

# SIREN

## Coordinating and optimising disaster response

**To optimise humanitarian logistics and response coordination, the ITEA project SIREN (Safety & Incident Response for building Emergency Networks) will create a flexible, scalable platform utilising artificial intelligence (AI) and geographic information systems (GIS) for support with decision-making and communication following a disaster.**

### Addressing the challenge

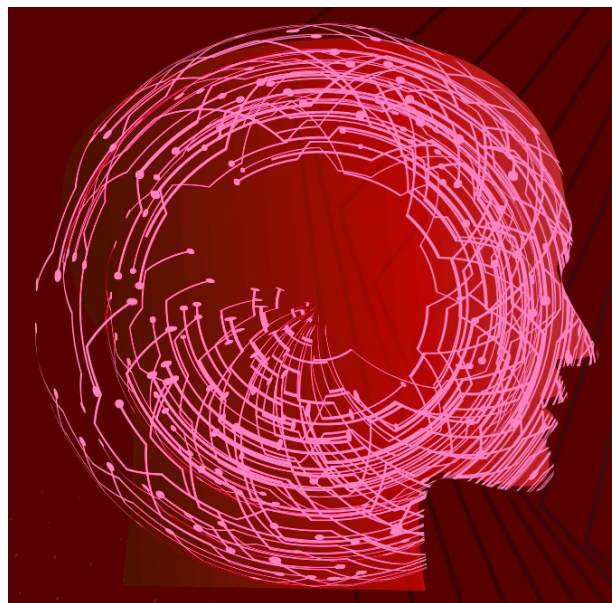
The world has witnessed significant disasters in recent years, including floods, wildfires and earthquakes. Post-disaster humanitarian logistics operations and infrastructure repair are essential in such situations, providing urgent aid, medical supplies, food, water, communications and shelter to affected communities. Timely and effective logistics can mean the difference between life and death. They are also critical to the secondary and tertiary effects of disasters, such as preventing the spread of disease or restoring critical services like water, power, sewage and communications.

### Proposed solutions

SIREN's goal is the optimisation and streamlining of disaster response efforts, for which it will expand the capabilities of humanitarian aid portals via a coordinated, GIS-integrated logistics platform with a flexible, scalable and modular design. Thanks to a disaster management and decision support tool with multiple modules, the project will enable the coordination, optimisation and data-driven decision-making aspects of the immediate post-disaster response, including equipment management, resource mapping and semantic simulation with geo-specific environments. This core component will be facilitated by an AI support system that will incorporate elements like natural language processing, predictive analytics and wearables to analyse and interpret vast amounts of structured and unstructured data for fast decision-

making. Finally, a communication network support system will ensure reliable, uninterrupted connectivity during disaster response. Integrating terrestrial and satellite networks, this will aim to provide emergency connectivity

disaster response. First and foremost, SIREN's optimisation of such responses has the potential to significantly reduce the negative impacts of disasters. This translates into less loss of life, economic damage and displacement – such as the 1.6 billion people affected by flooding between 2000 and 2019 and the corresponding USD 651 billion in damage. For the consortium, the value lies in their collective ability to offer an all-encompassing solution to humanitarian aid organisations, governmental agencies and NGOs involved in disaster response.



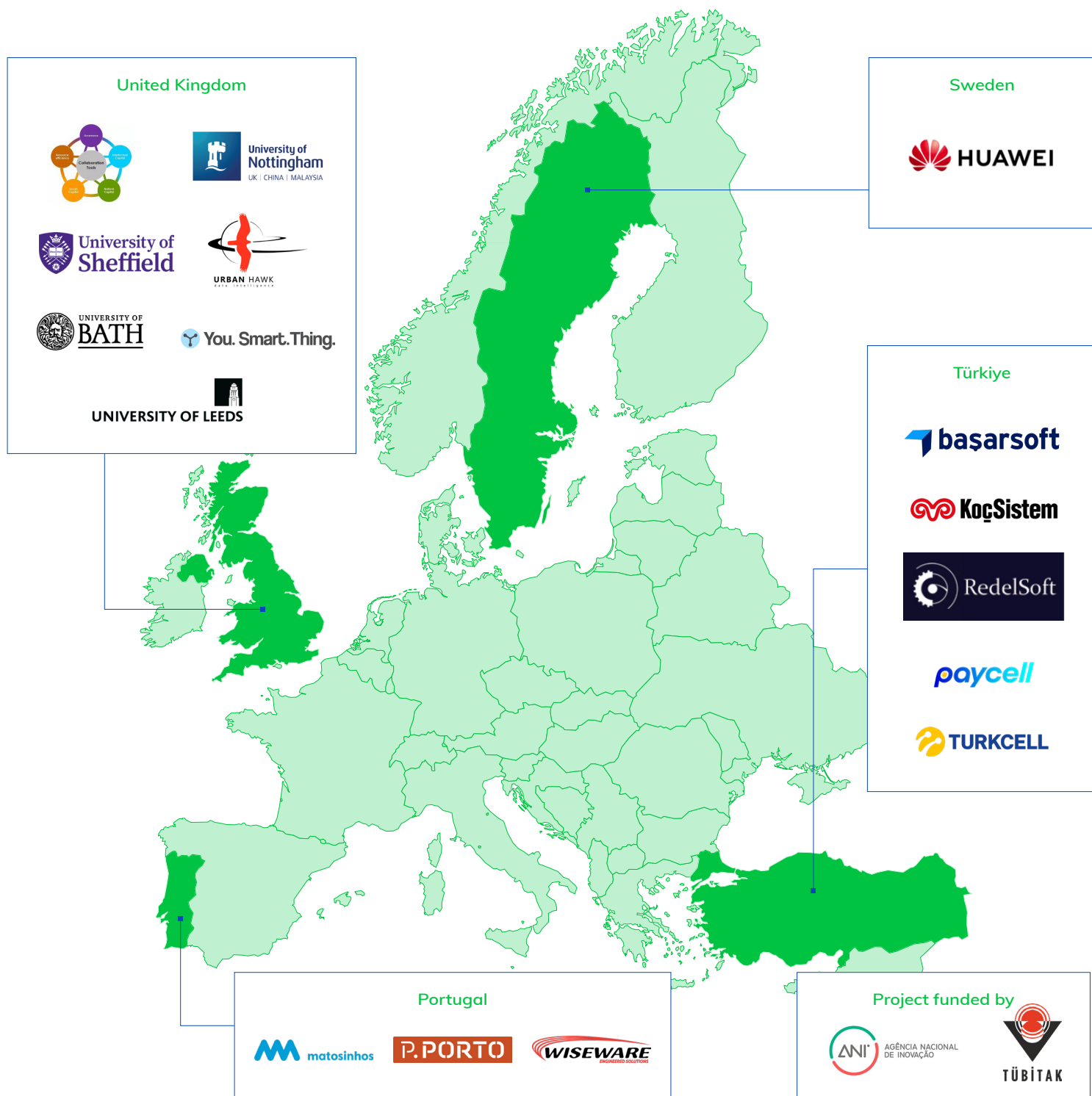
◀ SIREN will create a flexible, scalable platform utilising AI and GIS for support with decision-making and communication following a disaster.

coverage, network broadband support for emergency services, and predictive quality of service to anticipate network demands and allocate resources. Volumetric and semantic modelling will also be used for real-time simulation of the changing scenario.

### Projected results and impact

As the world's (urban) population increases, so too will the demand for

By contributing specialised tools and expertise to the joint platform, each partner can enhance its position in a global emergency and disaster response market worth USD 156.41 billion in 2023 and expected to reach USD 215.14 billion by 2028 at a compound annual growth rate of 6.58%. As a result, SIREN presents technology driven by both industry and society, with the potential to save lives in every corner of the globe.



**Project start**  
January 2025

**Project leader**  
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**Project website**  
<https://itea4.org/project/siren.html>

**Project end**  
December 2027

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<https://itea4.org>