

EDF-2022-DA-C4ISR-EC2: European command and control system

Budget

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

Number of actions to be funded: up to one action may be funded for this topic

Objectives

General objective

An effective and robust EU military C2 capability for missions and operations is an essential element of the overall EU effort regarding the CSDP. The lack of an adequate Joint C2 system in the EU military C2 structure is a critical shortfall identified in the EU High Impact Capability Goals 2020 and capability development processes in the area of cross-domain capabilities contributing to achieve EU's Level of Ambition (LoA), particularly, capabilities to operate autonomously within EU's LoA. This is especially pressing for the development of the Military Planning and Conduct Capability (MPCC), which is currently not able to achieve the Full Operational Capable status with the current C2 and CIS arrangements. Interoperability with existing or in-development national C2 systems is of key importance in order to ensure the seamless coordination of joint and combined (EU) military operations.

Specific objective

This call for proposals intends to pave the way for complementing or replacing existing European External Action Service (EEAS) C2 and Communication and Information Systems (CIS), to enhance and further develop the Military Planning and Conduct Capability (MPCC), covering all military operations, both executive and non-executive, within the EU's Level of Ambition as formulated in the EU Global Strategy, subsequent Council Conclusions and the Strategic Compass. The ultimate aim is to allow planning and conduct of CSDP missions and operations at strategical and operational level.

Considering the MPCC development timescale and other relevant documents, such as the Strategic Compass, the action must be finalised, in accordance with the requirements contained in this call, by the end of 2025.

Scope and types of activities

Scope

Proposals must demonstrate the capability to develop such a C2 capability and business and common services using a software technology model. Interfaces with existing and in-development EU, NATO and national C2 systems must be substantiated to ensure future interoperability.

The software technology model, which may integrate existing modules, must provide the services and functionalities required to demonstrate that the MPCC, as the main foreseen end-user, would be able to simultaneously plan and conduct executive and non-executive missions and operations, anywhere in the world, autonomously or in cooperation with other EEAS services, EU Member States, Norway or international organizations (*e.g.*, mainly NATO).

The demonstration of the software technology model should be based on a scenario with the

mandatory participation of the MPCC as the main foreseen end-user and include the end-to-end connections and business exchanges with national C2 systems required for seamless command and control at EU-level in close coordination and collaboration with national authorities.

This demonstrated software technology model should pave the way for any further required developments and allow EU to launch the procurement of a new C2 capability eventually, including regarding the C2 software suite components that should be ready, and include the necessary provisions, to allow the end-user a fast and agile transition from software delivery to operational use.

Potential synergies and complementarity with ongoing projects at national, multinational, or EU level in particular, must be given due consideration. In any case, proposals must not duplicate the main objective and work requested in the call EDIDP-ESC2S-2019 – *European Command and Control (C2) system for strategic and operational level*²¹.

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 (generating knowledge)	No
(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 (integrating knowledge)	Yes (optional)
(c)	Studies , such as feasibility studies to explore the feasibility of new or upgraded products, technologies, processes, services and solutions	Yes (optional)
(d)	Design 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 (mandatory)
(e)	System prototyping of a defence product, tangible or intangible component or technology (prototype)	Yes (optional)
(f)	Testing of a defence product, tangible or intangible component or technology	Yes (optional)
(g)	Qualification of a defence product, tangible or intangible component or technology	Yes (optional)
(h)	Certification of a defence product, tangible or intangible component or technology	Yes (optional)

²¹<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/edidp-esc2s-2019>

Types of activities (art 10(3) EDF Regulation)		Eligible?
(i)	Development of technologies or assets increasing efficiency across the life cycle of defence products and technologies	Yes (optional)

Among mandatory design activities, initial tests and delivery of the software technology model to be developed should be attained within two years after the signature of the grant agreement.

Functional requirements

The capability to be developed should meet the following functional requirements:

REQ 1 - High degree of reliability and availability.

REQ 2 - High level of maturity that paves the way for the end user's swift transition from software delivery to operational use.

Software operational functionalities:

REQ 3 - Plans:

- Web Based Planning for planning operations/missions. Highly flexible and based on open workflows of information and templates.
- Operations Planning, Support. Specification of actors, timings, objectives to achieve the campaign goals; designing and comparing Courses Of Actions (COA), producing the Synchronization matrix; ROE management.
- Integration of common services (GIS, Messaging, data distribution, etc.), applied to planning.

REQ 4 - Cyber activities and Cyber operations:

- Recognized Cyber Picture (RCyP): Integrate and disseminate available cyber information into the operational to achieve Real-time full Cyber Situational Awareness.
- Rapid defensive response: Rapid containment and response to cyber-attacks.
- Cyber risks management: Cyber risks management during the planning and execution phases of an operation considering and evaluating known threats, risks and information from intelligence sources and the Cyber Space Situation.

REQ 5 - Intelligence, Surveillance and Reconnaissance (ISR):

- Advanced Intelligence Exploitation to collect, process and analyse a wide range of data types (video, imagery, reports, office documents) from open sources and generating different types of analysis view (relational diagrams, temporal, statistical...). It includes advanced search and analysis capabilities on structured and non-structured data.

- Monitoring and assessing international events to detect potential risks.
- Early Warning and SA to have a clear view of the monitored areas.
- Intelligence plans management. Collection plans and allocation of Intelligence, Surveillance & Reconnaissance (ISR) means.
- ORBAT²² management.
- Comparison and extrapolation of own and adversary forces capabilities (based on equipment) with history enhanced.

REQ 6 - Missions and Operations:

- Missions/operations Assessment. Provide measurement of progress, effectiveness and results of the military missions/operations.
- Planning: measurable tasks, objectives, end state conditions, and associated effects and criterion to assist with assessing progress.
- Preparation & Execution: structured monitoring of the current situation and enables evaluation of the operation's progress.
- Joint Task Force HQ Management. Support for the JTF HQ decision cycle and event management of Battle rhythm.
- Info Ops. Support for the analysis, planning, management, deployment, monitoring and assessment of coordinated military activities within the information domain.
- Battlespace management. To enable the dynamic coordination and synchronization of activities in the whole battlespace (Land, maritime, Air, Space, Cyber) according to the commander's priorities.
- Situational Awareness. To gain knowledge, cognition and anticipation of events, factors and variables affecting the safe, expedient and effective conduct of missions/operations.
- Meteorological and Oceanographic (METOC) management. Provides information related to weather and oceanographic observation and forecasting.

REQ 7 - COP integration and management.

- Integration and management of the different COPs available: Recognized Air Picture (RAP), Recognized Maritime Picture (RMP), Recognized Civil Picture (RCP), Recognized Intelligence Picture (RIP), Recognized CIS Picture (RCISP), Recognized Logistics Picture (RLP), Recognized Electromagnetically Picture (REMP), Recognized Environmental Picture (REP), Recognized CRBN Picture (RCBRNP), Recognized Engineer Picture (RENGGP), Recognized Cyber Picture (RCyP), Recognized Medical Picture (RMedP), Recognized Targeting Picture, Space Domain Common Operating Picture (SCOP) and Other Partners Information.

²² Order of battle report

REQ 8 - Logistics:

- Logistic information provision. Provide relevant and accurate logistic information related to EU and national forces and civilian actors timely.
- Infrastructure data management: Define and manage infrastructure objects like road and railway networks, airfields, ports, bridges or Reception, staging and Onward Movement (RSOM) hubs Ports of Debarkation (PODs).
- Force deployment planning. Calculate and plan convoy movements, and it will manage the resulting movement plans and resolve conflicts between activities during force deployment. It will find optimized paths in multi-modal transportation networks.
- Customs management. Generate required EU customs forms 302 and it will make use of EU existing or future projects that aim to digitize the EU customs form 302.

REQ 9 - Training:

- Initial capability for user training, simulation and exercises
- Management of Geographic Information System

REQ 10 - Core GIS:

- Cartography display and management, including access to ArcGIS server maps, with the ability to operate and convert all types of grids.
- Analysis and management of geospatial data.
- Symbology display and management compatible with relevant standards (APP-6A, APP-6B, APP-6C, APP-6D, MIL-STD-2525B and MIL-STD-2525C)
- Generation, management and display of automatic alarms and warnings based on geographic areas and track/contact lists.
- Use of Artificial Intelligence on both structured and unstructured data to collect, analyse and represent data.
- Geo Web Services: providing access to geographical data through common data exchange standards like Open Geospatial Consortium (OGC): Geography Markup Language (GML), Keyhole Markup Language (KML), Filter, Simple Features, Symbology Encoding, Web Feature Service (WFS), Web Map Service (WMS), Web Map Tile Service (WMTS) and Web Coverage Service (WCS).

REQ 11 - Interoperability:

- Process integration services allowing to integrate seamlessly with one another
- Data and information Exchange with import and export of data provided by current EU-systems to ensure the timely availability and integrity of information.

- Endless real-time data capacity (big data)
- Secure Office Local Area Network (SOLAN) that hosts EUCCIS and its successor (EC3IS).
- EUMS Lessons Management Application (ELMA)/ Collaboration Application for Management of EU-led Operations (CAMEO).
- Military Archiving and Retrieval System (MARS).
- Interoperability with different EU systems: EUMS Lessons Management Application (ELMA)/ Collaboration Application for Management of EU-led Operations (CAMEO), EU Operations Wide Area Network (EOW), RESCOM, MRC2.
- Interoperability with EU Member States and Norway systems based on common standards.
- Federated mission network (FMN) compliant.

REQ 12 - Common services.

- System administration and user management in line with relevant operational and security policies and doctrine.
- Provide e-mail exchange and common file network among EC2 users and with external entities.

Expected impact

The expected impacts from the action should be:

- Development of Joint C2 critical enablers for CSDP operations and missions.
- Reduction of the minimum reaction time for deployment of European military missions.
- Integration of all CIS and ISR data provided by Member States, Norway, EU forces, NATO and civil agencies.
- Situational awareness improvement, resilience and security of EU operations.
- Creation of a reference Strategic C2 System that will improve the capabilities of the European defence industry to develop and supply state-of-the-art C2 systems.
- Reinforcement of the interoperability of Member States and Norway' armed forces.
- Cost reduction of European military missions.
- Enhancement of unity of command, from the strategic to the tactical level.
- Interoperability achievement and matching of heterogeneous networks.
- Command connectivity improvement among all users.
- Visualization capabilities in near real time to multiple platforms and a broad range of capabilities and C&C-scenarios.



- Technological advancement concerning net centricity applied to military C4ISR systems.