

# Electronic Warfare

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## DEFENCE APPLICATIONS



The electromagnetic spectrum (EMS) is a critical enabler for all military domains: land, air, sea, space, and cyber



Disruption or denial of EMS access can compromise command and control, surveillance, navigation, and weapons guidance



EW provides non-kinetic, flexible tools to degrade adversary capabilities while reducing collateral damage

## Why is EW key for defence?

Electronic Warfare (EW) is a strategic enabler of multi-domain operations, as land, air, sea, space, and cyber forces all depend on **secure and reliable access to the electromagnetic spectrum (EMS)**. Acting as a true force multiplier, it delivers real-time situational awareness, reinforces command and control, and enhances targeting precision, while ensuring operational resilience in contested environments where communications, radar, and satellite navigation systems are exposed to disruption or denial.

Today, EW has emerged as a **strategic domain of competition**, with major global powers investing heavily to achieve spectrum superiority. Its ability to neutralise adversarial capabilities without kinetic engagement makes it an essential tool for preserving critical infrastructure, **minimizing collateral damage**, and safeguarding both civilian and military personnel.

## What does the EU aim to achieve?

The priorities outlined in the White Paper on European Defence – Readiness 2030 aim to achieve **full-spectrum Electronic Warfare capabilities**.

**Key actions under the European Defence Fund** focus on strengthening EU leadership in next-generation EW by processing vast amounts of data in real time. This includes gathering intelligence from diverse sources, such as **unmanned aerial vehicles (UAVs)**, to optimize intelligence, surveillance, target acquisition, and reconnaissance (ISTAR).

Through the EDF, the Union is investing in advanced technologies to **reduce dependency on non-EU suppliers**, close critical capability gaps, and enhance resilience and strategic autonomy in the electromagnetic spectrum. These efforts leverage a network of industrial, academic, and governmental stakeholders, fostering cross-border cooperation among Member States and Norway.

## The importance of Electronic Warfare



Spectrum dominance



Situational awareness



Secure communications



Non-lethal deterrence



Command resilience



Detection and disruption of hostile actions

## Main vulnerabilities arising from the use of Electronic Warfare



Integration with AI for automated EMS dominance



Jamming attacks



Espionage via interception of signals



GNSS Spoofing and denial of navigation



Attacks on electronics



Attribution and accountability challenges

## When will results translate into military capabilities?

A successful example is the **CARMENTA project**, first funded under EDIDP and now continued in **CARMENTA PF**. The project aims to design, develop, verify, validate, qualify and certify a next-generation Self Protection System (SPS) that will significantly **increase the survivability of combat and non-combat aircraft** in hostile environments. The follow-up project, **CARMENTA PF**, is advancing towards design, prototyping and testing of this innovative system.

Other notable examples include the projects **REACT II**, **SCEPTER**, and **AI-WASP**. **REACT II** is advancing electronic attack and counter-attack capabilities for cooperative tasks. **SCEPTER** seeks to combine radar, EW, and communication functions with adaptive cognitive features, enhancing situational awareness across air, land, and sea domains. **AI-WASP** will integrate secure communications, RF surveillance, and electronic attack functions into a single airborne payload. Together, these projects are expected to **deliver results between 2025 and 2028**, providing EU forces with a new generation of deployable systems able to operate in contested electromagnetic environments.

### Projects from precursor programmes PADR/EDIDP currently delivering results



#### REACT

Responsive Electronic Attack for Cooperative Tasks  
EU financing: €11.58M



#### CARMENTA

Future European Self Protection System for Fixed Wing and Rotary Wing airborne platforms  
EU financing: €9.69M



#### CROWN

European active electronically scanned array with Combined Radar, cOmmunications, and electronic Warfare fuNctions for military applications  
EU financing: €10M

### EDF projects expected to deliver results in 2025-2028



#### CARMENTA PF

*CARMENTA Primum Fuga*  
EU financing: €32.9M



#### SCEPTER

Multifunction System Concept applied to Communications, EW and Radar  
EU financing: €35M



#### REACT II

Responsive Electronic Attack for Cooperation Tasks II  
EU financing: €40M



#### AI-WASP

Artificial Intelligence Warfare Adaptive Swarm Platform  
EU financing: €45M