

**Research Infrastructures:
Key points on testing Infrastructures to preserve the
European leadership in aeronautics**

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*Workshop on Aviation Research Infrastructures in Europe
Monday, 25th Feb. – Tuesday, 26th Feb. 2013*





AirTN

Air Transport Net



**AirTN, a project to improve the research infrastructure for aeronautics in Europe
Elaboration of a useful tool**



Aims of the AirTN-FP7 Task on Research Infrastructures (Partners : ONERA CIRA, DLR, NLR):

- To contribute to the improvement of the optimal use, major upgrade and development of aeronautical research infrastructures in Europe.
- To support the identification of needs for new Research Infrastructures in Europe.

Catalogue of Strategic, Key and Common facilities (civil):

- Based on the ACARE typology:
 - Strategic facilities : > 100M€ investments; operating budget as high as 10M€/year and less than 10 in Europe.
 - Key facilities : > 10M€ investments; tariffs on full operating costs – unique character and less than 100 in Europe.
 - Common facilities : < 10M€ investments; medium or small size capabilities and basic tools.
- Available in the AirTN website as a tool for the stakeholders.



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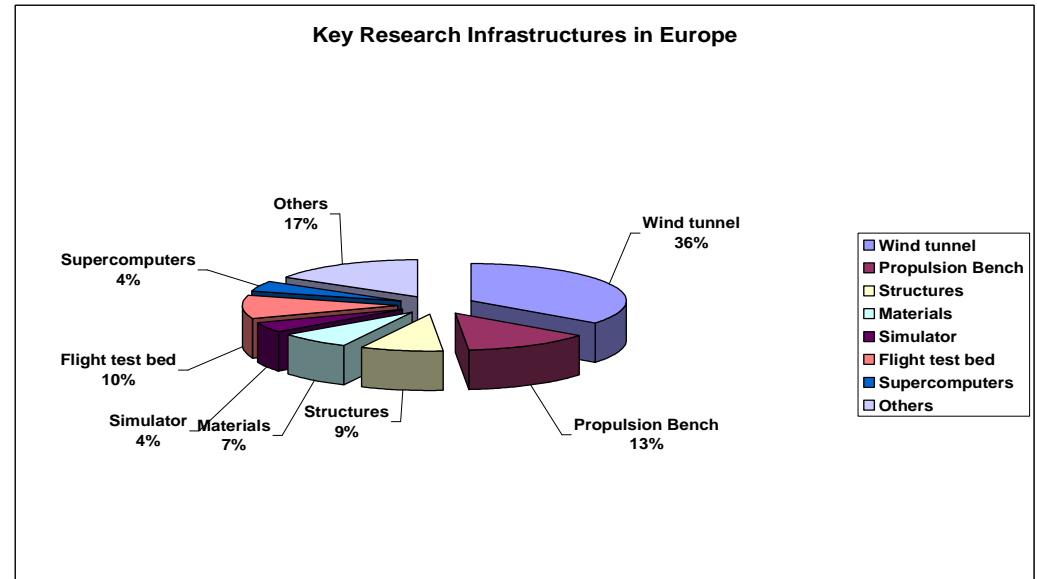
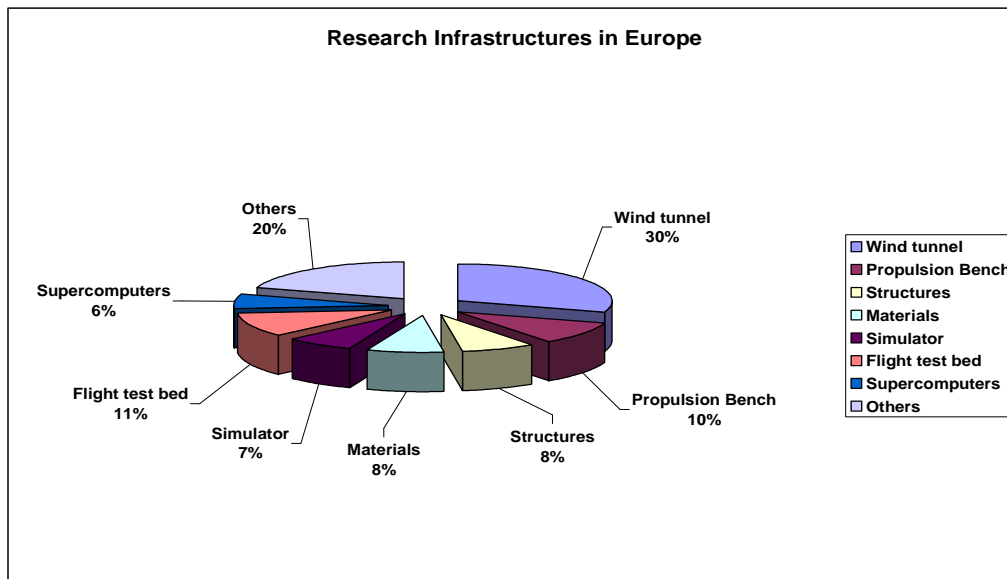
The Research Infrastructures catalogue:

- is a key tool to identify and to list the major aeronautics **research** facilities in Europe.
- presents some limits:
 - not an exhaustive list (inputs are collected via a questionnaire)
 - limited to **research** infrastructures → need to enlarge the type of infrastructures listed in the database (evaluation, military, ...)
- In conclusion, the present Research Infrastructures Catalogue is **the first step** to identify the essential capabilities in aeronautics in Europe and is a tool to identify precisely the shortfalls for meeting the aerospace community present and future requirements.



The catalogue (updated version : 15 January 2013):

- 8 Infrastructure types : Wind tunnel, Propulsion Bench, Structures, Materials, Simulator, Flight test bed, Supercomputers, Others.
- From the questionnaire responses:
 - Number of answers: 190
 - Number of countries: 12
 - Number of Strategic facilities: 9 (7 WT, 2 Structures)
 - Number of Key facilities: 68



Conclusions and perspectives

- Actions are identified and planned for short term:
 - To maintain the AirTN catalogue
 - To work on e-infrastructures (AirTN NextGen)
 - To take into account the IEG criteria
- AirTN catalogue points out that the largest part of Research Infrastructures is the **Wind tunnel category** → Different actions were launched:
 - Major European Aeronautical Industries established a "core" WT list
 - IEG identified strategic WT

Conclusions and perspectives

- The work performed by the IEG shall serve as a guideline
 - They came up with a list of WT's complementing each other. We shall have a coherent suite of facilities in Europe forming an adequate portfolio
 - This report is creating a “clear” situation in our domain of expertise, with converging positions from industry, research establishments, experts.

Conclusions and perspectives

- Industry has created a momentum with its letter from early 2012:
 - Utilization was the main evaluation criteria.
 - A partial answer was provided, in the framework of the scenario described by the industry, by ARA, RUAG and ONERA. Figures given in the answer can be extrapolated to the full scenario indicated by industry.
- The European response in the WT domain shall be sized to meet expectations, similar to the American Congress support to the request from ATP, or to the support from the Chinese government to its WTs.

Conclusions and perspectives

- What the European WT's operators are claiming:
 - Support for fulfilling our duties
 - Have WT's **available**
 - Have WT's **relevant**
 - Have WT's **in phase** with the very long development cycles of the aeronautical industry (10 to 20 years)
- An overall European Strategy is needed:
 - Need for a clear European direction for supporting the operation of European facilities/assets in an efficient and cost-effective manner.
 - If Europe wants to compete with the rest of the world there must be a focus on the “big stuff”



ESWIRP, a project to improve the research infrastructure for aeronautics in Europe

ESWIRP « European Strategic Wind tunnels Improved Research Potential »
FP7 – call “infrastructures”

Partners: ONERA DNW ETW

Wind Tunnels concerned: S1MA LLF ETW

Coordinator: ONERA

Starting date: 1 October 2009

Duration: Four years



ESWIRP objectives :



- Improve already existing links between the 3 WT operators.
- Improve the performance capabilities of three strategic facilities;
- Provide trans national access (TNA) to major infrastructures, essentially used by industry, for the benefit of the academic community;

ESWIP : lessons learned (1/2)



DNW



ONERA



ETW

The three strategic facilities have different, but coherent upgrade investment policies within ESWIRP

Existing major wind tunnels constitute a major asset, which places Europe in an excellent situation and provide essential RDT&E capabilities to the aerospace community. They are used by research and industry to perform research work spanning from fundamental to applied research close to the final product.

ESWIP : lessons learned (2/2)

- ESWIRP has demonstrated the feasibility of having WT operators working within an harmonized and single funding.
- The support received in the FP7 through the ESWIRP project, is the recognition by Europe that wind tunnels must receive special consideration. This support could not have been achieved under any other national or trans-national financing scheme.
- The support to the European wind tunnels shall be continued in Horizon2020.
- The support shall be expand, but at a different scale and not limited to access support, compared to what has been done within ESWIRP.



Thank you for your attention