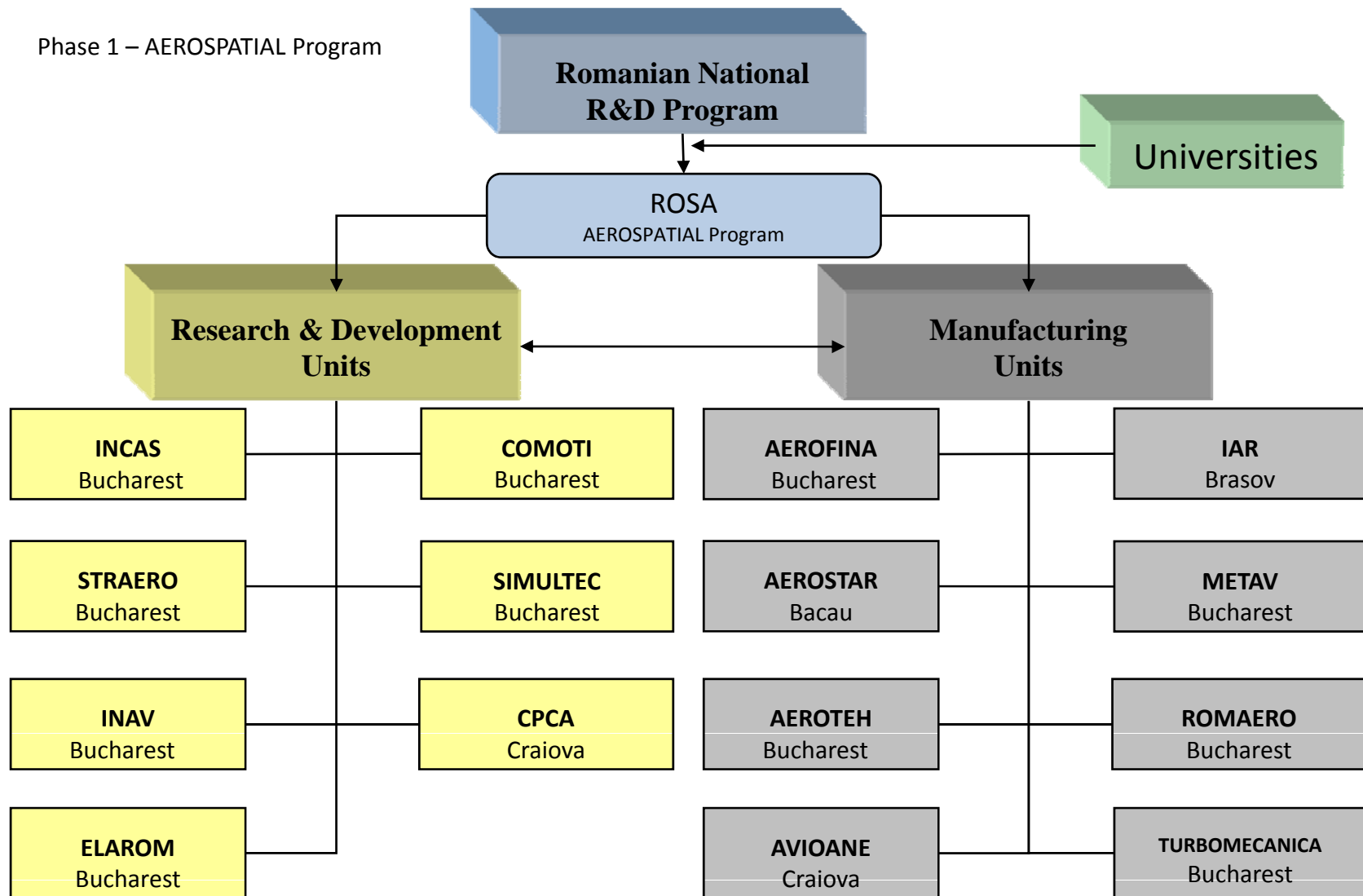
### Phase 1 – AEROSPATIAL Program

- 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



## AEROSPATIAL Program – facts and figures

- Number of financed projects:
  - **359** (39 – 2001, 40 – 2002, 20 – 2003 , 72 - 2004 , 84 - 2005 , 104 - 2006)
- Participant organizations (Romanian) : **121**
- Professional staff involved: 856 full time equivalent
- Funding:
  - Budget engagement limit 2001 – 2006 – **31,25 M€**
- 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.

## Romanian National R&D Program

### Romanian National R&D Program – PNC2

**Programme 1.            *Human Resources***

Increasing the number of researchers and improving their professional performances

**Programme 2.            *Capacities***

Development of RDI infrastructures and their better connection and use at national and international level

**Programme 3.            *Ideas***

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

**Programme 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

**Programme 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

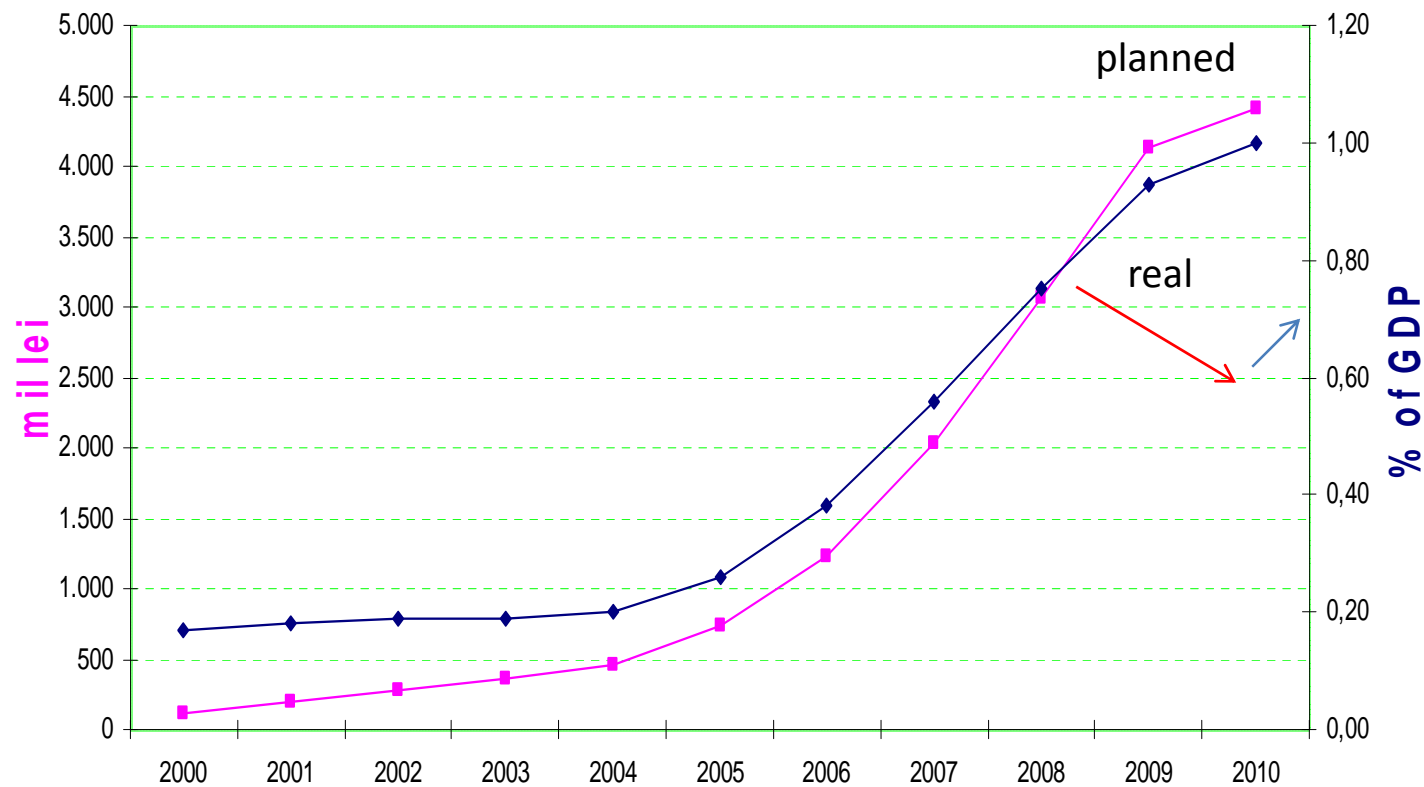
**Programme 6.            *Promoting institutional performance***

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



## Romanian National R&D Program

### *Public expenditures during 2000-2010*



### Romanian Aeronautical Industry – Strategic Agenda 1 (2004)

#### 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.

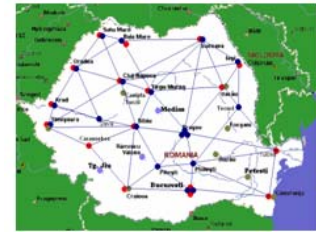
### Industry Action Plan (ver.1 - 2006)

- Implementation of the Sixth Framework Programme of the European Community and ACARE Vision 2020.
- 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

## Development Strategy in Aeronautics for 2020

### 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,..)



## Development Strategy in Aeronautics for 2020

Major topics of interest for R&D – industrial interest (OPIAR leadership)

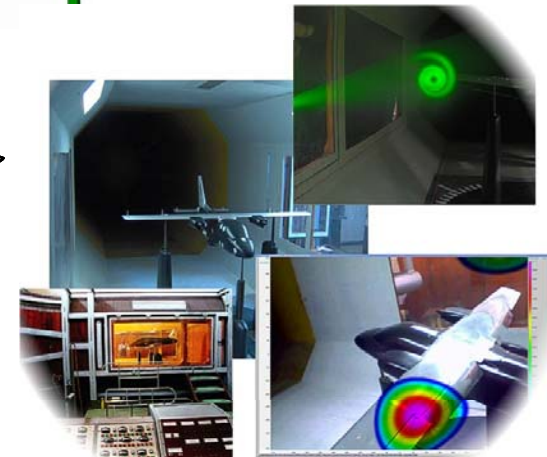
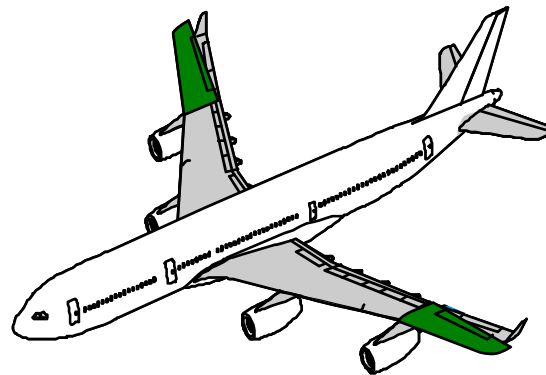
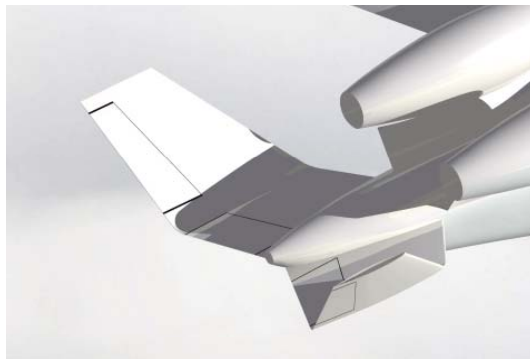
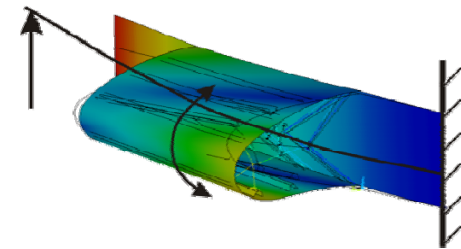
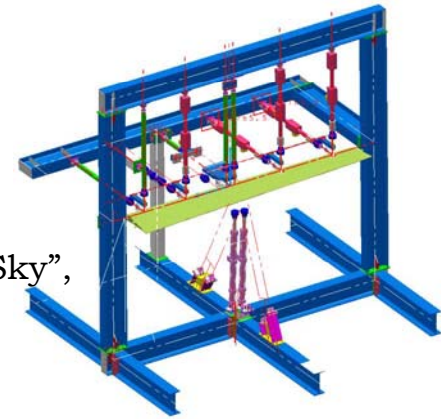
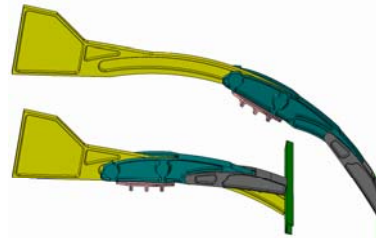
- Smart airframe structures
- New actuation systems
- Advanced materials
- Cost-effective manufacturing processes
- Type certification for civil aeronautics

## Development Strategy in Aeronautics for 2020

### Clean Sky participation – INCAS Cluster

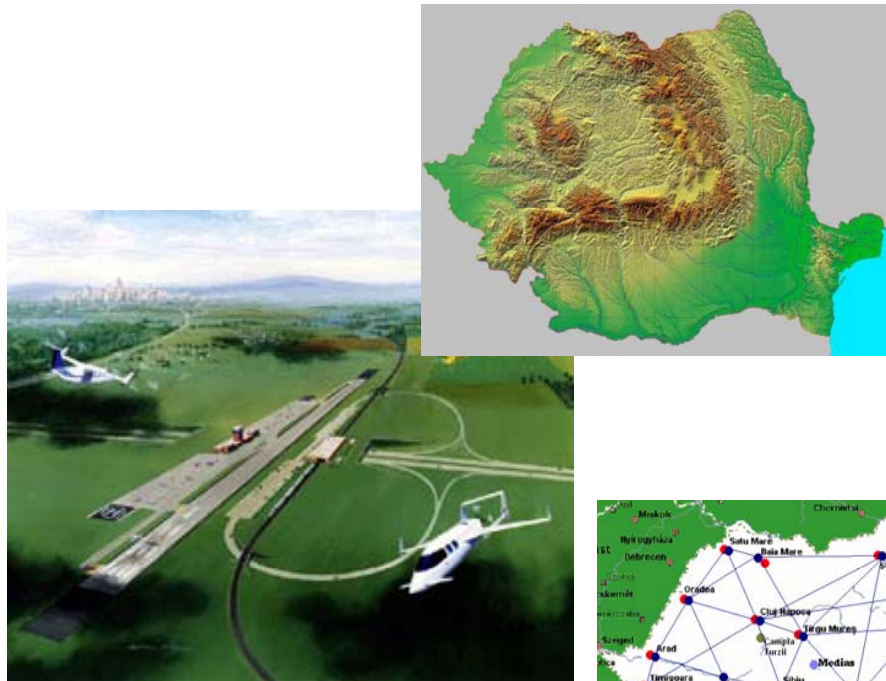
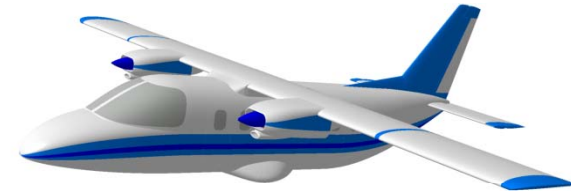
Following the process of selection of Associate Partners to the JTI “Clean Sky”, INCAS Consortium is part of the following platforms:

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

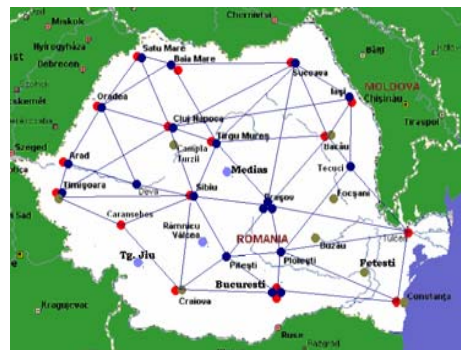


# Development Strategy in Aeronautics for 2020

## CNTAR – Regional Transportation System



## SATS in Romania

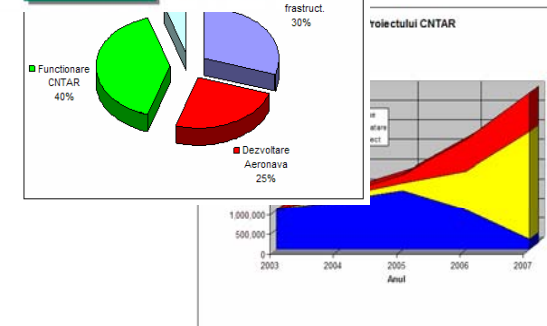
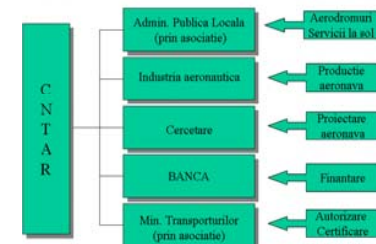


### Compania Nationala de Transport Aerian Regional CNTAR

**AeroNET**  
Door-to-Door  
FreeFlight

**AeroTAXI**  
AeroConcept  
AeroMaster

**AeroSistem**  
Aerodrom  
AeroSupport



Aerodays 2011, Madrid, Spain

## Development Strategy in Aeronautics for 2020



## Development Strategy in Aeronautics for 2020

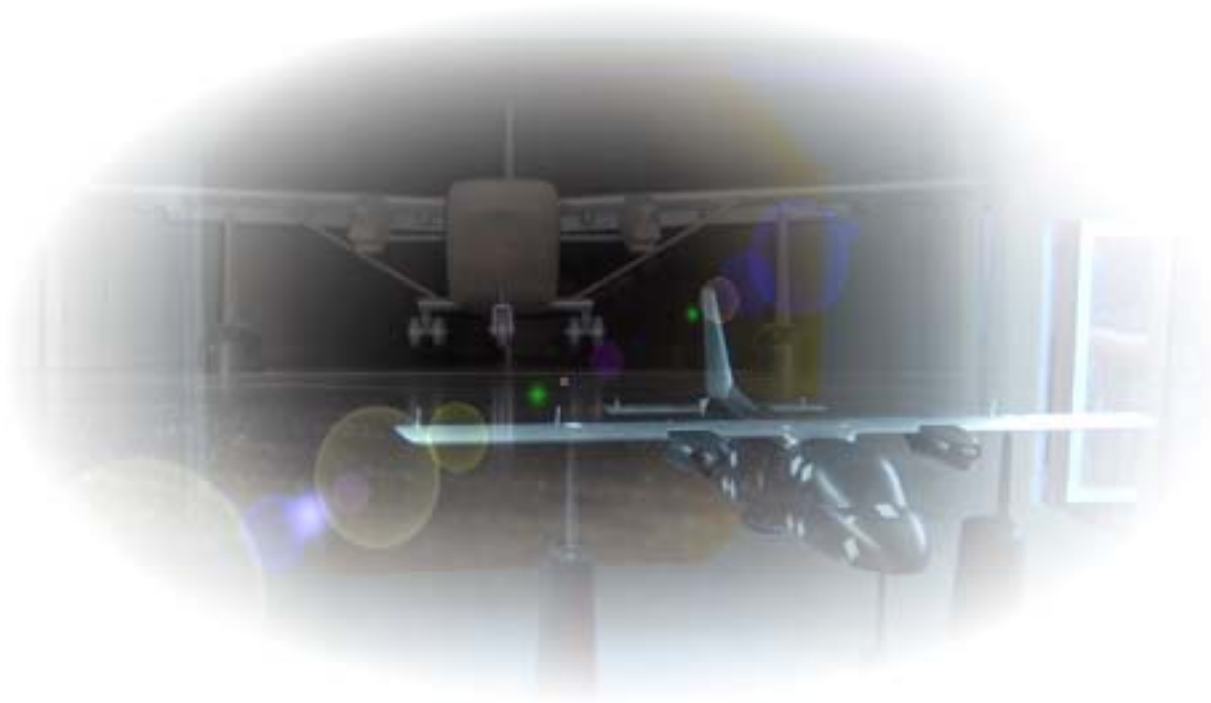
Planned future focus of industrial and research activities

- 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



## 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](http://www.incas.ro/AEROSPATIAL_2010) )
  - Caius Iacob conferences ( see Caius Iacob 2011 )



Thank you for your attention!