The Italian National Programme for Aeronautics
Outline

• Turning the ACARE approach into practice

• ACARE-Italia
  o Structure
  o Objectives
  o Status of the Activities

• Italian Vision

• Italian SRA

• Conclusions
ACARE-Italia

Turning the ACARE approach into practice

European Commission

Engagement

National Vision

Quality & Affordability
Environment
Safety
ATS Efficiency
Security
Dual Applications

National SRA

PNRA – R&T

Enabling Conditions

Observation Platform

National TLO

ACARE

National Scenario

National Vision

Engagement

Feedback

European Commission

Commission
ACARE-Italia : Structure

- Italian stakeholders, under AIAD coordination, created ACARE-Italia.

- In the Board, chaired by Finmeccanica, representatives from:
  - **Industries** (AgustaWestland, Alenia Aeronautica, Avio, Elettronica, Galileo Avionica, Finmeccanica, Microtecnica, Selex Comms, Selex Sistemi Integrati, ...)
  - **Research Centers** (CIRA, CSM, ...)
  - **Academia** (through representatives - CRUI)
  - **Regulators** (ENAC)
  - **Governmental Bodies** (ASI, MIUR, ...)
  - **European Bodies** (ACARE, ASD-IMGs, EREA-ARG)
  - **National Industrial Associations** (AIAD, Confindustria)
ACARE-Italia : Structure

Chairman

Board (20 members)

ACARE-Italia Structure

Strategy Communication

Implementation Monitoring

Vision - WG

SRA - WG

Coordination

Data and Needs

National Aeronautical Sectors

Fixed Wing

Rotorcraft

Engines

On Board Systems & Com.

ATM

Defence Systems
ACARE-Italia : Objectives

- Adopt the ACARE approach and turn SRA1 and SRA2 into practice at a National level.

- Define a holistic approach to allow the coordination of the Italian R&TD efforts accordingly to the European scenario.

- Provide a National “VISION”, based on “Vision 2020” challenges, which takes into account specific needs of the Italian aeronautical sector.

- Provide a National SRA defining a technology roadmap and the enabling conditions.

- Advice Ministries to define a specific National R&TD Programme for Aeronautics.

- Monitor the development of the National SRA.
ACARE-Italia: Status of Activities

National Vision
- Quality & Affordability
- Environment
- Safety
- ATS Efficiency
- Security
- Dual Applications

National SRA
- PNRA – R&TD
- Enabling Conditions
- Observation Platform
- Attainment of National TLO

ACARE-Italia provided
- National Vision

ACARE-Italia will advice + monitor
- PNRA – R&TD

ACARE-Italia will advice and monitor
- Enabling Conditions

ACARE-Italia will set-up
- Observation Platform

ACARE-Italia: Status of Activities

ACARE-Italia

Aeronautics Days

Vienna 19 -21 June 2006
Italian VISION

National Scenario HL Objectives

Challenges

- Quality & Affordability
- Environment
- Safety
- ATS Efficiency
- Security
- Dual Applications

Sectors

- Aircraft
- Rotorcraft
- Engines
- ATM
- Defence Systems

Specific Objectives

- Recommendations for Practical Implementation
- Expected Benefits HL Objectives vs. Challenges
ITALIAN VISION

NATIONAL HIGH LEVEL OBJECTIVES

- Increase competitiveness, positioning and occupational levels of the aeronautical sector.
- Consolidate and extend *leadership* in areas of excellence.
- Increase R&TD activities and widen the *High-Tech* fall-out.
- Improve the quality of the R&TD National system and involve all relevant players.
Italian VISION: Specific Objectives

FIXED WING AIRCRAFT

- Keep up state of the art for the following capabilities: design the complete aircraft; perform aircraft system integration.

- Push beyond state of the art the engineering capabilities for aerostructures in order to achieve innovative products and materials.

- Develop, validate and integrate technologies for autonomous flight.

- Achieve a primary role for military transport and trainers.
Italian VISION: Specific Objectives

ROTORCRAFT

• Keep up competitiveness in the world wide market for light class helicopters.

• Sustain leadership and co-leadership in the world wide market for medium class helicopters.

• Create a market for tilt-rotor type of aircraft.

• Participate to joint ventures for the development of heavy class helicopters.

• Develop capabilities to design and produce unmanned VTOL to be integrated in civil and dual application systems.
Italian VISION: Specific Objectives

PROPULSION

- Keep up state of the art in the field of transmissions, turbines and burners, space boosters and mechanical electronics.

- Develop smart technologies: sensors and intelligent monitoring systems with prognostic capabilities.

- Develop innovative propulsion systems: highly efficient, high specific power, low environmental impact, low operational cost.

- Develop design capabilities and tools to increase competitiveness and security, and to reduce development costs.
Italian VISION: Specific Objectives

**ON BOARD SYSTEMS and COMMUNICATIONS**

- Increase design and production capabilities in the following areas:
  - Avionics and on board systems: all weather operations, zero maintenance.
  - Communications: secure networks, interoperability, network centric communications.
  - Dual systems: electro-optical technologies, Laser systems (countermeasures, warnings, telemetry), guidance and control technologies,…
  - Sensors and systems: data acquisition, surveillance and situation awareness.
Italian VISION: Specific Objectives

ATM and AIRPORTS

• Sustain leadership for surveillance systems in ATM.

• Increase competitiveness of ATM systems based on highly automation, open architecture, advanced interoperability, SWIM&CDM.

• Support the development of new on board systems for cooperative ATM and More-Autonomous Aircraft concepts.

• Support the development of new digital comm. systems for innovative CNS/ATM.

• Develop innovative technologies to increase airport and aircraft security.
Italian SRA

Specific Objectives from Italian Vision

Technological Objectives and Developments
- Aircraft
- Rotorcraft
- Engines
- On Board Comm. & Systems
- ATM
- Dual Applications

Technology Roadmap
- Enabling Technologies
- Demonstrators
- Mapping Tech.s to SRA
- Maturity levels
- Priorities

Enabling Conditions
- Facilities and Infrastructures
- Education
- Funding
- Time Frame of Actions

Expected Benefits

ACARE-Italia

Aeronautics Days Vienna 19 - 21 June 2006
Italian SRA: Enabling Technologies

Adoption of ACARE Taxonomy
Mapping to SRA
National Technological Solutions
Sector leading developments

Relevance to Technological Objectives

<table>
<thead>
<tr>
<th>Taxonomy Area and Domain</th>
<th>Technology from SRA-2</th>
<th>Technology for SRA-Italy</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>Objective 1</th>
<th>Objective 2</th>
<th>Objective 3</th>
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Aeronautics Days Vienna 19 -21 June 2006
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<th>Research Intensity to achieve Specific Objectives</th>
<th>FIXED WING</th>
<th>ROTORCRAFT</th>
<th>PROPULSION</th>
<th>ON BOARD SYSTEMS AND COMM.</th>
<th>ATM</th>
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# Italian SRA

ACARE-Italia

## CHALLENGES

<table>
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<th>SPECIFIC OBJECTIVES</th>
<th>COMPETITIVENESS</th>
<th>ENVIRONMENT</th>
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<th>ATS EFFICIENCY</th>
<th>SECURITY</th>
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## EXPECTED BENEFITS (Example for one Sector)
Italian SRA

ENABLING CONDITIONS

- Disseminate the national strategy for aeronautics.
- Optimise the use of resources.
- Create a system of infrastructures.
- Create a new generation of researchers through a proactive interaction with National Universities.
- Invest into R&TD to increase competitiveness.
CONCLUSIONS

- ACARE-Italia has adopted the European approach and is turning SRAs into actions.
- National “VISION” and “SRA” have been prepared to allow the coordination of the Italian R&TD efforts accordingly to the European scenario.
- In the Italian SRA a technology Roadmap and the enabling conditions are delivered.
- National workshops to disseminate European and National SRAs are being promoted.