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Community Research

Aeronautics and Air Transport Research FP7



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DG RTD-H.3 - Aeronautics
Greek Energy & Transport Info Day, Athens,
30 September 2010



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Outline

- Past calls for proposals (2007, 2008, 2010)
- Current call (2011)
- Hints from lessons learnt
- Next calls (2012, 2013)



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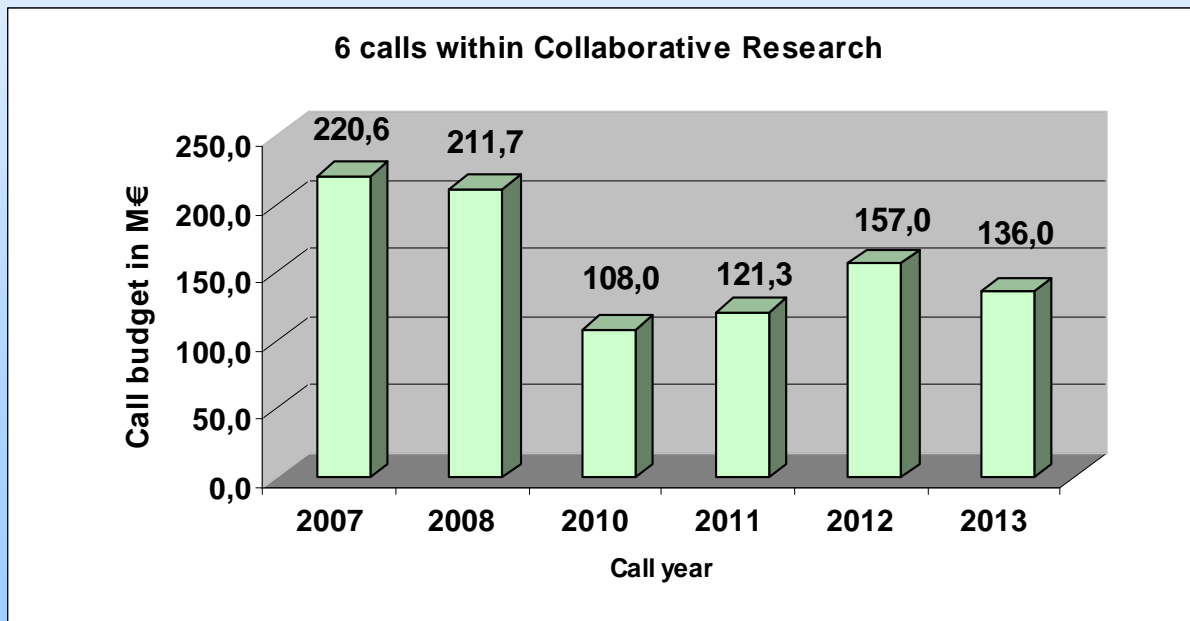
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- Overall budget 2.15 billion €
 - ▶ 955 million € Collaborative RTD
 - ▶ 800 million € Clean Sky
 - ▶ 350 million € SESAR
- 6 calls within Collaborative RTD





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Aeronautics and Air Transport Workprogramme Collaborative Research (955 million Euro)

Activities

1. The **greening** of air transport
2. Increasing **time** efficiency
3. Ensuring **customer** satisfaction and safety
4. Improving **cost** efficiency
5. **Protection** of the aircraft and passengers
6. **Pioneering** the air transport of the future



Results 3rd Call – 2010 (Closed on 14 January 2010)

Budget 108 million Euro

Level 1 + CA

160 proposals - 529 million requested funding –

27 projects selected – 97 million recommended funding -

Support Actions (SA)

25 proposals - 9 million requested funding –

10 projects selected – 3 million recommended funding –

Russia Coordinated Call

8 proposals - 11 million requested funding –

3 projects selected – 4 million recommended funding –

China Coordinated Call

4 proposals - 6 million requested funding –

2 projects selected – 3 million recommended funding -

**About 1/3 of contracts ready for signature,
the others will be sent to coordinators in the next days**



Aggregated Results 1st Call + 2nd Call + 3rd Call

- **89 Level 1 projects** : **323.0 million** (*Incl. Russia and China calls*)
- **8 Level 2 projects** : **200.2**
- **2 CA** : **2.9**
- **23 SA** : **9.7**
- **Air-TN (CA)** : **1.9**
- **Clean-Sky (SA)** : **2.0**

539.7 million

Distribution of the 323.0 million (Level 1)

• Greening	66.4 million	(21%)
• Time Efficiency	7.1	(2%)
• Customer + Safety	42.1	(13%)
• Cost Efficiency	165.1	(51%)
• Security	9.1	(3%)
• Pioneering	33.2	(10%)
	<hr/>	
	323.0 million	(100%)



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4th Call Aeronautics and Air Transport - 2011

➤ Budget: 121.3 million Euro

- ▶ Level 2: 6 topics open, 107 million €
- ▶ Level 1 and CA: only the activity “Pioneering” open, 11.3 million €
- ▶ SA: 3 million €

➤ Time schedule

- ▶ Call opening date: July 20th 2010
- ▶ Call closing date: **December 2nd 2010** 17:00 h Brussels local time
- ▶ Evaluation phase: January 24th to February 24th 2011
- ▶ Start of first projects: June to July 2011



Workprogramme Scope

- *Includes:*

Technologies, services and operations of all components of the air transport system from airport kerbside to airport kerbside (i.e. aircraft, airport and air traffic management)

- *Excludes:*

Non-travel aspects, ticketing and ground vehicles



Level 1 (EU-funding: max. up to 4 million €)

Upstream research and technology development activities **from basic research to validation at component or subsystem level** through analytical and/or experimental means in the appropriate environment – **CP-FP, CSA(Coordinating)**

Level 2 (EU-funding: minimum 6 million €, max. 40 million €)

Downstream research and technology development activities up to higher technology readiness, centred on the multidisciplinary integration and validation of technologies and operations at a system level in the appropriate environment (large scale flight and/or ground test beds and/or simulators) – **CP-IP**

Level 3

Research and technology development activities up to the highest technology readiness, in fully integrated system of systems in the appropriate operational environment – **Clean Sky JTI, SESAR JU**

Supporting Programme implementation (EU-funding: max. 300 K€)

Activities aiming at **setting mechanisms or developing strategies** for programme implementation – **CSA(Supporting)**

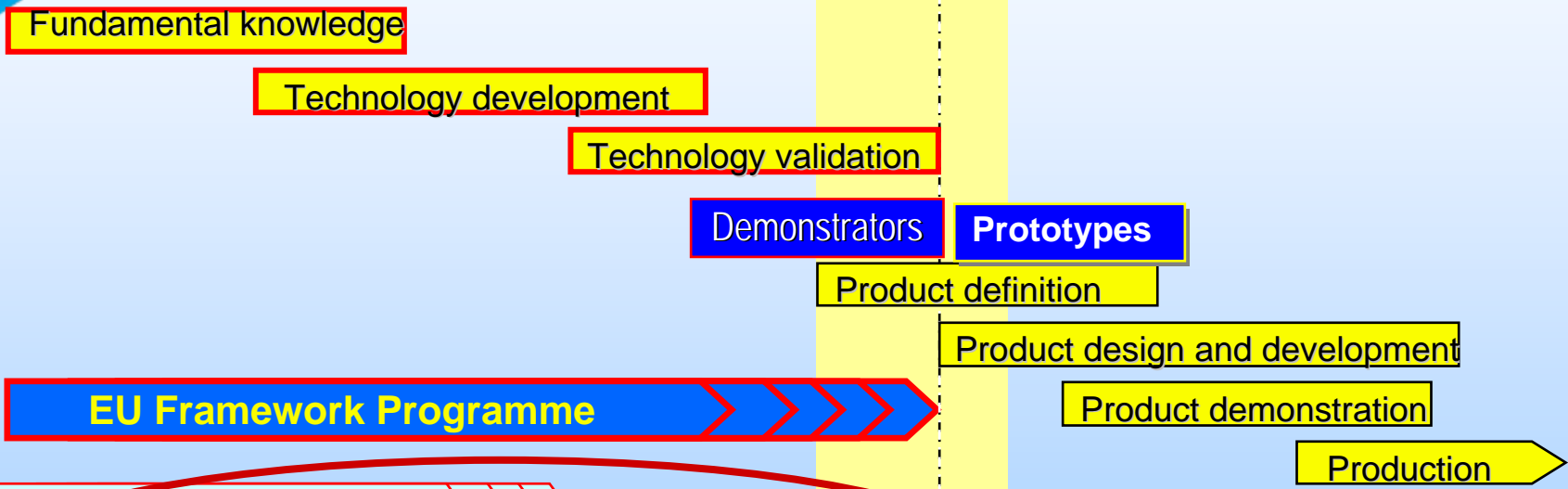
Managed by Clean
Sky JTI



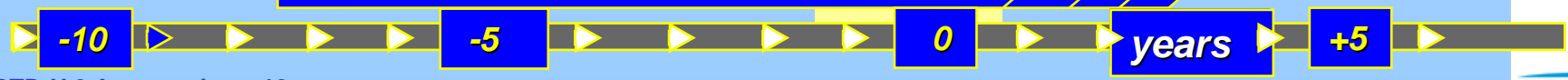
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Research, Technology & Product Development



New in FP7:





Level 1 and Coordination Actions

Activity open:

6. **Pioneering** the air transport of the future

Activities closed:

1. The **greening** of air transport
2. Increasing **time efficiency**
3. Ensuring **customer** satisfaction and safety
4. Improving **cost** efficiency
5. **Protection** of Aircraft and Passengers



**Level 1 - Pioneering the Air Transport of the Future
(CP-FP and CSA-CA)
Up to 4 million € funding/project**

Goals

Setting the foundations of new paradigms and technologies enabling step changes in air transportation in the 2nd half of 21st century

Breakthrough and Emerging Technologies

- *Lift*
- *Propulsion*
- *Interior space*
- *Life-cycle*

Step Changes in Air Transport Operation

- *Novel air transport vehicles*
- *Guidance and control*
- *Airports*

Promising Pioneering Ideas in Air Transport

- *The cruiser/feeder concept*
- *Take-off and landing with ground-based power*
- *New sources of aircraft main propulsive power*



4th Call Aeronautics and Air Transport – 2011

Level 2 - (CP-IP)

Up to 40 million € funding/project

Six Topics open in four Activities:

1. The greening of air transport
 - **Systems approach to improved core engine thermal efficiency**
2. Increasing time efficiency
 - **Integrated approach to total airport management** for operational efficiency
3. Ensuring customer satisfaction and safety
 - **Integrated approach to a human-centred cabin** physical environment
4. Improving cost efficiency
 - **Integrated approach to smart airframe structures**
 - **Integrated approach to efficient propulsion and related aircraft systems for small-size aircraft**
 - **Integrated modular actuation systems** for the future all-electric aircraft



AAT.2011.1.4-2. Systems approach to improved core engine thermal efficiency

Objective: Increase engine thermal efficiency above OPR 50:1 for reduced CO₂ emissions minimising NO_x increase

Scope: Integration of key technologies:

- Innovative compressor for ultra-high pressure ratio cycle
- HP-LP compressor inter-cooling
- Low NO_x combustion
- Advanced structural components for high OPR

AAT.2011.2.3-3. Integrated approach to total airport management for operational efficiency

Objective: Overcome fragmentation of airport activities –land side and air side-

Scope: Innovative integration of all airport operations (system of systems):

- Passenger flow
- Baggage flow
- Apron operation
- Fleet management
- Security monitoring
- Air quality and noise monitoring
- IT architecture for single information management system



AAT.2011.3.5-1. Integrated approach to a human-centred cabin physical environment

Objective: Place human needs at the centre of future cabin designs regarding health, safety, comfort as well work-load conditions for crew

Scope: Integration of technologies and concepts key to physical environment :

- Noise and vibration
- Air quality and cabin pressure
- Materials and systems
- On-board safety related systems and procedures
- Lighting and virtual environments
- Human factor issues

AAT.2011.4.4-3. Integrated approach to smart airframe structures

Objective: Step change in 'intelligent' structures regarding self-sensing, multifunctional materials and morphing for reduced operational costs

Scope: Integration of key technology developments, including supporting modelling tools, focusing on two major applications:

- Wing morphing for improved lift and reduced drag during take-off, cruise and landing
- Self-sensing and multifunctional materials for smart process control and quality assurance in manufacturing and for smart in-service self-monitoring and self-healing of structures.



AAT.2011.4.4-4. Integrated approach to efficient propulsion and related aircraft systems for small-size aircraft

Objective: Improve the capability to develop environmentally acceptable, safe, reliable and economic propulsion units that the small size aircraft industry (up to 19 pax. fixed-wing and rotorcraft) needs

Scope: Integration of key technologies for a range of small gas turbine engines and propulsion related systems. Two fronts of action:

- Performance improvements of key engine components, including modern engine control technologies
- Airframe-propulsion integration with regard to aircraft overall configuration

AAT.2011.4.4-5. Integrated modular actuation systems for the future all-electric aircraft

Objective: Introduce full electric actuation in all aircraft systems as a definite step in the elimination of on-board hydraulics for a full electric aircraft

Scope: Scalable systems approach through modular components to demonstration of full electrical actuation for a broad range of aircraft types on:

- Primary and secondary flight controls
- Landing systems
- Thrust reversers and doors

Embracing sensors, motors, controller, materials, wireless data flow ...



Supporting Programme Implementation (CSA-SA) Up to 300 K€ funding per project

New
New
New
New
New

1. *Supporting the organisation of conferences and events of special relevance to aeronautics and air transport research*
2. *Stimulating the participation of small and medium size enterprises (SME) and other small organisations for improved integration of the European Research Area*
3. *Assessing the role and needs of air freight in air transport*
4. *Exploring opportunities and stimulating research cooperation with Canada*
5. *Exploring opportunities and stimulating research cooperation with Japan*
6. *Assessing the educational needs of engineers and researchers in aeronautics and air transport*
7. *Technology support for crisis coordination for the air transport system following major disruption events*



FP7 Aeronautics – 4th Call

	Greening	Time	Customer & Safety	Cost	Security	Pioneer
◆◆ Level 2 Max. 40 M€ EC grant /project	Open for 1 Topic	Open for 1 Topic	Open for 1 Topic	Open for 3 Topics	CLOSED	
◆ Level 1 (& Coord. Actions) Max. 4 M€ EC grant / project	CLOSED					Open
Support Actions	Open for 7 Topics					
Networks of Excel.	CLOSED					





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- 1st FP7 Call 2007 - 220 M€ available - 194 proposals (829 M€) - 36 retained
- 2nd FP7 Call 2008 - 210 M€ - 253 (918 M€) - 43
- 3rd FP7 Call 2010 - 108 M€ - 203 (556 M€) - 42

....the increasing **number of submitted proposals** and
....the **limited budget** available for this and next calls

**For a proposal to be successful it
must show a very high quality**



Although trivial

Start with the **eligibility** of your own proposal....

- Do it yourself....
- It is sad to see good proposals **not eligible** because of:
 - Too late submission, *(2nd Dec. 2010, 17h00 Brussels time)*
 - Exceeding budget max limit*,
 - Provided incomplete Part A & B

*) *For Collaborative Projects of small or medium-scale (CP-FP) a maximum requested Community contribution of up to 4.0 million € is an additional eligibility criterion.*



Although trivial

Focus to the Evaluation criteria applicable to:

- Collaborative Projects
- Coordination and Support Actions

Understand the criteria well and address them all

- Put yourself in the “shoes” of the evaluator.
- Do not use your company’s acronyms without additional information.



Although trivial

Be specific:

- e.g. Main concept and objectives clearly stated,
- State-of-the-art,
 - address all aspects (experimental, numerical, etc)
 - include references,
 - include your own work,
- What **You will do beyond** the state-of-the-art?
 - Clear description of Work Packages,
 - Realistic Timetable,
 - Specific and measurable deliverables,



Although trivial

Remember:

E. g.: “Management” in FP7 does ***not*** cover the
“technical management”

- linking together all the project components,
- maintaining communications with the Commission, etc
- The allocated budget should reflect these activities.



Although trivial

Calculate properly (Form A3):

Maximum reimbursement rates of eligible costs:

- Research and technological development = 50% or 75%*
- Demonstration activities = 50%
- Other activities (including management) = 100%

*) For participants that are non profit public bodies, secondary and higher education establishments, research organisations and SMEs.



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Aeronautics and Air Transport 5th & 6th calls

Tentative

5th Call: 157 Mio

6th Call: 136 Mio

- **Share between Level-1 & Level-2 in WP2012 and WP2013 → 50:50 at the end of FP7**
- **Introduction of Level-0**
 - incubate new fundamental knowledge & disruptive ideas
 - strong potential for innovation
- **Level-1 + CSA-CA**
 - Focus on greening, cost-efficiency, pioneering
- **Level-2**
 - Complementing previous L2 research projects & ongoing demonstration work in the 'Clean Sky' Integrated Technology Demonstrators



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THANK YOU !

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