

ABOUT iFACT-MP

The iFACT-MP project aims to develop a **competitive iodine-fed thruster** for the 3-5 kW range, by focusing on **key components** like the **Advanced Cusp Field Thruster (ACFT)**, the **fluid system** (including a heated iodine reservoir, an optical flow sensor and control for the thruster), the **neutralizer** and functionally equivalent **PPU breadboard**. The **goal** is to **scale up the ACFT and develop the necessary fluidic components to realize a functional iodine Electric Propulsion (EP) subsystem and enhance its maturity**.

iFACT-MP EXPECTED IMPACT

Sustainability

Drastic reduction in propellant carbon footprint

Strategic

Ensuring 100% non-dependence from other countries

Excellence

Expand leadership in iodine EP

Economic

Significant reduction in propellant & subsystem cost

Performance

Highly throttleable thruster with xenon-like performance

iFACT-MP TEAM

AIRBUS

AIRBUS DEFENCE AND SPACE GMBH
AIRBUS DEFENCE AND SPACE SAS

Fraunhofer AEROSPAZIO



UNIVERSITÀ DI PISA

EASN TIS

CONNECT WITH iFACT-MP

101134963 01.01.2024 24 Months

Coordinated by
AIRBUS DEFENCE & SPACE GMBH

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Funded by
the European Union.



iFACT-MP

iodine Fed Advanced
Cusp field Thruster for
Mid-Power

**“Showcasing European leadership
in iodine Electric Propulsion (EP)”**

Funded by the European Union under GA No 101134963. Views and opinions expressed are however those of the author(s) only and not necessarily reflect those of the European Union or HADEA. Neither the European Union nor HADEA can be held responsible for them.

Design by EASN-TIS

iFACT-MP OBJECTIVES



Specification

Conducting a thorough analysis of market and platform needs to determine the requirements for a compelling Electric Propulsion (EP) subsystem.



Thruster

Scaling up the Advanced Cusp Field Thruster (ACFT) to the 3-5 kW power range to meet higher power class demands.



Cathode

Innovating the development of an iodine-fed hollow cathode utilizing C12A7 emitters with enhanced performance characteristics.



Fluidics

Establishing a complete chain comprising a heated tank, flow control mechanism, and piping for the iodine EP system.



Test Facility

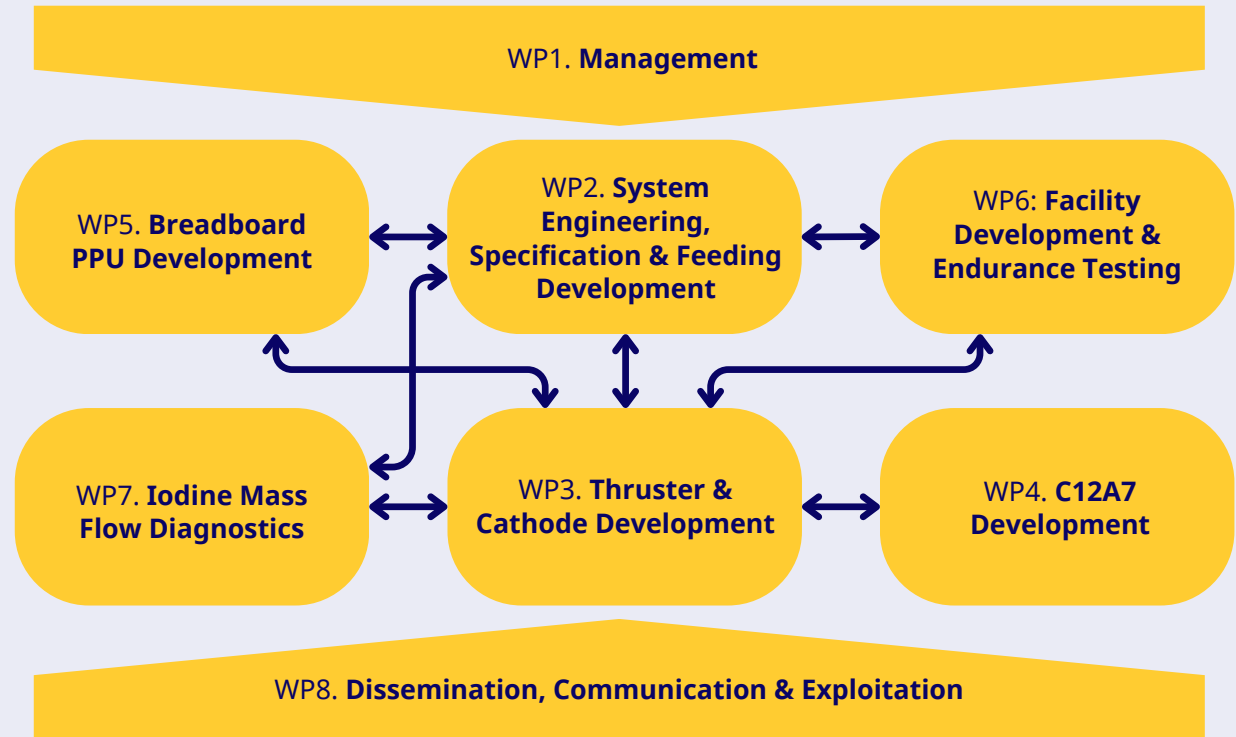
Creating an iodine-compatible vacuum chamber capable of enabling thorough characterization and endurance testing at the required power level.



Diagnostics

Pioneering the development of an optical sensor designed to measure iodine flow rate in-situ, enhancing precision and monitoring capabilities.

iFACT-MP WORKPLAN



iFACT-MP KPI's

	State of the Art 3-5 kW EPS (Xe HET)	iFACT-MP EPS	
Subsystem Cost	100%	80%	80%
Subsystem Volume	100%	35%	35%
Thruster unit Mass	12kg	<10kg	67%
Propellant Cost	5000 - 15000 €/kg	<100 €/kg	2%
Integration Cost	100%	80%	80%
Specific Impulse	1630 - 1860s	>1800s	125%
Propellant CO2e	685 t _{CO2e} /MNs	<1 t _{CO2e} /MNs	< 0.1%