

The European way for aeronautics

« from the Strategic Research Agendas
to collaborative research programmes and projects »

Aero-Ukraine Workshop

Zaporozhye

05 October 2010

***Ukrainian – EU cooperation in aircraft
engine manufacturing***

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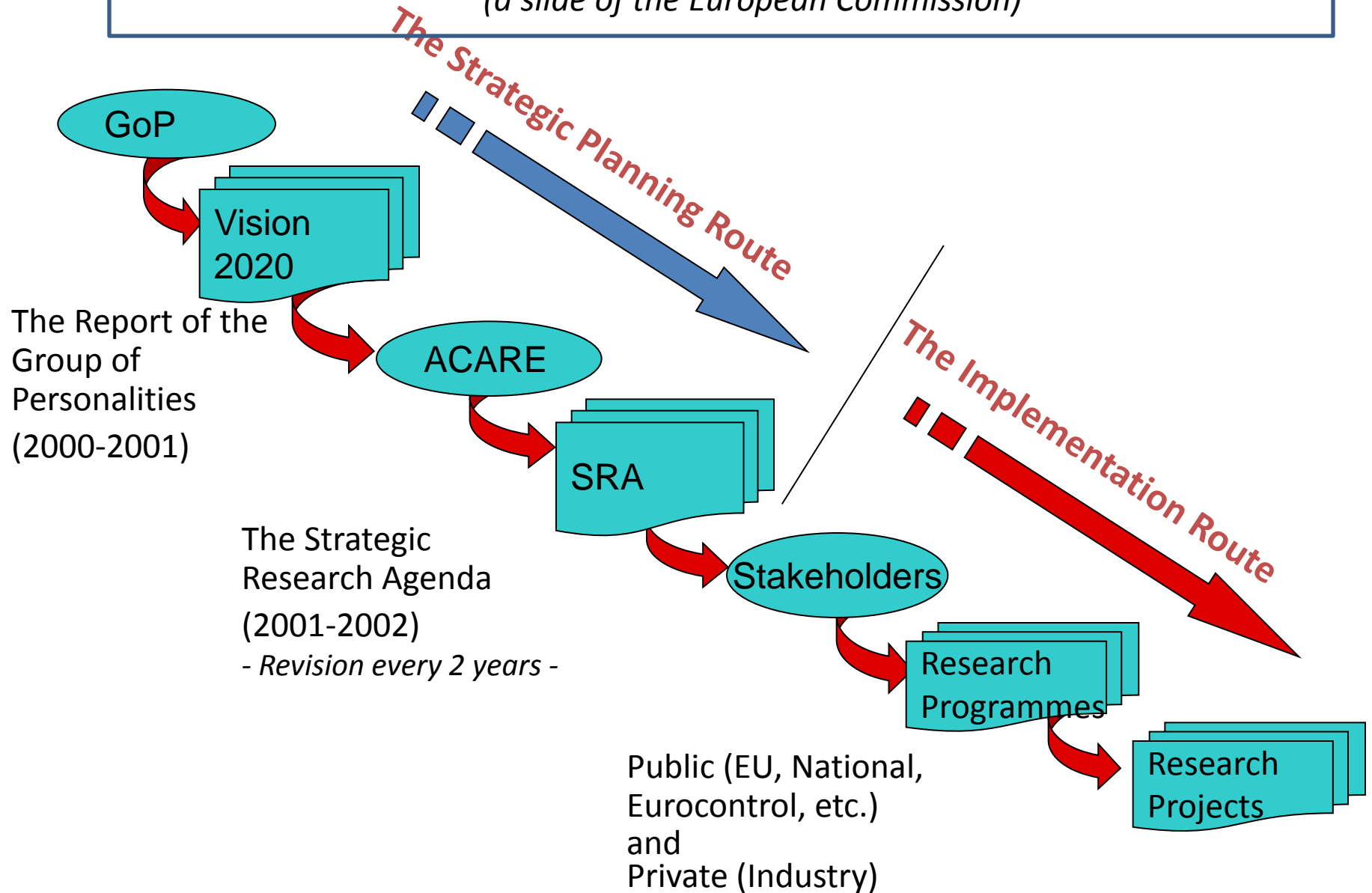
Conclusive remarks for a closer Ukraine-EU aero-engine cooperation

The European way for aeronautics

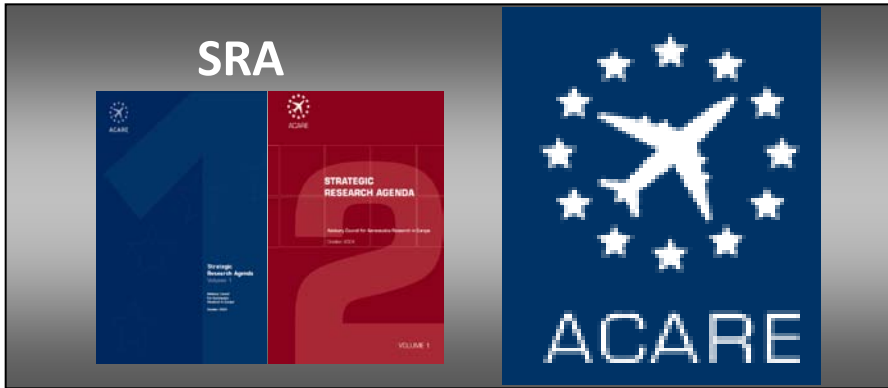
« from the Strategic Research Agenda to collaborative research programmes and projects »

the way to European research projects

(a slide of the European Commission)

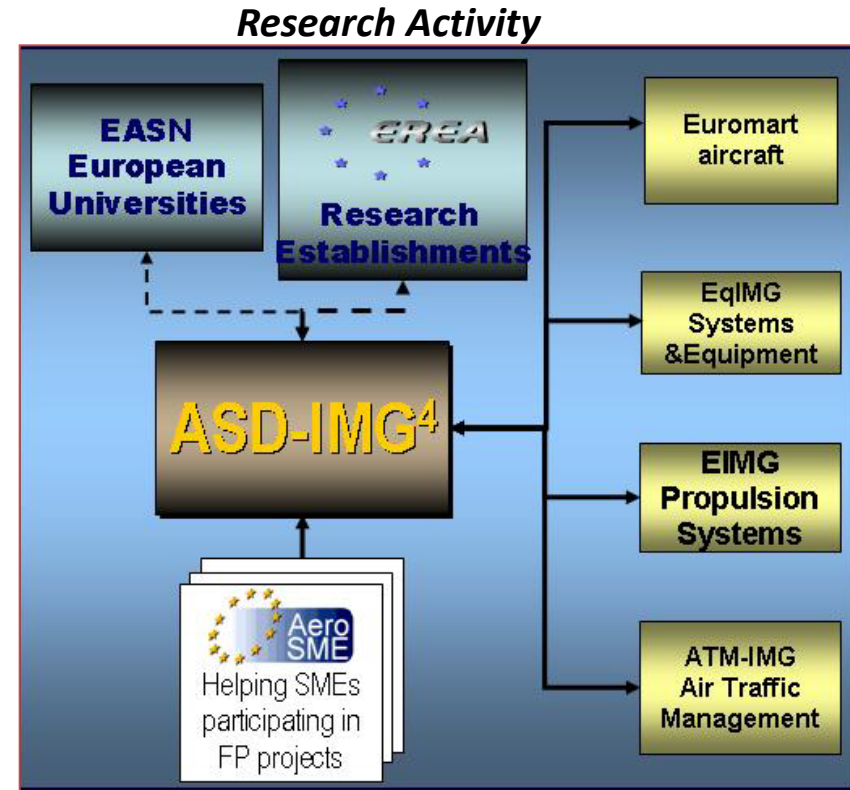


The EU research organization for aeronautics and air transport



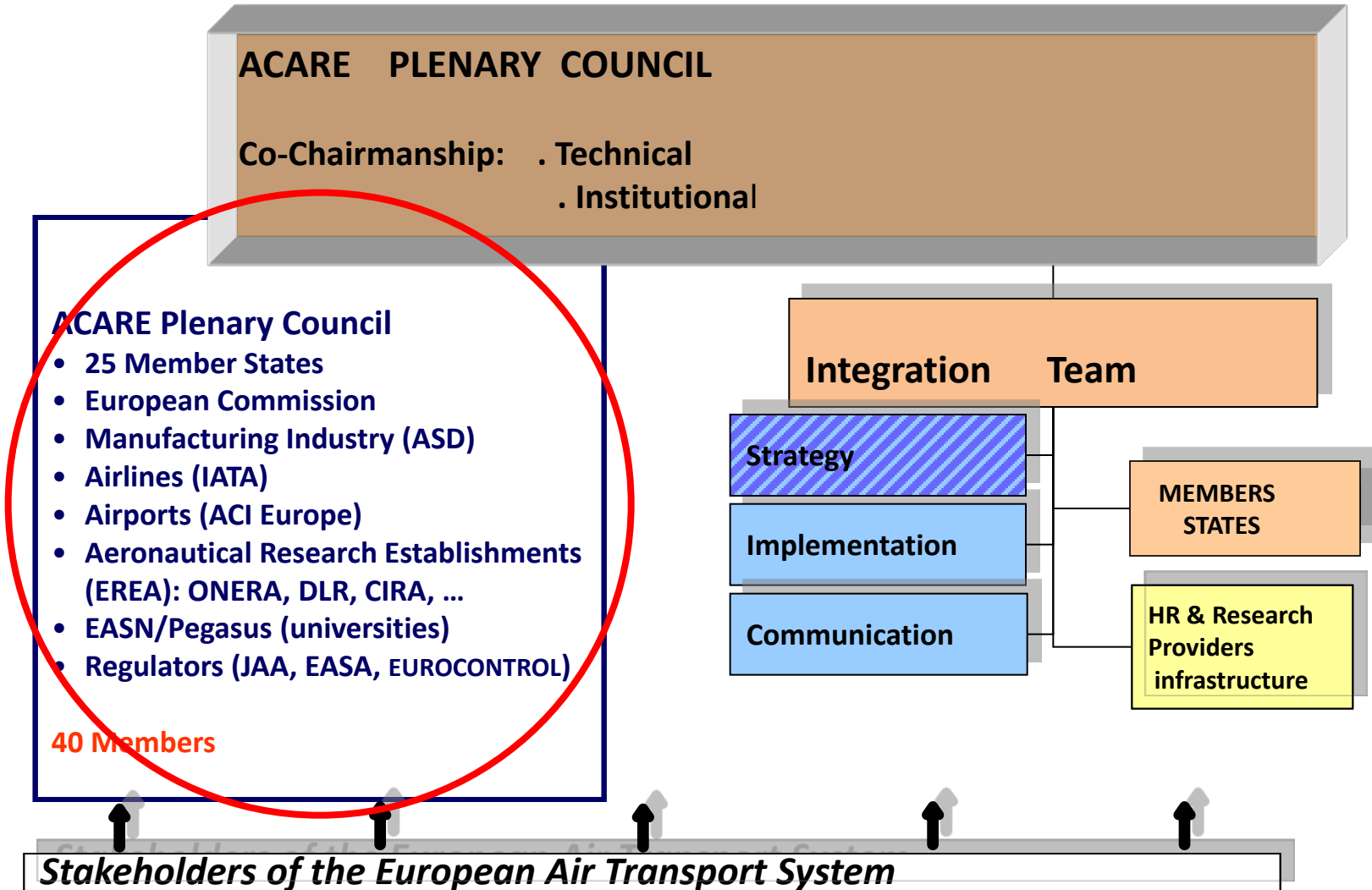
Long-term Strategy

Implementation



1 - The European Technology Platform (ETP) for aeronautics and air transport:

ACARE



1-Some recent highlights from the ACARE groups

- **Integration Team** decisions:
 - Undertake a **SRA3 viewing at 2030-40-50**
 - Create
 - sub group on environment
 - WG on international cooperation
 - WG on intermodal transport
- **Strategy Group**: document « **AERONAUTICS AND AIR TRANSPORT: BEYOND VISION 2020 (TOWARDS 2050)** »
- **Implementation Group** actions:
 - Overview research projects: **Clean-Sky** and Single EU Sky (**SESAR**), etc
 - Major contribution to **SRA Addendum**
- **Communication Group** actions: creation of **ACARE-like structures** in France, UK, Italy, Spain, etc, all **having the ACARE SRA's in common**

2 - What is a Strategic Research Agenda (1/2)?

(a slide of the European Commission)

A non-prescriptive, non-authoritative, collaborative, informed and dynamic strategy for developing technologies to achieve a long-term vision

It IS:

- Driven by the challenges (industrial and policy) faced by the sector
- Ambitious, spanning across the short, medium and long term

It IS NOT:

- A research programme or workprogramme. However, it should be able to influence all the stakeholders (public and private) in the definition of their programmes
- A rigid plan. It should be adaptable to changing circumstances or requirements (Revision every 2-3 years)

What is a Strategic Research Agenda (2/2) ?

(a slide of the European Commission)

A pre-condition to the generation of a SRA:

- *The SRA can be ‘artificially’ generated in a purely bottom-up approach, but it will be fruitless unless it responds to a **‘natural’ demand from the relevant stakeholders at the highest level.***

Important:

- *In addition to the Technical Agenda, the **SRA includes** also a strategy regarding essential factors of implementation (**‘The Enablers’**). The enabling subjects considered span from educational policies to research infrastructures, from certification and qualification aspects to co-ordination of programmes, etc.*

3 – the EC Framework Programmes

they only address non competitive research

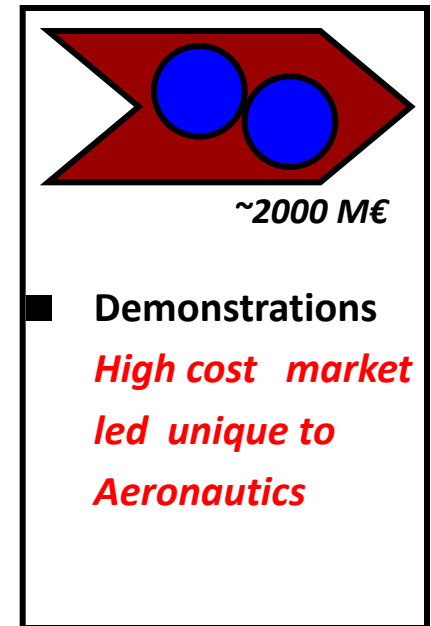
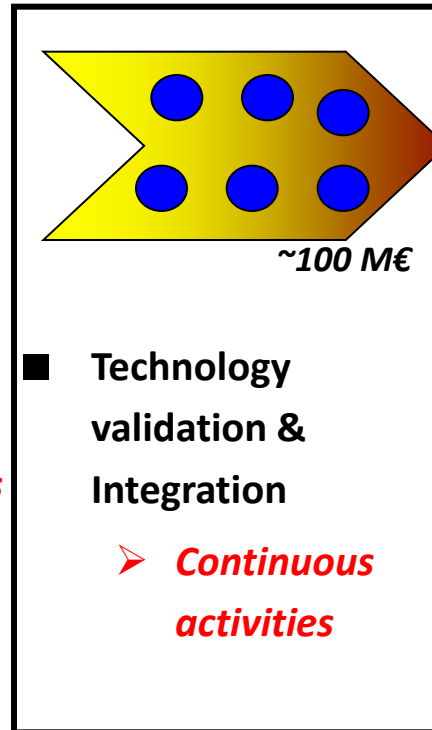
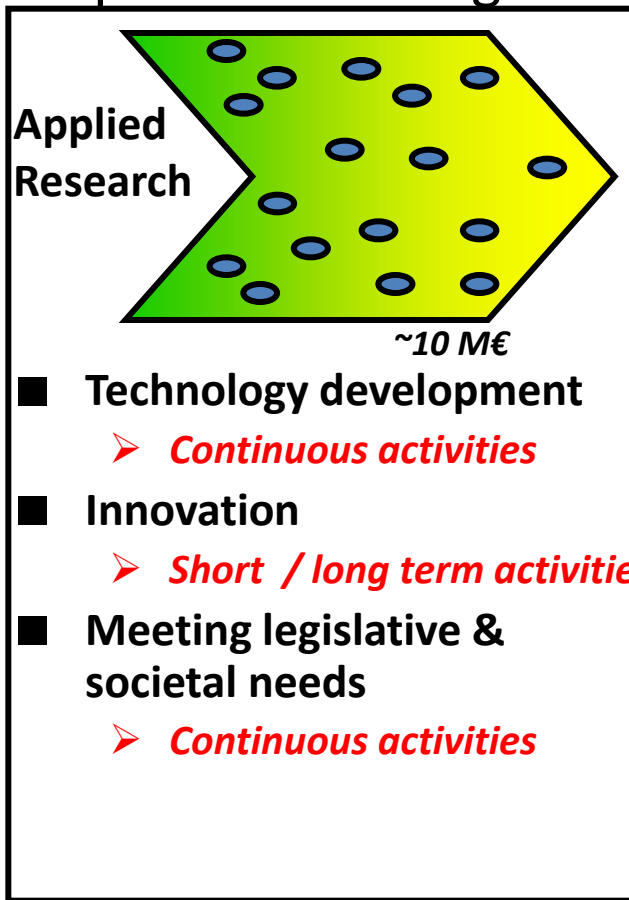
in aeronautics, highly developed products with a very complex and long life cycle



Total Cycle → 50 to 60 years

3 – FP7 for aeronautics and air transport

Technology acquisition & integration A complex process !



➔ **NEED FOR CONTINUITY IN INVESTMENT
ACROSS ALL INSTRUMENTS**

4 - The EC Research programmes

- **Multi-year Framework programmes** and the research programmes for the yearly calls are established by the European Commission (with inputs from the stakeholders). They are consistent with ACARE SRAs
- **Structured in calls**
 - FP7 4th call in preparation: see next presentation
 - FP7 5th and last call
 - FP8 in preparation; will be consistent with SRA3
- **The proposed research projects must, among other criteria**
 - Answer explicitly to the topics open in the Research Programmes. Others will not be considered
 - Not distort competition
 - Reflect cooperation variety (origins, consortium membership, etc)
 - International cooperation is welcome as described, but...
 - Proposals shall be pre-assessed and rated by independent experts vs rigorous criteria, prior to EC decisions

Engaging into a research collaborative project is a real but exciting challenge !

5 the EU stakeholders for research projects

To address thoroughly the European stakeholders, contact their official European representative structures

IMG4

Airframes
Engines
Eqpmt & Systems
ATM

For large projects, i.e. the L2, it is recommended to contact the relevant IMG

EREA

Research Labs

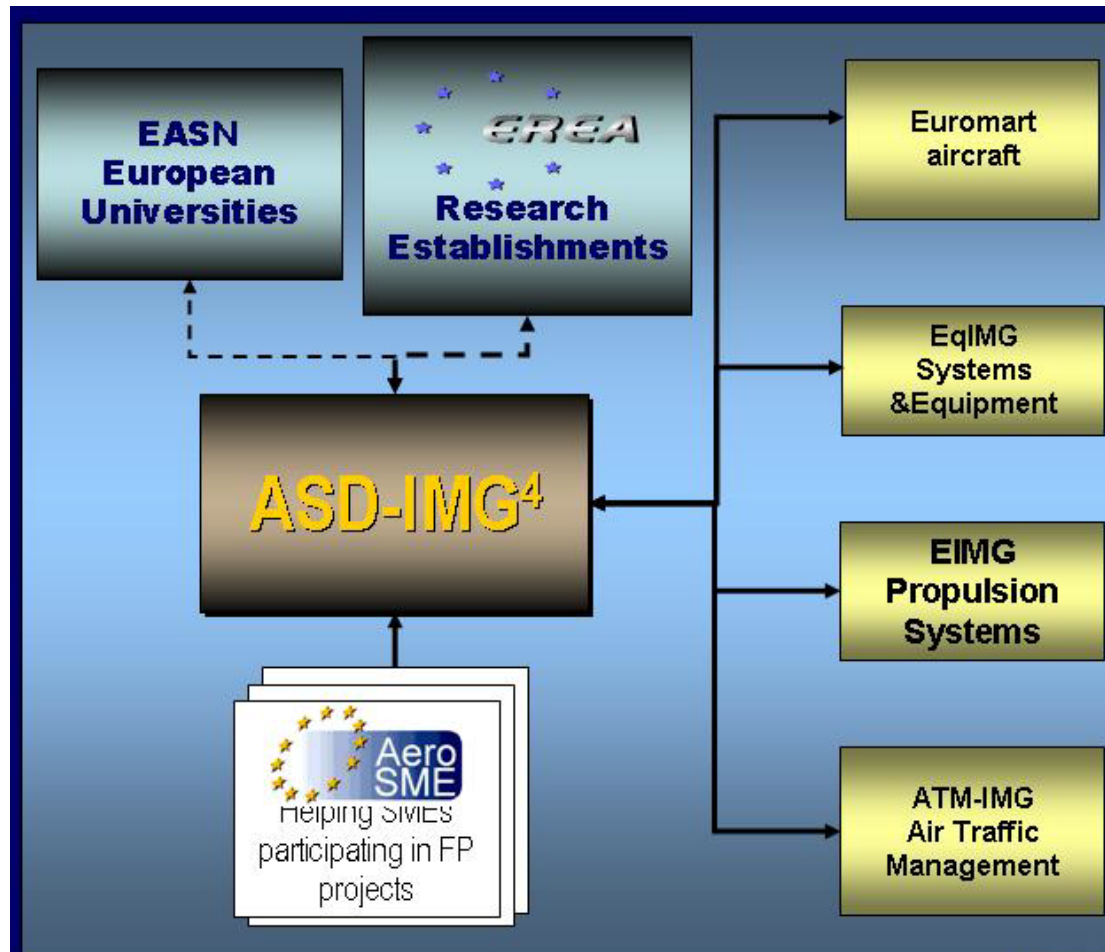
ONERA, DLR, CIRA, NLR, etc
with the ARG for research coordination within research labs

EASN

Universities
Academia

The access to EU universities, Pegasus, etc

5 – The EU stakeholders for research projects





The European Aeronautics Industry Network

- ASD-IMG4 coordinates industry's position with regard to the EU R+TD Framework Programmes.
- ASD-IMG4 represents, through the Industry Management Groups (IMG), the European Aeronautics Industry.

**IMG4 comprises representation
from four groupings :**

Euromart IMG

Agusta
Alenia Aerospazio
Airbus UK
Airbus SP
Dassault Aviation
Airbus G
Airbus F
Eurocopter
SAAB AB
S.A.B.C.A.
GKN-Westland Helicopters

Engine IMG

SNECMA Moteurs
ROLLS-ROYCE
MTU Aero Engines
RRD
Turbomeca
ITP
AVIO
Volvo Aero
Techspace Aero
Alstom
PBS Velká Bíteš

Equipment IMG

Galileo Avionica
BAE systems avionics
Diehl avionik system
Hellenic Aerospace Ind.
Liebherr-Aerospace
Lindenberg GmbH
Messier-Dowty Ltd
Messier-Bugatti
Smiths Industries
Goodrich
Thales avionics
Thales avionics electronic systems
ZF Luffahrttechnik GmbH

Auxitrol
Cesa
Dräger AG
Fokker-Elmo
Sagem
Marconi

Nord-micro
Skysoft

ATM - IMG

AMS
Thales ATM
Thales Avionics
Bae Systems
Galiléo avionica
Alcatel Space
Noesis (Danotec)
Marconi Selenia Communication
Hellenic Aerospace Industry
Raytheon
Dassault Aviation
Eurocopter

Airbus
Avitech
Indra

5 - Criteria for selection of primary cooperation partner countries:

- **Technology and capabilities**
- **Unique or special capability**
- **Supply chain development**
- **Political support**
- **Cooperation agreements**
- **Financial support in country**
- **Strategic benefits**
- **Market, competition, offset**
- **Ease of business**
- **Bureaucracy, export control, IPR**
- **Communication, working practices, cooperation attitude**
- **Exchange of scientists**

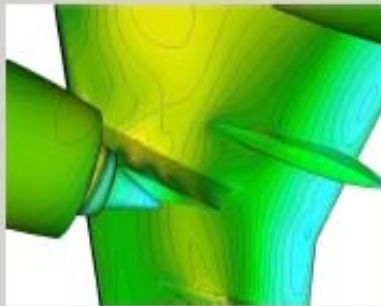
Conclusive remarks for a closer Ukraine-EU aero-engine cooperation

***There is a real need to look forward and
more globally***

- **Need for more fuel efficient & eco efficient vehicles**
 - **Open rotor engine alternatives**
 - **Turbofan engines to reduce noise**
 - **Trade-offs CO₂/noise, CO₂ /Nox**
- **Looking for fuel alternatives w/o impacting performance**

50% cut in CO2 emissions > Vision 2020

Aircraft manufacturers 20-25%



Engine manufacturers 15-20%



Operations 5-10%
Air Traffic Management

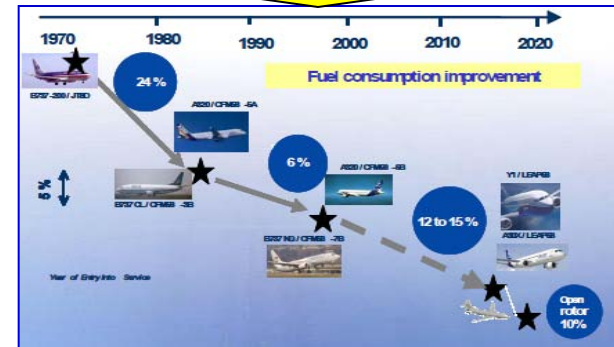


Environment Goals improvement

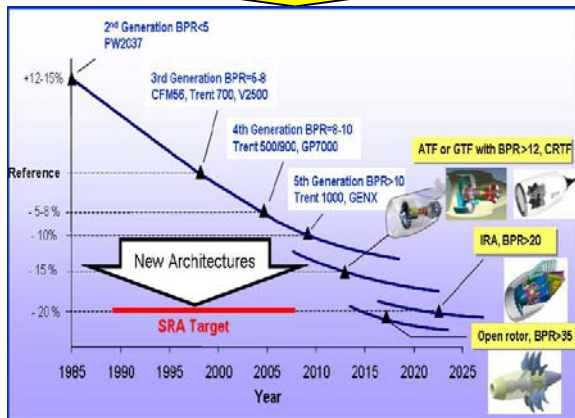
Challenges

- 50% cut in CO2 emissions (20% Airframe, 20% Engine, 10% ATM)
- 80% cut in NOx emissions
- 50% perceived aircraft noise

Fuel Consumption improvement



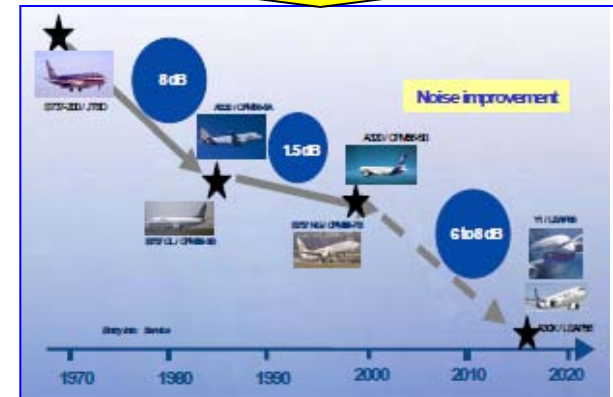
Impact of Bypass-Ratio on CO2



Impact of Overall Pressure Ratio (OPR) on NOx



Clean Sky will deliver minus 7,5 dB per operation by 2015



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Thankyou for listening

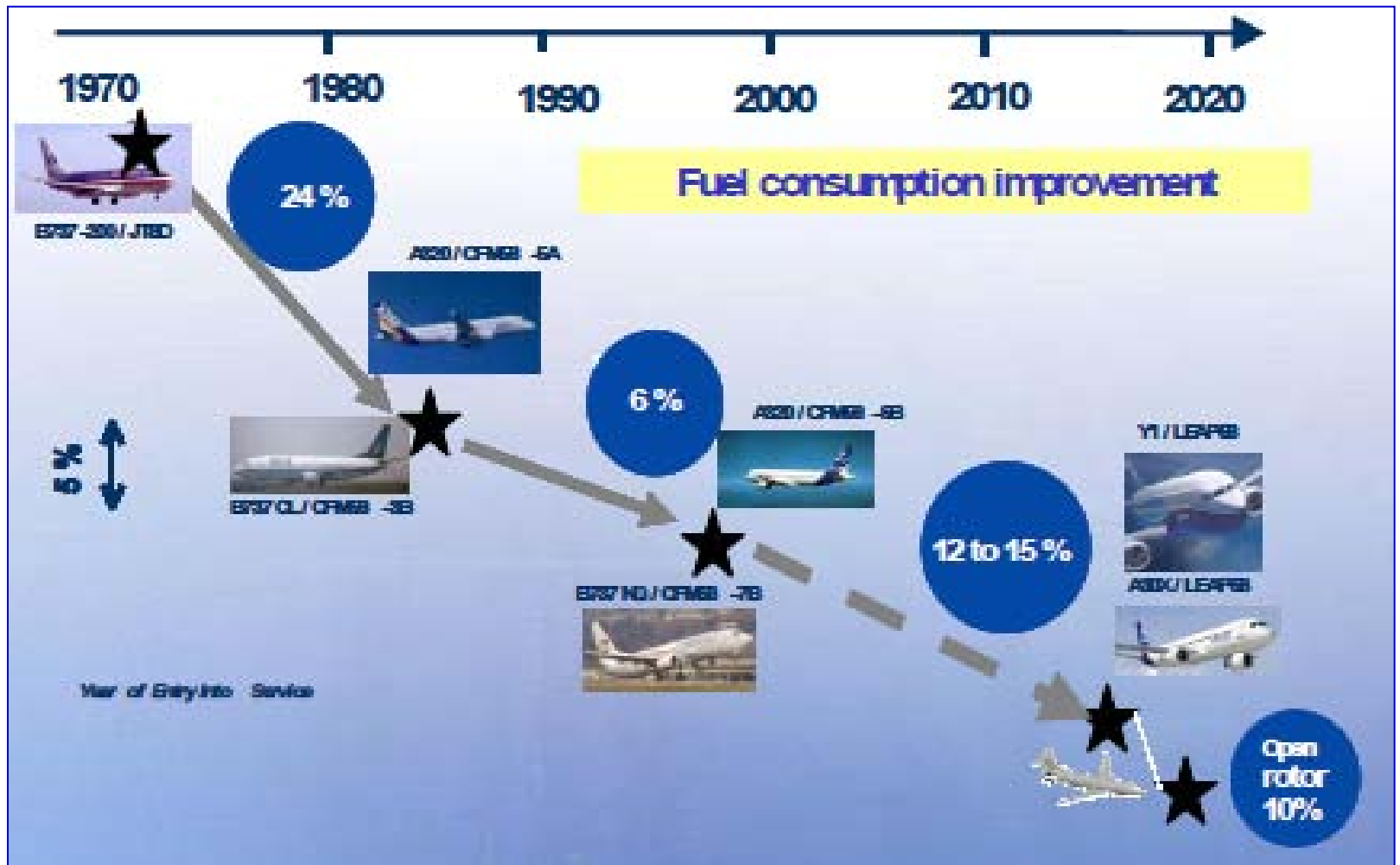
any questions ?

Back up slides

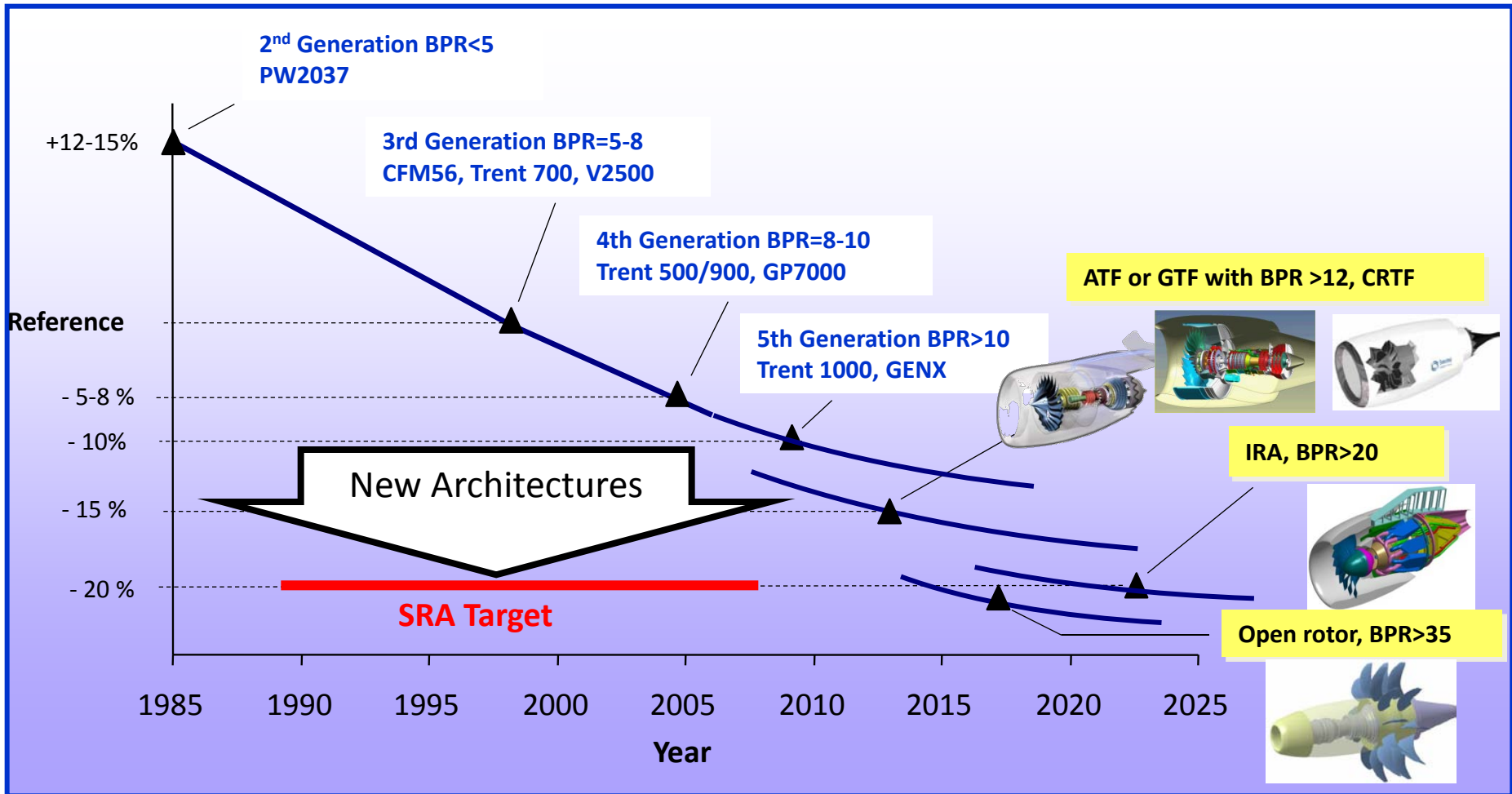
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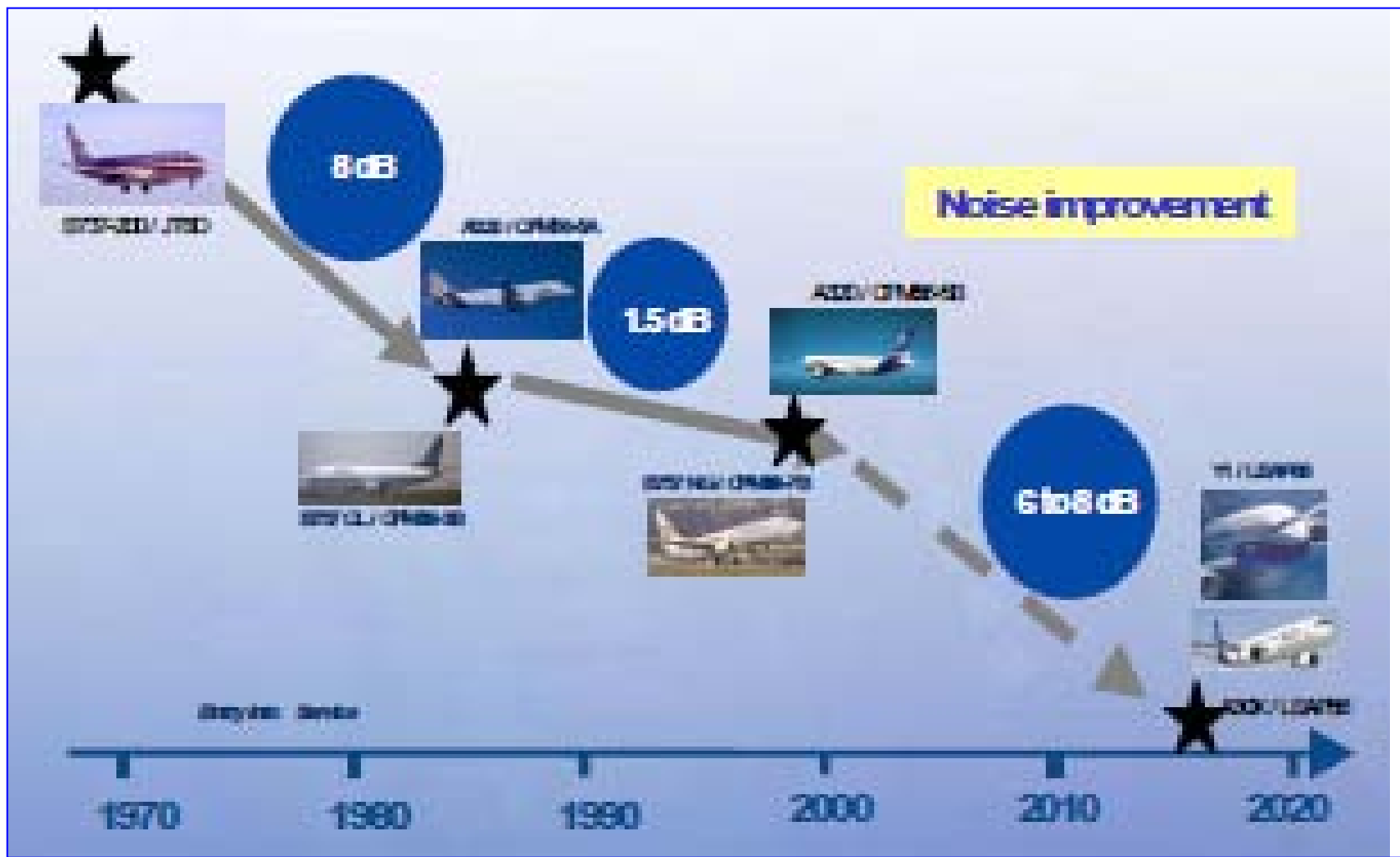
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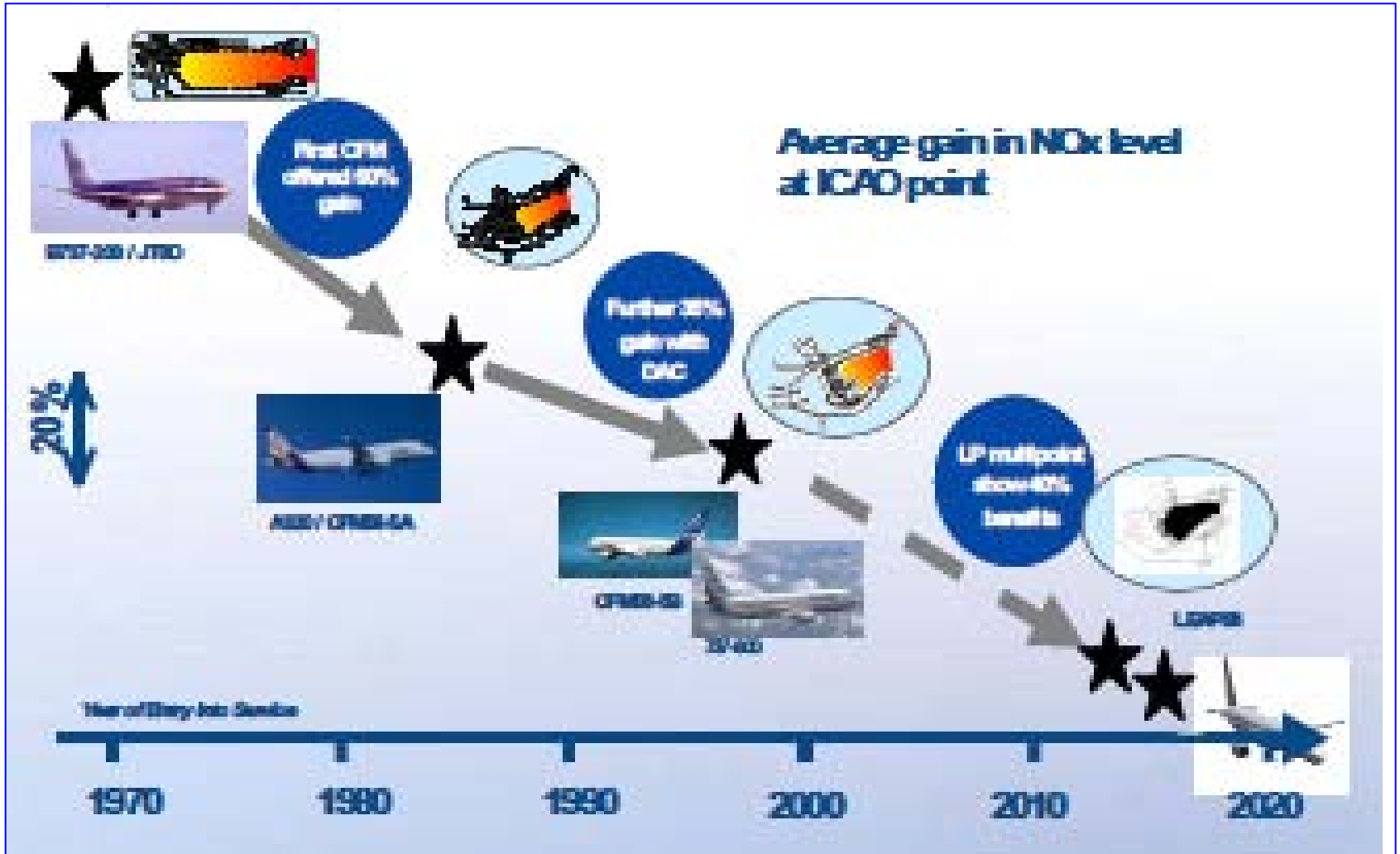
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Impact of Bypass-Ratio on Fuel Consumption / CO2



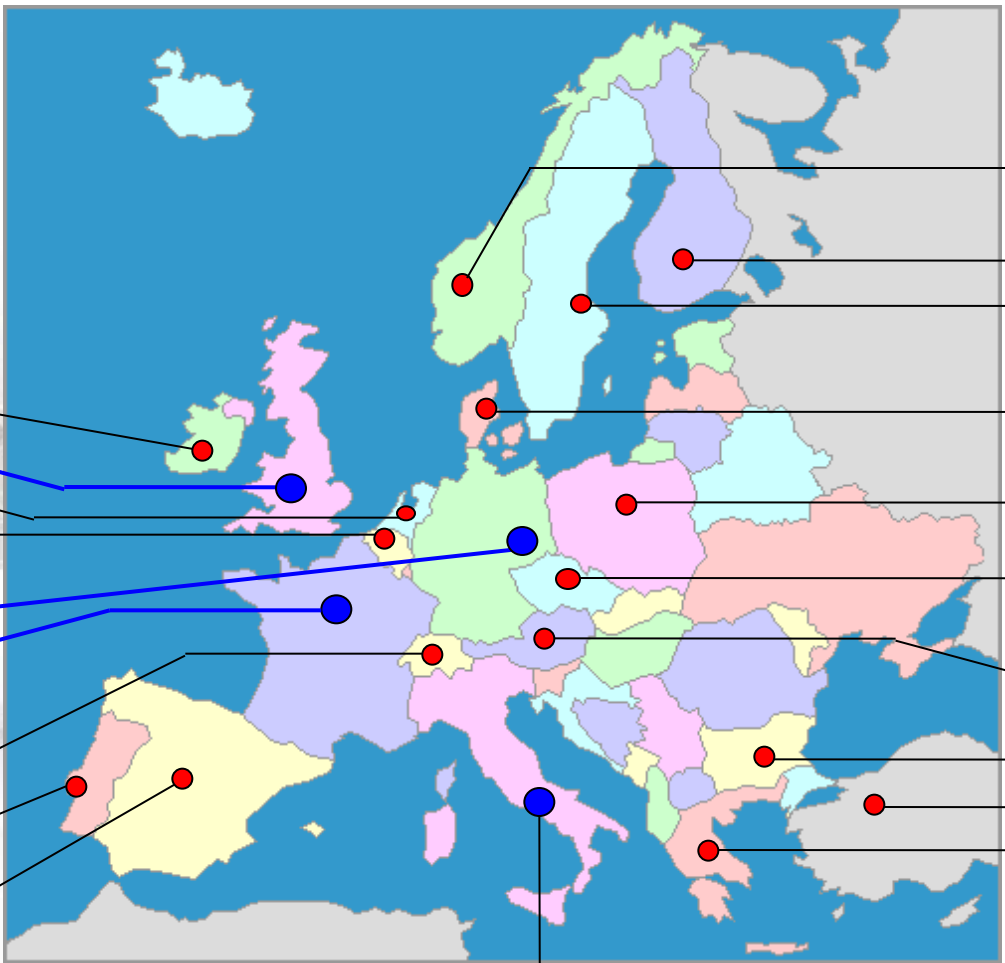






AeroSpace and Defence Industries Association of Europe

ASD in detail:
 137 €billion turnover
 Over 2000 companies
 676.000 Employees



- FAEI
- A/D/S
NAI/NIDV
- GEBECOMA/
BSDI
- BDLI/BDI
- GIFAS/CIDÉF
- SAIG/
SWISSMEM
- AIP/DANOTEC
- TEDAE

- FSI
- AFDA
- SOFF/SAI
- FAD
- APAI
- ALV/
AOP CR
- AAI/ADIG
- BDIA
- SaSad
- HASDIG

AIAD

