CAPE

Omnichannel opportunities in retail

The ITEA project CAPE (Cognitive smart Assistant in Phygital Environment) will investigate a variety of technologies to improve the shopping experience, such as through integrated online and offline activities, personalised product recommendations, and customer and employee analysis to improve service quality.
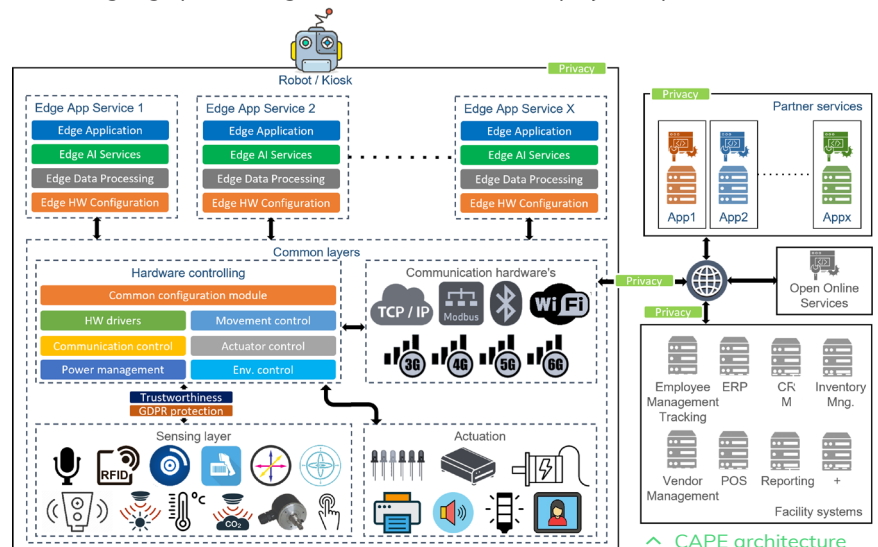
Addressing the challenge

The retail sector significantly impacts the economy but has not yet undergone true digital transformation. Customers currently perform different activities online and offline – such as online research and physical testing – but often prefer real stores. To adapt to these preferences, the retail sector needs to become omnichannel, providing a seamless, personalised shopping experience that integrates both aspects. This could include personalised set-ups and recommendations, the continuation of purchases from one channel to the other, complementary online and offline processes, and unique, impactful experiences while shopping.

Proposed solutions

To enable this retail revolution, CAPE will improve the shopping experience based not only on customer feedback, comments, questions and shopping history but also changes in customer emotions, environmental conditions, employee satisfaction and performance, goods location and promotion, and data related to other store systems. Sensor technologies will therefore be used to gather real-time information on the defined data sources of facility systems, retail items, environmental parameters, employees and customers. Interaction with customers will be handled with mobile applications, kiosks, store robots and social media channels. The result will be an array of partner products and services, including smart dialogue systems, facial emotion recognition, an

IoT platform for trust management and control, AI/IoT-based recommendation systems, customer interaction analysis with natural language processing,

^ CAPE architecture

employee tracking via passenger flow management cameras, and kiosks/robots with biometric functionalities – all united under the philosophy of value generation through collaboration.
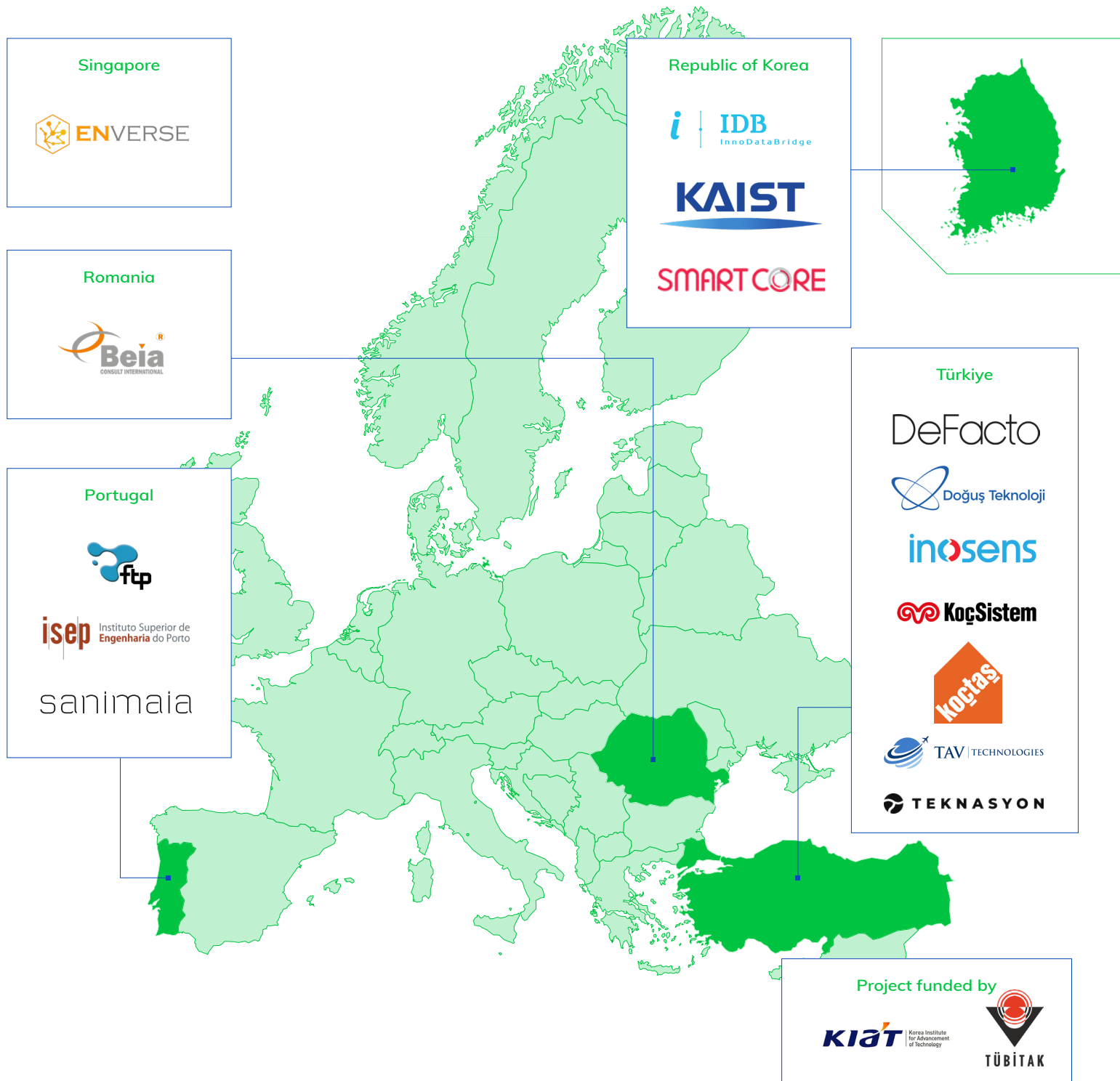
Projected results and impact

Some of CAPE's work centres on innovations for which no comparable data exists, thereby contributing to the literature and the market by offering alternative technologies not wholly found in either. Employee position analytics, for instance, has a baseline of zero but the project expects to achieve 95% accuracy within one metre. Employee speech data processing is similarly underexplored

but could reduce handling time by 40% and improve conversion rates by up to 50% by allowing businesses to better understand common customer problems and train employees accordingly. Through CAPE, the academic community will gain insights into the effectiveness of the technologies researched, which will inform the development of new systems and applications that can further improve customer/employee experience, increase

sales and boost store operational efficiency. Some insights will also be applicable in non-retail domains, such as enhancing safety and efficiency in smart manufacturing. As a result, the consortium will access new business opportunities in a global customer experience management market projected to grow from USD 19.34 billion in 2024 to USD 70.20 billion in 2032 at a 17.5% growth rate, enabling them to play a prominent role in the digital transformation of retail.

Source: https://www.fortunebusinessinsights.com/industry-reports/customer-experience-management-cem-market-101661

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TÜBİTAK

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April 2024

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