



TEAM  Play



# TEAM\_Play – Tool Suite for Environmental and Economic Aviation Modelling for Policy Analysis

**ECATS Conference**

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**Project Overview**

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# Project background and objective

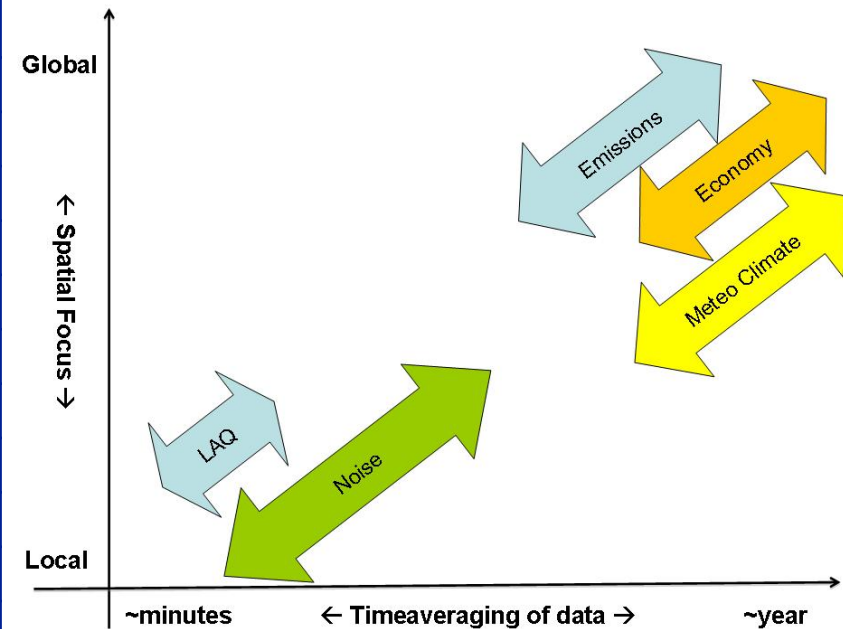
## Background:

Wide range of aviation-related policy assessment modelling capabilities in Europe, like noise emissions, LAQ, climate impact and economic assessment tools.



# TEAM\_Play – Tools

Model	Custodian	Domain
ADMS-Airport	CERC	Emission (LAQ)
ALAQS 2.0	EUROCONTROL	Emission (LAQ)
LASPORT	Janicke Consulting	Emission (LAQ)
POLEMICA	NAU	Emission (LAQ)
3PR	NAU	Third Party Risk
AEM	EUROCONTROL	Emission (Global)
FAST	MMU	Emission (Global)
AERO-MS	NLR	Emission (Global)
AERO2k	AEA	Emission (Global)
STAPES	EUROCONTROL	Noise
SONDEO	Anotec Consulting	Noise
IsoBella 2.0	NAU	Noise
AirClim	DLR	Meteo-Climate
LinClim	MMU	Meteo-Climate
MeteoServer	EUROCONTROL	Meteo-Climate
Macro-Economic Impact	DLR	Economic
Energy Module	DLR	Economic
Monetisation Impact Tool	DLR	Economic



- Multitude of different tools on different domain areas
- Tools show differences in scope, spatial and time-scales



## Project background and objective

### Background:

Wide range of aviation-related policy assessment modelling capabilities in Europe, like noise emissions, LAQ, climate impact and economic assessment tools.

### Idea:

TEAM\_Play idea = Combination of this large expertise in order to reach a new level of interdependency modelling capabilities, allowing us to answer more complex questions regarding ecological and economic impacts of air transport and related policy measures.

### Aims:

- Support of European CAEP activities in addition to the already existing PARTNER tool suite
- Development of a common infrastructure open to the individual models, and of a Data Warehouse in which (preferably) all data is stored.



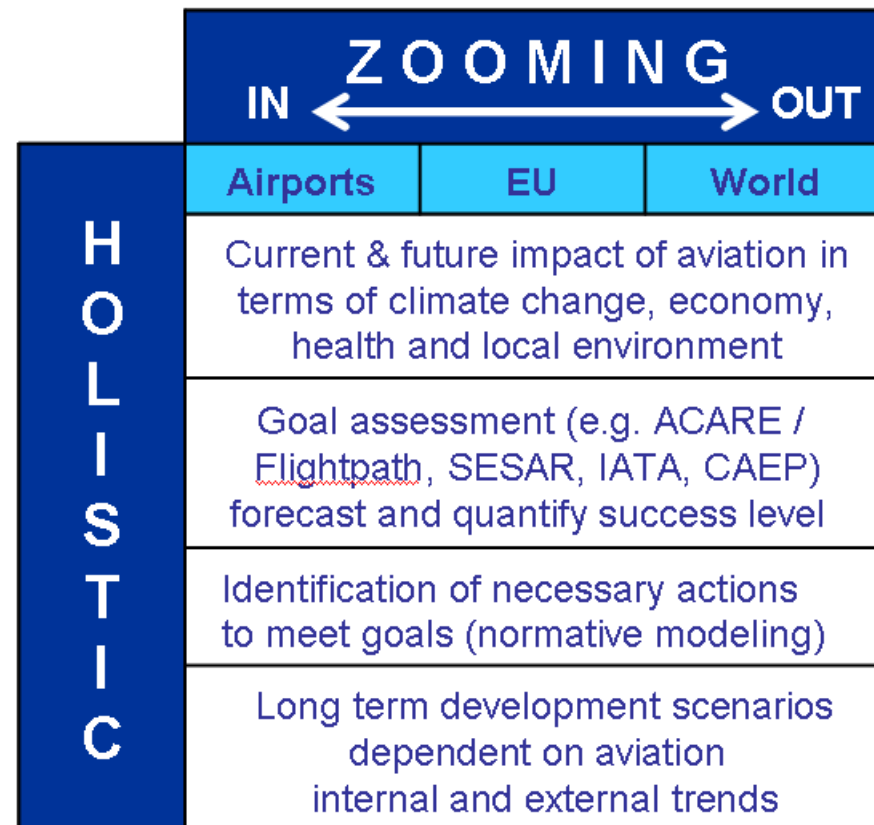
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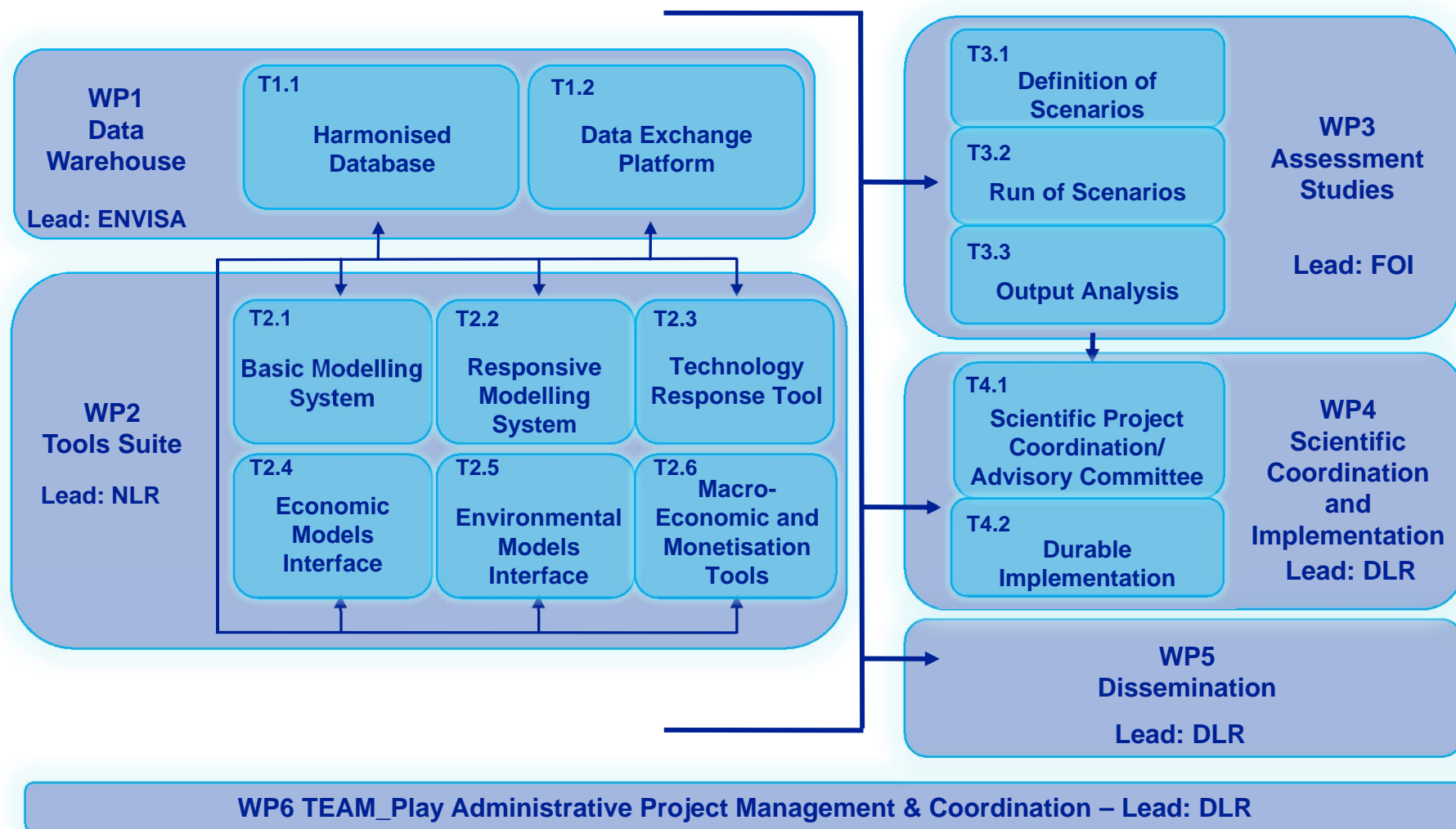
# TEAM\_Play – at a glance

- Collaborative project co-funded by the European Commission
- Duration: 12 / 2010 – 03 / 2013 - EC funding: ~ 3.8 Mio. €
- Contribution of 18 European partners





# TEAM\_Play - Structure







# Work Packages

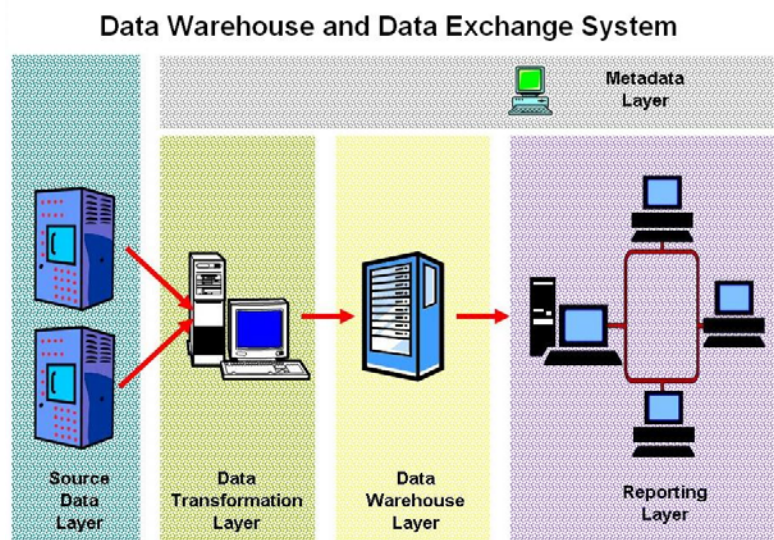
WP 1

“Data Exchange Platform  
and Harmonised Database”

Lead: ENVISA

## Achieved objectives (1):

- Provision of means and single source of data
- Development of common interfaces and central database
- Harmonization of assumptions and underlying databases
- Workflow definition
- Definition of appropriate design rules for different models' inputs and outputs





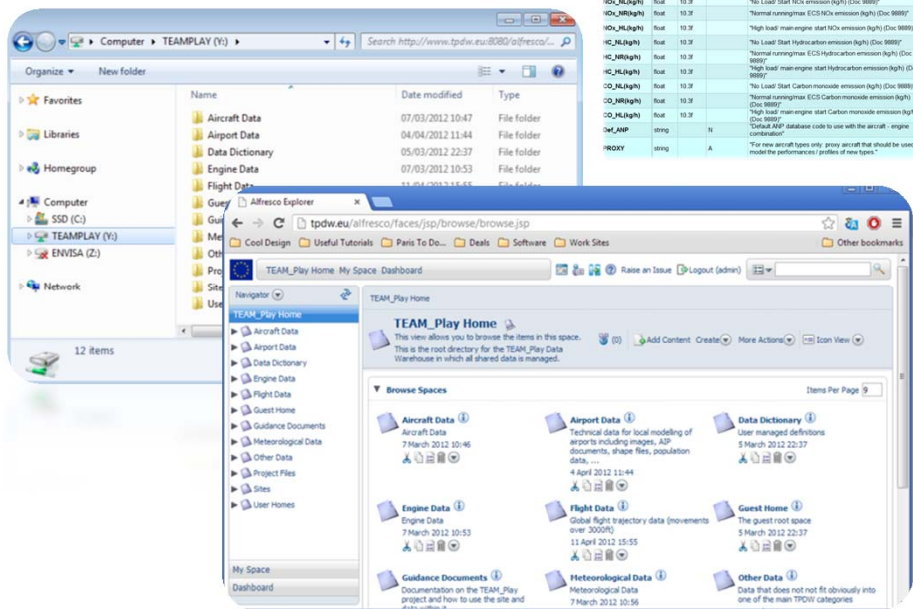


## Work Packages

WP 1

“Data Exchange Platform and Harmonised Database”

Lead: ENVISA



### Achieved objectives (2):

- Data exchange platform and data warehouse are in operation
- Licence agreements signed, user accounts created
- Data (airport, aircraft movement, fleet evolution...) has been delivered, implemented and successfully exchanged
- Publication of Data Format Guidelines for the harmonisation of input and output data (CSV as agreed standardised format for the most common datasets used in aviation environmental modelling)



## Work Packages

WP 2

**“Tool Suite”**

Lead: NLR

Task 2.1  
**Basic Modelling  
System**

Task 2.2  
**Responsive  
Modelling  
System**

Task 2.3  
**Technology  
Response Tool**

Task 2.4  
**Economic  
Models  
Interface**

Task 2.5  
**Environmental  
Models  
Interface**

Task 2.6  
**Macroeconomic  
& Monetisation  
Tools**

### Achieved objectives:

- Integration & combination of existing models into the design & development of modelling systems
- Development & validation of an effective and efficiently working Tool Suite for environmental and economic aviation modelling
- Enhancement of existing models and development of an energy module

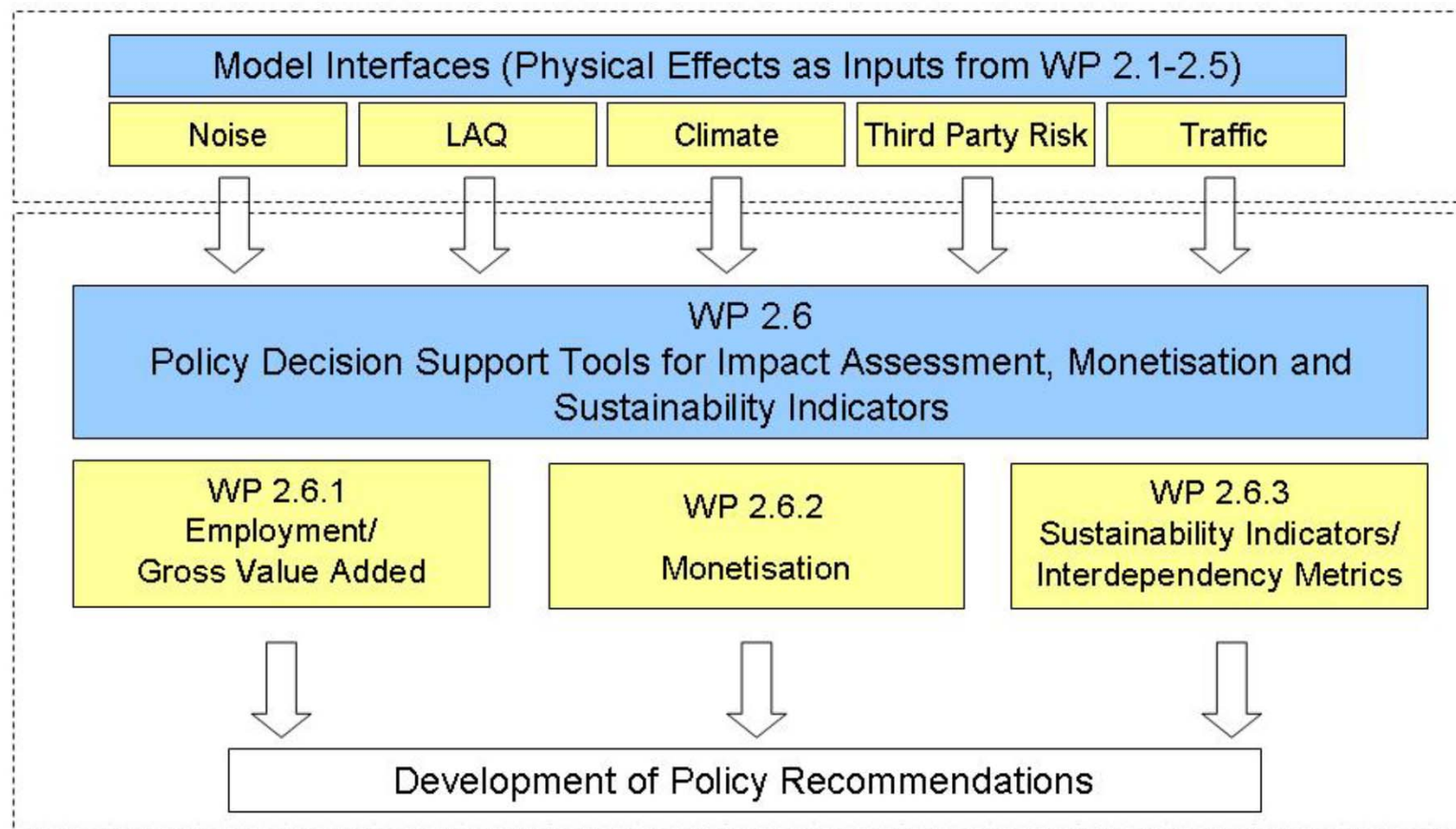


# Basic versus Responsive M.S.

- **Basic Modelling System (BMS):**
  - one-way modelling approach
  - emphasis on input data
  - high granularity: e.g. a/c-type level
- **Responsive Modelling System (RMS):**
  - modelling of feedback loops, incl. demand reduction due to cost increases
  - emphasis at modelling system level
  - lower granularity: e.g. generic a/c type level



# Policy Decision Support Tools (T2.6)



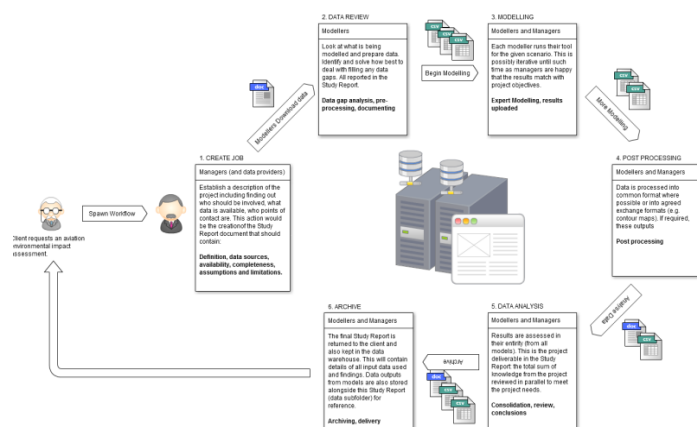


# Work Packages

WP 3

“Assessment Studies”

Lead: FOI



## Achieved objectives (1):

- Demonstration of the applicability of the European Tool Suite developed in previous work packages, to multiple realistic use cases (policy measures)
- Definition of policy measures and reference scenarios
- Proof of the interoperability of the models, and of the connectivity of the models to the data warehouse
- Application and „fine-tuning“ of modelling workflows

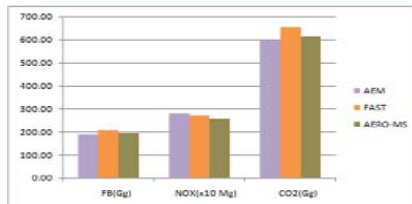


## Work Packages

WP 3

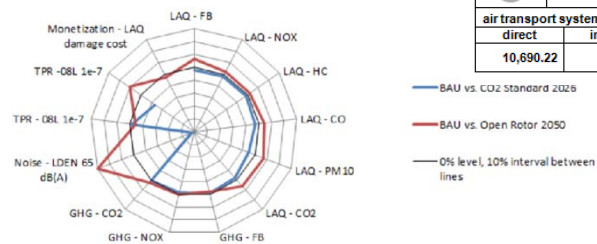
“Assessment Studies”

Lead: FOI



Airlines ('000 employees)		
direct	indirect	sum
4,226.39	4,404.78	8,631.17
Aircraft ('000 employees)		
direct	indirect	sum
2,631.17	3,046.29	5,677.46
airports & ANSP ('000 employees)		
direct	indirect	sum
3,832.66	3,916.27	7,748.94
air transport system (sum) ('000 employees)		
direct	indirect	sum
10,690.22	11,367.35	22,057.57

Evolutions (%)



### Achieved objectives (2):

- Scenarios defined (CONSAVE ULS, CAEP)
- Goals defined and made operational (IATA goals)
- Use cases / policy measures defined
- BMS and RMS tested with the Consave ULS scenario, including additional policies:
  - RMS: Ticket Tax, CO2 Standard, Long-term ETS, Biofuel, Eco-routing
  - BMS: CO2 Standard, Open Rotor, Biofuel
- BMS tested with CAEP data set. No additional policy
- Scenario runs performed and reported



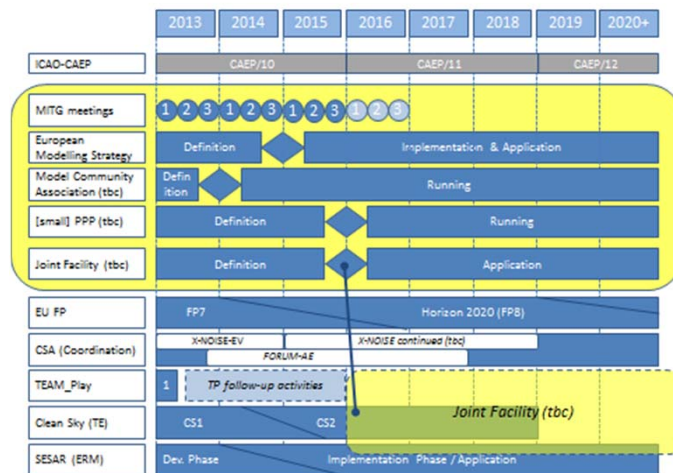


## Work Packages

WP 4

**“Durable Implementation”**

Lead: DLR



European Aviation Modelling Strategy / Roadmap

### Achieved objectives:

- Design of durable structures for future operational management and coordination for the use, maintenance and enhancement of the TEAM\_Play Tools Suite capabilities
- Advisory Committee / User Group
- Management and updating of provisions on use, access, intellectual property and ownership of the TEAM\_Play Tools Suite
- Concept for durable implementation available and discussed with User Group (after TP2 failure); ongoing process





## To sum it up...

- „Leading“ European modelling capabilities now connected via data exchange platform and to centralised / harmonised data (warehouse)
- Assessment studies performed; readiness for use
- European Toolsuite for **integrated and holistic modelling of environmental, economic and social impacts** of air transport and aviation-related policies established
- Open for new models, e.g. connectivity (Flightpath 2050 goal)
- High importance to keep this virtual organization alive
- Ongoing discussions with partners (EC, EASA, ECTRL...) about future and sustainable set-up

More Information: [www.teamplay-project.eu](http://www.teamplay-project.eu)