Technology SME-led consortium seeks three specific partners for a Horizon Europe Innovation Action on robotics, artificial intelligence, extended reality and smart protective equipment for hazardous search and rescue

Summary

Profile type	Company's country	POD reference
Research & Development Request	**Spain**	**RDRES20260514009**
Profile status	**Type of partnership**	**Targeted countries**
PUBLISHED	**Research and development cooperation agreement**	**• All countries**
Contact Person	**Term of validity**	**Last update**
Enrico FRANZIN	**22 May 2026** **22 May 2027**	**22 May 2026**

General Information

Short summary

A technology SME-led consortium seeks three specific partners for the HORIZON-CL3-2026-01-DRS-03 call. The project develops an integrated search and rescue platform combining autonomous robotics, multi-sensor artificial intelligence, resilient communications, extended reality and smart protective equipment. Sought: a resilient telecommunications specialist (5G MCX/mesh/satellite), a smart protective equipment manufacturer, and a third emergency medical service or civil protection authority.

Full description

THE PROJECT
Emergency responders operating in hazardous environments — structural fires, chemical or radiological incidents, collapsed buildings, large-scale multi-agency emergencies — face severe constraints: limited situational awareness, degraded or absent communications, high risk of responder exposure and poor interoperability across agencies and countries. The objective of this Horizon Europe Innovation Action is to develop and validate an integrated search and rescue platform that addresses these gaps by combining four technology layers: (1) a heterogeneous fleet of autonomous aerial and ground robots equipped with thermal, lidar and chemical/biological/radiological/nuclear sensors; (2) a multi-sensor artificial intelligence engine for victim detection, situational mapping and explainable decision support; (3) an extended reality environment for mission rehearsal, augmented-reality field guidance and a digital operational twin; and (4) smart protective equipment with biometric and environmental monitoring integrated into a unified common operational picture. The platform will be validated through three operational pilots of increasing scale, covering urban chemical incidents, industrial communication-blackout scenarios, earthquake urban search and rescue, and large multi-agency emergencies. The expected outcomes are a reduction of at least 40% in victim location time, at least 95% communications continuity in fully disrupted environments, and a system usability score of 80 or above across emergency services in at least three Member States. Results will be exploited through market-ready components, standardisation contributions and a civil protection uptake roadmap.

THE PROGRAMME
The project is submitted under Horizon Europe, Work Programme 2026-2027, Cluster 3 'Civil Security for Society', topic HORIZON-CL3-2026-01-DRS-03 'Technologies for first responders in hazardous and difficult-to-access environments'.

THE PARTNERSHIP
The consortium is largely formed and includes: a Spanish artificial intelligence and extended reality SME as technical lead and coordinator; a second Spanish SME as artificial intelligence and extended reality lead; an Irish university specialised in autonomous robotics and systems integration; an Italian fire and urban search and rescue service with chemical/biological/radiological/nuclear capacity; a Greek volunteer search and rescue team; an Italian emergency medical authority; a Canadian associated partner for mission planning software; a Bosnian university for testing and validation; and a Swiss associated partner for simulation and synthetic data generation.

PARTNERS SOUGHT
1. RESILIENT TELECOMMUNICATIONS SPECIALIST: a company with mission-critical 5G (MCX), self-forming mesh network and satellite back-up expertise, and experience in public-safety communications.
2. SMART PROTECTIVE EQUIPMENT MANUFACTURER: a small or medium-sized enterprise or industrial company with wearable biometric and environmental sensor products and experience with EU Medical Device Regulation or equivalent certification.
3. EMERGENCY MEDICAL SERVICE OR CIVIL PROTECTION AUTHORITY: a national or regional authority from a Member State other than Italy and Greece, with operational mandate and multi-agency coordination experience.

TIMESCALES
Deadline for expression of interest: 15 July 2026. Official call deadline: 12 November 2026. Anticipated project duration: 36 months.

Advantages and innovations

The planned platform integrates technologies that are typically developed and deployed in isolation — robotics, artificial intelligence, extended reality and protective equipment — into a single interoperable system validated in real operational conditions. Key innovations include:
- Autonomous heterogeneous robot fleet (aerial and ground) with onboard multi-sensor fusion (thermal, lidar, radar Doppler, acoustic, chemical/biological/radiological/nuclear) and edge artificial intelligence with latency below two seconds;

- Explainable artificial intelligence layer ensuring compliance with the EU Artificial Intelligence Act for high-risk safety applications;
- Resilient communication architecture combining mesh, fifth generation mission-critical and satellite fall-back, validated in complete communication-blackout scenarios;
- Extended reality copilot based on large language model and retrieval-augmented generation trained on standardised emergency procedures, combined with augmented-reality heads-up display for field responders and a real-time digital operational twin;
- Smart protective equipment with integrated biometric monitoring (heart rate, blood oxygen, temperature), environmental sensing (gas, radiation) and indoor localisation, feeding a unified common operational picture;
- Mandatory Galileo and Copernicus data integration as required by the call;
- Validation through three progressive pilots with at least three emergency services from at least three Member States, producing quantified key performance indicators against pre-agreed baselines.

The project is expected to reduce victim location time by at least 40%, responder exposure in hazardous zones by at least 50%, and command errors by at least 30%, while demonstrating full interoperability with European civil protection platforms.

Technical specification or expertise sought

RESILIENT TELECOMMUNICATIONS SPECIALIST: demonstrated expertise in mission-critical 5G communications (MCX standard), self-forming mesh networks for degraded or denied environments, and satellite back-up integration; experience with public-safety communications standards such as TETRA or mission-critical push-to-talk; capacity to develop and validate a multi-layer communication stack under complete blackout conditions.

SMART PROTECTIVE EQUIPMENT MANUFACTURER: existing wearable sensor products integrating biometric monitoring (heart rate, blood oxygen saturation, core temperature) and environmental sensing (gas detection, radiation dosimetry); demonstrated or ongoing regulatory pathway under EU Medical Device Regulation or equivalent certification framework; capability to integrate indoor localisation technology; and capacity to feed real-time data streams into a unified common operational picture platform.

EMERGENCY MEDICAL SERVICE OR CIVIL PROTECTION AUTHORITY: national or regional body with an operational mandate for emergency medical services or civil protection coordination; experience in multi-agency exercises at national or European level; capacity to host and lead a full-scale composite field pilot; and willingness to contribute to policy dissemination toward European civil protection stakeholders and institutions.

Stage of development

Under development

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 11: Sustainable Cities and Communities**
- **Goal 17: Partnerships to achieve the Goal**
- **Goal 3: Good Health and Well-being**
- **Goal 13: Climate Action**
- **Goal 16: Peace and Justice Strong Institutions**

IPR Status

Secret know-how

IPR Notes

Partner Sought

Expected role of the partner

RESILIENT TELECOMMUNICATIONS SPECIALIST
Type of partner: small or medium-sized enterprise or large company specialised in telecommunications.
Tasks: lead the development and validation of a resilient communications stack combining mesh networking, fifth-generation mission-critical communications and satellite back-up, for scenarios involving complete communication blackout; integrate the communication layer with the robotic fleet and the common operational picture; and contribute to field pilots requiring communications resilience in hazardous industrial environments.

SMART PROTECTIVE EQUIPMENT MANUFACTURER
Type of partner: small or medium-sized enterprise or industrial company.
Tasks: lead the smart protective equipment component of the project; develop or integrate wearable biometric and environmental sensors, including radiation monitoring for chemical and radiological scenarios; lead the regulatory validation pathway under EU Medical Device Regulation or equivalent; integrate indoor localisation capabilities for responders operating in complex structures; and feed real-time responder data into the common operational picture.

EMERGENCY MEDICAL SERVICE OR CIVIL PROTECTION AUTHORITY
Type of partner: public authority, emergency medical service or civil protection agency from a Member State other than Italy and Greece.
Tasks: co-design operational user requirements alongside other end-user partners; lead a full-scale composite multi-agency field pilot as operational host; lead dissemination activities toward European civil protection stakeholders including engagement with relevant European Commission directorates and coordination bodies; and contribute to the mandatory mid-term review by emergency services practitioners.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **SME 11-49**
- **Other**
- **SME 50 - 249**
- **Big company**
- **R&D Institution**

Call Details

Framework program

Horizon Europe

Call title and identifier

HORIZON-CL3-2026-01-DRS-03 – Technologies and solutions for first responders operating in hazardous and difficult-to-access environments

Submission and evaluation scheme

Single-stage submission and evaluation.

Anticipated project budget

4000000

Coordinator required

No

Deadline for EoI

15 Jul 2026

Deadline of the call

12 Nov 2026

Project duration in weeks

144

Web link to the call

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/HORIZON-CL3-2026-01-DRS-03

Project title and acronym

RESCUE-XR – Robotic, Extended Reality and Smart Equipment Platform for Search and Rescue in Hazardous Environments

Dissemination

Technology keywords

- **01006013 - Communications Protocols, Interoperability**
- **01003023 - Environmental and Biometrics Sensors, Actuators**
- **01006008 - Satellite Technology/Positioning/Communication in GPS**
- **01003003 - Artificial Intelligence (AI)**
- **01001001 - Automation, Robotics Control Systems**

Market keywords

- **08002004 - Robotics**
- **05001001 - Diagnostic services**
- **05004002 - Rescue and emergency equipment**
- **09003001 - Engineering services**

Targeted countries

- **All countries**

Sector groups involved

- **Aerospace and Defence**
- **Digital**
- **Electronics**
- **Health**