

## 2.1.10. EDF-2022-RA-PROTMOB-FMTC: Future mid-size tactical cargo aircraft

### **Budget**

The Union is considering a contribution of up to EUR 30 000 000 for this topic under the call EDF-2022-RA

**Number of actions to be funded:** Several actions, addressing different solutions, may be funded for this topic

### **Objectives**

Tactical transport aircrafts are the workhorses of battlefields, fulfilling missions like airdrop delivery, parachutist drop, logistics, medical evacuation (MEDEVAC), air to air refuelling, special missions under harsh and adverse conditions, which are critical for the success of military operations. Operations in hostile environments demand e.g., built in electronic warfare self-protection systems and set requirements on the platform performance/build up in order to be suitable for the task, and furthermore to operate with limited ground infrastructure (e.g., unprepared runways).

Beyond their pure military role, tactical transport aircrafts are also key assets for a better civil defence/protection and EU-internal needs, with critical contribution to disaster relief, search- and-rescue and sanitary crises response.

Beside the A400M, which is on the high-performance side of the capacity, the initial conception of the majority of currently operating tactical aircraft (C130, C-295, C-27J ...) is now 40 years old, and there is a need for a new medium tactical European aircraft, lighter than the A400M that could provide a complementary capacity for tactical transport.

Currently, some EU Member States are operating medium payload tactical military transport aircrafts within their fleet, which can be replaced with growing capabilities, able to cope with the envisaged operational challenges.

The Future Mid-size Tactical Cargo aircraft (FMTC) feasibility study proposal for EDF 2022 addresses this coming strategic gap within the European transport portfolio. FMTC proposes a cooperative analysis of the transport aircraft replacement needs on the 2030-2050 horizon and the identification of European development opportunities, among the EDF participating Member States and associated countries.

This topic is an opportunity for Europe to federate efforts by providing the EU defence community (nations and industry) with robust elements to decide what the 2035+ future of EU military tactical transport could be.

### **Scope and types of activities**

#### ***Scope***

The scope must cover the feasibility study phase of the possible development of a future tactical transport aircraft.

Proposals must include at least the following activities:

- Feasibility Study for one or two aircraft, depending on the convergence on the requirements by the participating Member States and associated countries;

- Preliminary requirements review (PRR) accepted by the cooperating Member States and associated countries, which will confirm the technical, programmatic, industrial and market feasibility of the analysed solutions, giving participating States all necessary elements to select the aircraft configuration that could be carried forward through a development and industrialization phase.

### *Types of activities*

The following types of activities are eligible for this topic:

Types of activities (art 10(3) EDF Regulation)		Eligible?
(a)	Activities that aim to create, underpin and improve knowledge, products and technologies, including disruptive technologies, which can achieve significant effects in the area of defence ( <b>generating knowledge</b> )	Yes (optional)
(b)	Activities that aim to increase interoperability and resilience, including secured production and exchange of data, to master critical defence technologies, to strengthen the security of supply or to enable the effective exploitation of results for defence products and technologies ( <b>integrating knowledge</b> )	Yes (optional)
(c)	<b>Studies</b> , such as feasibility studies to explore the feasibility of new or upgraded products, technologies, processes, services and solutions	Yes (mandatory)
(d)	<b>Design</b> of a defence product, tangible or intangible component or technology as well as the definition of the technical specifications on which such design has been developed, including partial tests for risk reduction in an industrial or representative environment	Yes (optional)
(e)	System prototyping of a defence product, tangible or intangible component or technology ( <b>prototype</b> )	No
(f)	<b>Testing</b> of a defence product, tangible or intangible component or technology	No
(g)	<b>Qualification</b> of a defence product, tangible or intangible component or technology	No
(h)	<b>Certification</b> of a defence product, tangible or intangible component or technology	No
(i)	Development of technologies or assets <b>increasing efficiency</b> across the life cycle of defence products and technologies	No

In particular, proposals must address:

#### **a- Technical activities:**

- Definition and assessment of the candidate aircraft solutions (one or two aircraft alternatives);
- Assessment of the preliminary technical specifications, concept studies and sizing for major sub-systems (propulsion, avionics and general systems);
- Identification of critical technologies for technical and economic feasibility, and proposal of pre-development plans. Specific areas of interest are:
  - o design and manufacturing technologies to reduce acquisition and maintenance costs;

- technologies towards lower or zero emission production and operation;
- technologies to improve operational availability.
- Identification of critical technologies to improve the operational capability in the domain of:
  - take-off and landing in challenged environment;
  - wide range and low consumption;
  - self-protection capabilities;
  - more autonomy;
  - improved connectivity in the operational theatre.
- b- Programme activities:**
  - Establish the preliminary programme management and the system engineering plans;
  - Establish the overall programme schedule / roadmap;
  - Perform a costing evaluation exercise;
  - Perform a market assessment review;
  - Identify risks and constraints related to implementation, costs, schedule, organisation, operations, maintenance, production and disposal;
  - Identify key technological aspects and plan for their maturation within the programme plan.
- c- Operations activities:**
  - Define the concept of operation;
  - Define the sustainment model (i.e., number of planned flight hours, layout of bases, deployments);
  - Define a baseline for aircraft logistic support.
- d- Iterative definition of aircraft detailed requirements:**
  - Perform a mission definition review (MDR) and Preliminary Requirements Review (PRR).
- e- For a subsequent design phase:**
  - Provide a proposal for a best candidate solution based on a complete value analysis covering performances, costs, risks, modularity, manufacturability, safety, consistency with Member States and Norway' operational needs, with jointly defined detailed criteria and hypothesis.

### **Functional requirements**

The proposition of a new aircraft development would be based on:

- (1) Intangible:

- European Geo return: Development and involvement of European industries, acting as tractor for many European aerospace companies and small and medium-sized enterprises (SMEs);
- Export opportunities: Custom made to fit EU partner's requirements, with open architecture to address worldwide opportunities;
- Based on operational scenarios & threat environment 2030+ (i.e., Multi Domain connectivity).

(2) Tangible:

- Affordability, in terms of acquisition and lifecycle costs. Operating costs below similar available solutions in the market;
- Operations in demanding unprepared runways, hostile environments and tactical intra theatre operations;
- Flexibility for operating different kind of military missions and possibly reconfigurable for supporting civilian needs;
- Logistics capability: ability to carry tactical vehicles that do not fit in existing solutions;
- Multi-mission capability: ability to act as a multi-mission transport platform and be customized for specific roles;
- State of the art development, ensuring availability and reliability of the platform and avoiding obsolescence concerns;
- Sustainability along the entire product lifecycle: from the conception / production by means of digitalisation up to the product use with reduced environmental footprint due to e.g., advanced propulsion system, low weight and more efficient flight capabilities.

**Expected impact**

- Reinforce the European strategic autonomy in the military transport segment;
- Develop vital military capabilities in highly contested environments (e.g., tactical transport, airdrop, air assault) against technologically advanced adversaries;
- Develop EU MEDEVAC capabilities and EU disaster relief, and sanitary crisis response capabilities;
- Promote and protect the European technological and industrial ecosystem, based on a potential new aircraft development;
- Enhance cross-border collaboration (from large industrial groups to SMEs) through the opportunities offered by the several elements of the platform and its architecture.