

CONSORTIUM



EXUS Software LTD (EXUS)



Diginext Sarl (DXT)



Institute of Communication and
Computer Systems (ICCS)



Technische Universität Dresden (TUD)



LAUREA-
Ammattikorkeakoulu OY (LAU)



LEONARDO S.p.A. (LDO)



Telesto Technologies Pliroforikis
kai Epikoinonion EPE (TEL)



NATO Science and Technology Organisation (NATO)



Ministry of National Defence (HMOD)



Ministère de la Transition écologique
et solidaire (DMA)

CONTACT US

Project Coordinator

EXUS Software LTD
Tower 42, 25 Old Broad Street
EC2N 1PB London, UK
innovation@exus.co.uk

For more information on the RANGER project,
please contact:

info@ranger-project.com



[@H2020Ranger](https://twitter.com/H2020Ranger)



[H2020Ranger](https://www.linkedin.com/company/H2020Ranger)



www.ranger-project.eu



RAdars for lo**NG** distance maritime
surveillance**E** and Sa**R** operations



This project has received funding from the European Union's
Horizon 2020 research and innovation programme under
grant agreement no 700478

Project Aim

RANGER is an EU funded project, within the H2020 Horizon programme. RANGER innovates by combining novel and ground-breaking Radar technologies with state-of-the-art supporting systems deployed in maritime environment. Its main goal is delivering a surveillance platform that exceeds the capabilities of current radar systems, offering surveillance, tracking and early warnings in support of Search and Rescue (SAR) and other coast guard operations in both open sea and close to maritime borders. For RANGER to deliver its value to the intended audience (a variety of stakeholders concerned with marine SaR and surveillance as well as society), a novel Over-The-Horizon (OTH) Radar and a Photonics Enhanced Multiple Input Multiple Output (PE-MIMO) Radar is employed, in combination with an Early Warning System exploiting machine learning and data fusion techniques, and the provision of interoperable CISE compliant services for supporting cross border SaR operations. All previous will be demonstrated in the context of realistic pilot exercises.

Expected impact

Research & Innovation

- OTH (Over-The-Horizon) Radar
- Photonics Enhanced MIMO (PE-MIMO) Radar
- Data fusion and Machine Learning
- Early Warning Engine (EWE)
- Uniform Communication Gateway (UCG)

Maritime Surveillance & Operations

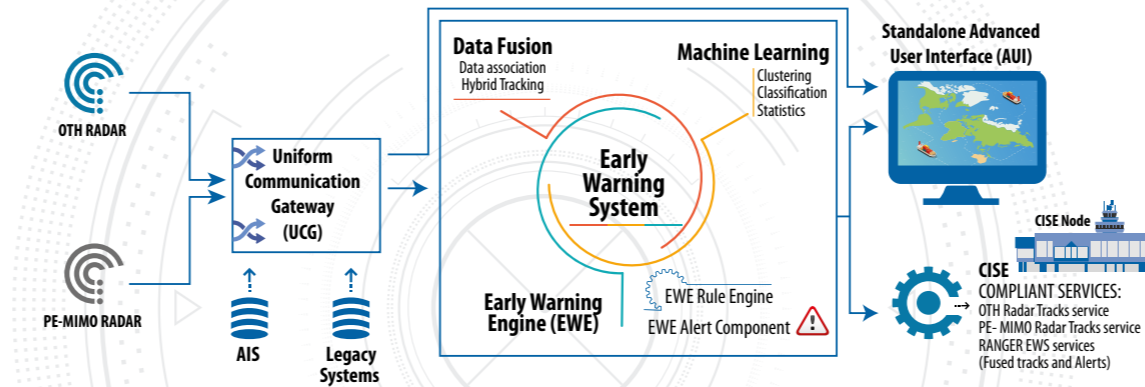
- Improvement of Search and Rescue Operations
- Early detection of small vessels
- Optimization of end-user resources
- Efficient coordination of SaR operations
- Automated and self-learning platform
- Early warnings and detection alerts
- Timely response & appropriate measures
- Reinforcement of European and National Coordination Centres position
- Enhancement of a common situational picture
- Improved detection and on-time identification of non-collaborative small vessels

Socio-economic benefits

- Citizens
 - Improved maritime security
 - Enhanced SaR capability
 - Protection of human rights
 - Opportunities stemming from technological breakthroughs
- Maritime surveillance market
 - Delivery of an economic and operationally viable solution
- Environment
 - Friendly and unobtrusive solution to the deployment environment

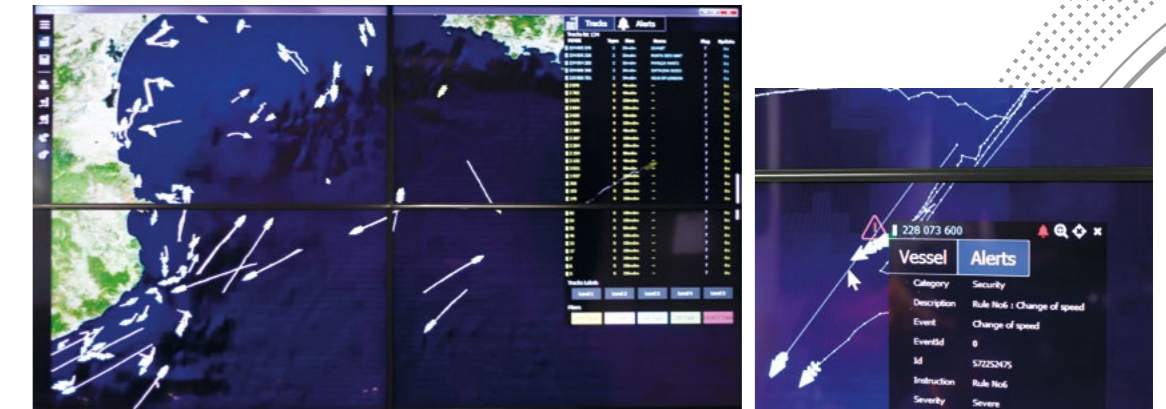
Project Objectives

- To provide a complete solution for maritime surveillance and Search and Rescue operations.
- To lower the total cost of ownership compared to existing marine surveillance platforms and radar solutions.
- To ensure compatibility of the RANGER platform with the Common Information Sharing Environment – CISE.
- To validate and demonstrate the effectiveness of the integrated RANGER platform.
- To define a multilevel compliance framework (ethical - legal - societal) that RANGER solution will be aligned with.



Advanced User Interface

The Advanced User Interface is RANGER's platform standalone interface, which displays the tracks from the different data sources (OTH Radar, PE-MIMO Radar, Fused Tracks, AIS and Legacy) as well as the alerts from the Early Warning Engine (EWE) in real-time.



Validation Pilots

Pilot 1

Will be implemented in France with the collaboration of technical partners and French end-user partners (DMA) and will be executed in two phases (1st and 2nd phase)



Pilot 2

Will be implemented in a completely different maritime environment, in Greece (Aegean Sea). It will be conducted by HMOD with the support of the RANGER technical partners and will be executed in two phases (1st and 2nd phase).