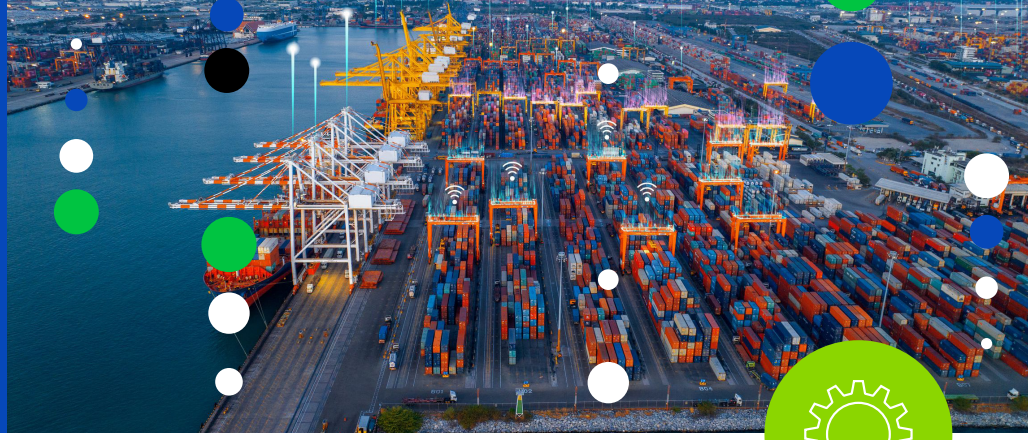
ITEA 4

Project Profile



VISION

Advanced digital twins for supply chain efficiency

To address fragmented supply chains, particularly in the aviation, construction and mining sectors, the ITEA project VISION (Virtual Integrated Supply-chain Improvement with Optimised Networking) will create a connected, intelligent supply chain management system for real-time insights, enhanced transparency, and improved efficiency and sustainability.

Addressing the challenge

Modern supply chains across various industries struggle to integrate fragmented systems and technologies, resulting in inefficiencies in material tracking and delivery, difficulties in maintaining real-time visibility of goods, and an inability to respond dynamically to disruptions. These issues lead to significant delays, increased costs and waste, and reduced customer satisfaction. Supply chains also face a growing imperative to be sustainable and secure, with industries facing pressure to reduce their carbon footprint and ensure data integrity and privacy.

Proposed solutions

VISION's goal is to create a software framework for intelligent supply chain management, designed to be versatile and adaptable across industries. In aviation, for example, this will enhance supply chain transparency and component traceability; in construction, it will optimise material handling and reduce waste. The innovation lies in the creation of data models that connect multiple digital twins, providing a comprehensive, real-time view of the supply chain. Augmented reality (AR) will be used for enhanced visualisation, effective routing, load optimisation, and interaction with supply chain data, while ultra-wideband technology will enable accurate real-time location tracking of materials and assets. The use of edge and in-network computing will address the need for reliability and reduced latency, crucial for real-time AR applications and overall system responsiveness. Additionally, VISION will incorporate advanced net-zero estimation tools to calculate shipping costs, energy requirements and carbon emissions and will develop a security framework that ensures data integrity, provenance, traceability and privacy.

Intelligent supply chain management

Projected results and impact

VISION offers improvements to efficiency in a variety of forms. In logistics, for instance, the project expects a 20% reduction in empty space during loading and, in construction, a 2% increase in productivity. This translates into serious financial benefits: even just a 2% increase would add around GDP 3 billion to the UK's construction output. With advanced digital twins, companies can also more easily identify and implement sustainable practices, through which VISION aims to reduce material waste costs by 5% and CO2 emissions per kilogramme transported by 10%. Such advancements not only reduce global carbon footprints but also bolster corporate ESG profiles, aligning business operations with regulatory requirements and public sentiment. By addressing all of these market needs, VISION provides not only a robust solution to current industry challenges but also a competitive edge to the consortium in a supply chain digital twins market set to grow from USD 9.5 billion in 2022 to USD 274 billion by 2032. In the process, the VISION framework, with its cross-industry applicability, will open up new markets and customer segments and ultimately set a new standard for supply chain management across all sectors.

Project partners

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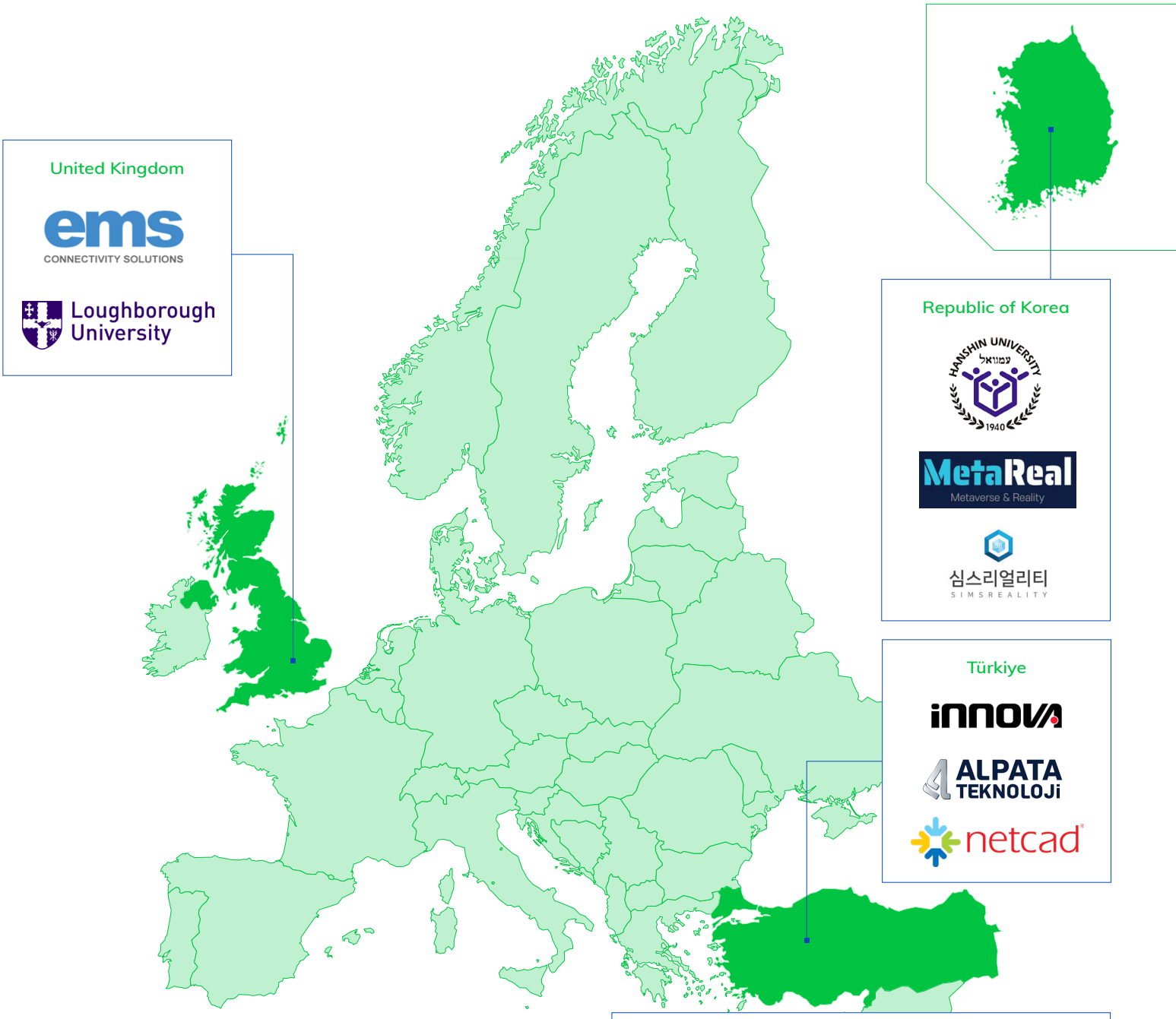

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innova

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netcad

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KIAT

UKRI Innovate UK

TÜBİTAK

Project start
April 2025

Project end
June 2028

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Project website
https://itea4.org/project/vision.html

ITEA is the Eureka RD&I Cluster on software innovation, enabling a large international community of large industry, SMEs, start-ups, academia and customer organisations, to collaborate in funded projects that turn innovative ideas into new businesses, jobs, economic growth and benefits for society. ITEA is part of the Eureka Clusters Programme (ECP).

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