



## Research infrastructures needs in aeronautics

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## ACARE

- **ACARE (Advisory Council for Aeronautics Research in Europe):**
  - Involves authoritative, senior figures from aeronautics stakeholders, Member States and the Commission to build consensus in favor of strategic actions
  - Elaborated its 2nd Strategic Research Agenda SRA-2 presented in March 05 to the Commission and Member States
- **SRA-2 consists of:**
  - Technical Agenda (High Level Target Concepts)
  - Institutional Agenda (Strategic enablers)

To fulfil the Top Level Objectives of "**Vision 2020**" (GoP Report of January 2001 ) in terms of Quality and Affordability, Safety, Environment & Security of the European Air Transport System.

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## Research infrastructures in the aeronautical sector

- Testing of hardware combined with simulation processes will remain an integral part of **industrial aeronautics product development**.
- Large infrastructures for experimental testing and verification are also mandatory in **aeronautics research programs** (e.g. EU projects).
- Simulation tools play an increasingly important role and require an adequate set of infrastructures as well.
- Associated engineering and scientific know-how is absolutely mandatory.
- **World-class and efficient research infrastructures are a key enabler of the aeronautics sector to meet the top level objectives.**
- A cross-stakeholder group has been created in order to define a coherent, harmonized and strategy-led approach to better use, major upgrade and development of aeronautical research infrastructures in the EU

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## Role in the aircraft development process

Major facilities are needed for basic research as well for large scale validation:

- Ground testing facilities
- Large numerical simulation facilities
- Flying test beds (considered as research platforms)

In the field of:

- Flight physics
- Aero-structures
- Propulsion
- Flight mechanics - Performances
- Air Traffic Management / Air Traffic Control / Human Factors

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## Examples of use



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## Some facts

- Major aeronautical facilities funded by national governments in the 50' & 60' to fulfil national needs,
- Today they represent a tremendous asset (hardware and know-how) for basic research as well for supporting the competitiveness of European industry,
- It is worthwhile to note that such 'aeronautical' research infrastructures are likely to play an increasing role in other fields like Space, Environment, Security research,
- To sustain, re-new / upgrade or replace these facilities is an enormous challenge.

We need to deploy not only all available instruments we know but certainly some innovative ones as well.

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## The ACARE group on research infrastructures will...

- Point out the specificities and particular role of aeronautical infrastructures in their environment (upstream research and industrial developments).
- Characterize the economical and scientific models / rules under which these infrastructures have to be operated. Compare with other models (USA, Russia in particular). Examine the particular case of NMS.
- Identify key challenges that will have to be faced by the facility operators at the 2020 horizon in terms of maintenance/ closing / creation of infrastructures.
- Establish a relation between these key challenges and the ACARE/SRA-2 challenges.
- Provide elements of a strategy with respect to current initiatives at national, intergovernmental or EU level in order to secure the position of these infrastructures.



## Concluding remarks (1)

### In order to:

- Reach the scientific, technical and societal challenges of its Strategic Research Agenda
- Sustain its industrial competitiveness

### The aeronautical sector:

- Needs some new infrastructures in areas of emerging demands / interest
- Needs major upgrades (including extension of capacities) of existing facilities to match new requirements



## Concluding remarks (2)

### ACARE:

- Welcomes the initiative of the EU and ESFRI to integrate the need of Technology Platforms in terms of research infrastructures
- Is willing to contribute to the global reflection on infrastructures
- Looks forward to a more efficient coordination between EU, multi-national, national and regional initiatives.
- Is ready to establish a dialogue with ESFRI or any other grouping in charge of that topic.
- Is well structured and can produce projects having a European dimension (including NMS) and representing the interests of the entire European aeronautical community (Academia, RE, End-Users).

<http://www.acare4europe.org>