CAPE

NEWSLETTER

02.09.2025

Contents

Executive Summary

This document represents the first newsletter for the CAPE project. Within this newsletter, you will find essential updates on the project, key changes that have taken place, dissemination activities, and various other significant highlights. This document aims to keep you informed of the progress and developments of the CAPE project. The content is structured under three main topics, which we will cover in detail:

Journey of The Project

The Project Review Meeting #1

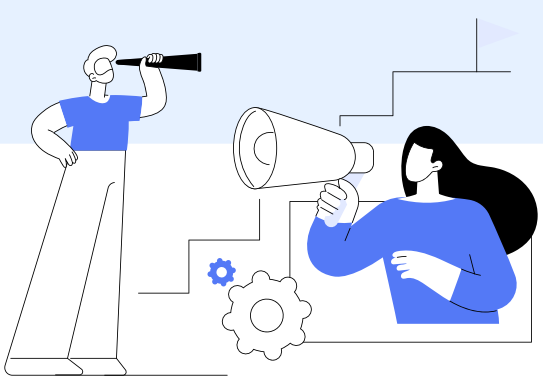
CAPE News

We hope this newsletter will provide valuable insights into the current state of the project and its ongoing progress.

Journey of the Project

The CAPE project, under the ITEA 2022 call of the EUREKA program, successfully completed the international Project Outline and Full Project Proposal stages, earning the EUREKA LABEL. A consortium of 15 companies from 5 different countries initiated their respective national application processes. Following these applications, Turkey and South Korea secured funding, while Portugal, Singapore, and Romania opted to proceed as self-funded. As project activities continue, the companies that did not receive funding are pursuing their own national funding processes.

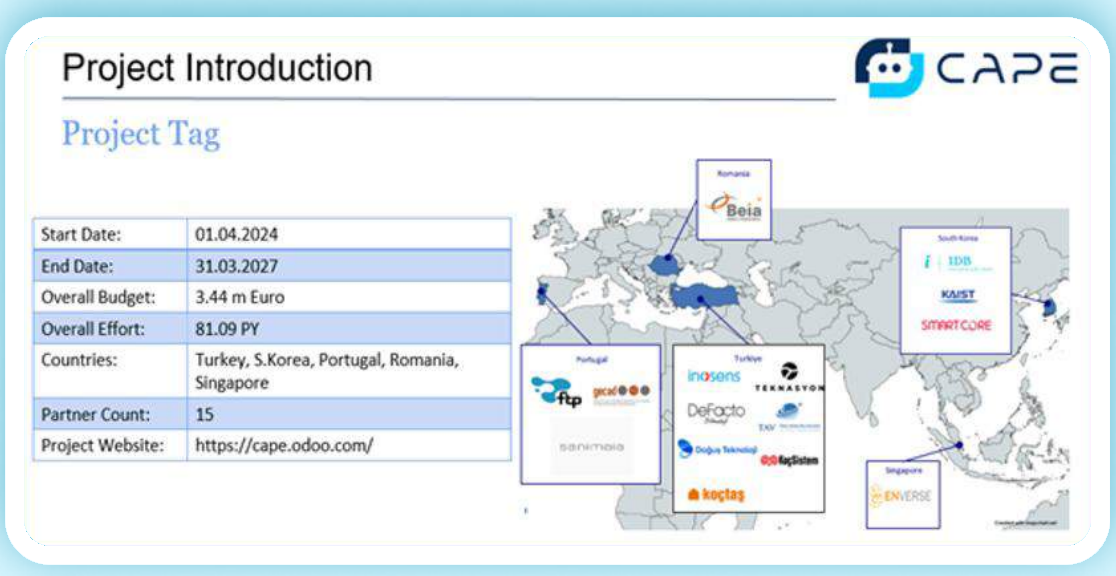
As of last April 8th, a year after the CAPE Project began, the first review was completed, and the second-year project is now underway.



The Project Review Meeting #1

The first review meeting for the CAPE Project was held online on Tuesday, April 8, 2025. In this inaugural review meeting for the CAPE Project, twelve participating organizations presented the results of their diligent work over the past year. The presentations lasted for four hours, during which the participants sincerely answered questions from the evaluation committee. The main contents presented are as follows.

- Project Introduction
- High-level Project Overview
- Use Cases
- Value Chain
- Business Impact
- Risk Management
- Partners
- Project Management
- Action List
- WP Progress



CAPE

Cape News

Highlights from the Dissemination Activities

As part of our dissemination activities, the CAPE project partner Inosens has published a comprehensive update on the official project website, marking the successful completion of the first-year review. This update showcases key accomplishments, progress milestones, and innovative outcomes achieved during the initial phase. By making this information publicly accessible, the project aims to foster transparency, broaden outreach, and strengthen collaboration with stakeholders from both industry and academia.

CAPE Project Leaflet

It highlights key innovations addressing the digital transformation gap in retail by integrating AI and IoT. From smart kiosks and robots to dialogue systems, CAPE is developing assistants that enhance customer engagement with real-time interaction, personalized recommendations, and omnichannel experiences.


ITEA 4

Project Profile

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, personalized product recommendations, and customer and employee analysis to improve service quality.

Addressing the challenge

Proposed solutions

Projected results and impact

INOSENS - KOREA Visit

On 29th and 30th April, 2025, Project Coordinator of CAPE, Dr. Ismail Uzun and Professor Yakup Genc of GTU, Turkiye visited South Korea to have discussion on future collaboration and project status in relation to CAPE at KAIST, DLIT, SmartCore and IDB.

Highlights from the Dissemination Activities

Dissemination Highlights (H1 2025)

IDB Inc. – Advancing AIoT Safety Intelligence

In the first half of 2025, IDB actively showcased AIoT-based safety solution across major exhibitions and partner seminars in Asia, including Japan IT Week Spring, AI EXPO Korea, Smart Tech Korea (STK), and the Indonesia Smart AIoT Seminar.

Key highlights included:

- Live demonstrations of AI-powered anomaly detection and SOP guidance using vibration, thermal, and visual sensors, seamlessly integrated into mobile edge computing platforms.
- Strategic collaborations with industry partners such as Wooshin Pigment (chemical industry), Hankwang Electric (power facilities), and Erop Robotics (robot-linked SOP automation for industrial safety).
- Engagement with more than 50 B2B stakeholders from safety, manufacturing, and energy sectors, leading to new partnership opportunities across Korea, Japan, Indonesia, and beyond.
- Recognition at the IFA Korea Press Forum as a Sustainability Winner, underscoring the contribution of AI technologies to building safer and more sustainable smart factories.

Through these activities, IDB not only validated its safety intelligence technologies with global audiences but also initiated early commercialization pathways, reinforcing its role as a leading contributor to Use Case 4 – Smart Manufacturing Environments within the CAPE project.

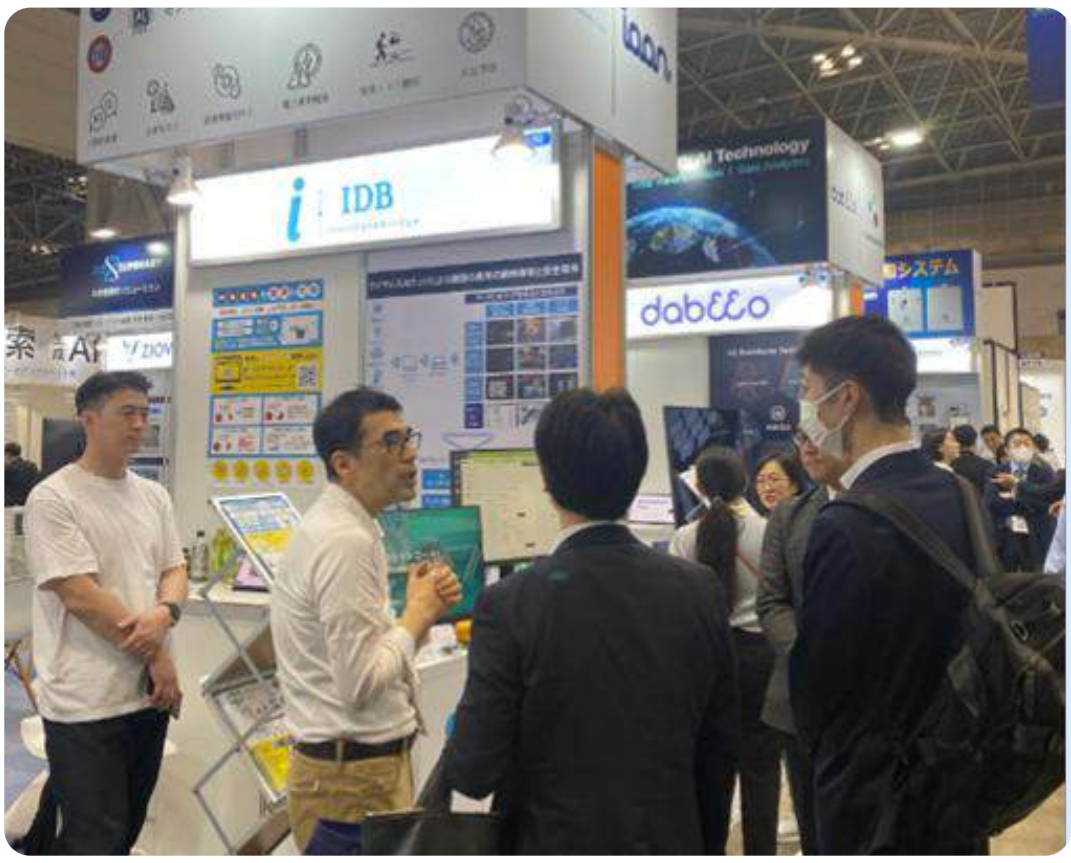
● W2-2025 (Autonomous World Asia, March 12–14)

IDB showcased our flagship AIoT-based safety solution with real-time hazard detection and generative SOP features.
Engaged with ASEAN smart manufacturing stakeholders and held detailed consultations with companies pursuing industrial safety projects, including Wooshin Pigment (chemical industry).

● KAITIA Workshop (March 29)

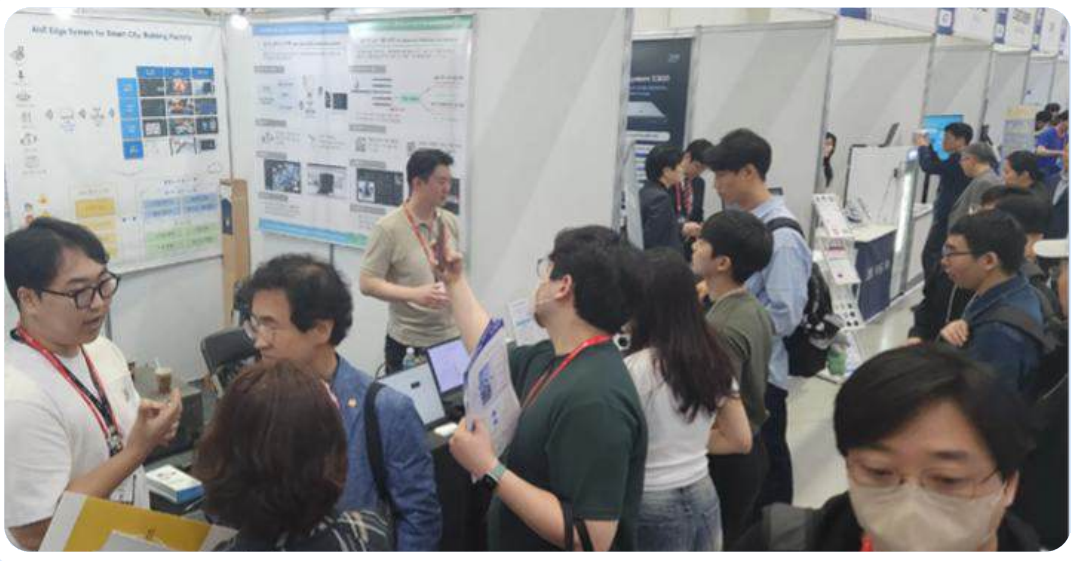
Seminar on manufacturing site safety using AIoT convergence technologies.
Presented the objectives of the Eureka CAPE project and shared updates on ongoing development progress, reinforcing the importance of smart manufacturing safety initiatives.

● Japan IT Week Spring 2025 (Tokyo, April 23–25)



Presentation of the modular AIoT platform architecture and pilot success stories.
Introduced anomaly detection use cases for petrochemical facilities via Isaac Engineering Indonesia and built a local partner network with infrastructure integrators for pilot deployment.

● AI EXPO Korea 2025 (Seoul, May 14–16)



Live demo of AIoT-based safety solution on anomaly detection using deep learning and sensor fusion.
Held in-depth discussions with Hankwang Electric Industry on power-based facility safety systems and agreed to co-develop system architecture for critical infrastructure monitoring.

● Indonesia Smart AIoT Seminar (Jakarta, May 29)

Presentation of the modular AIoT platform architecture and pilot success stories.
Introduced anomaly detection use cases for petrochemical facilities via Isaac Engineering Indonesia and built a local partner network with infrastructure integrators for pilot deployment.

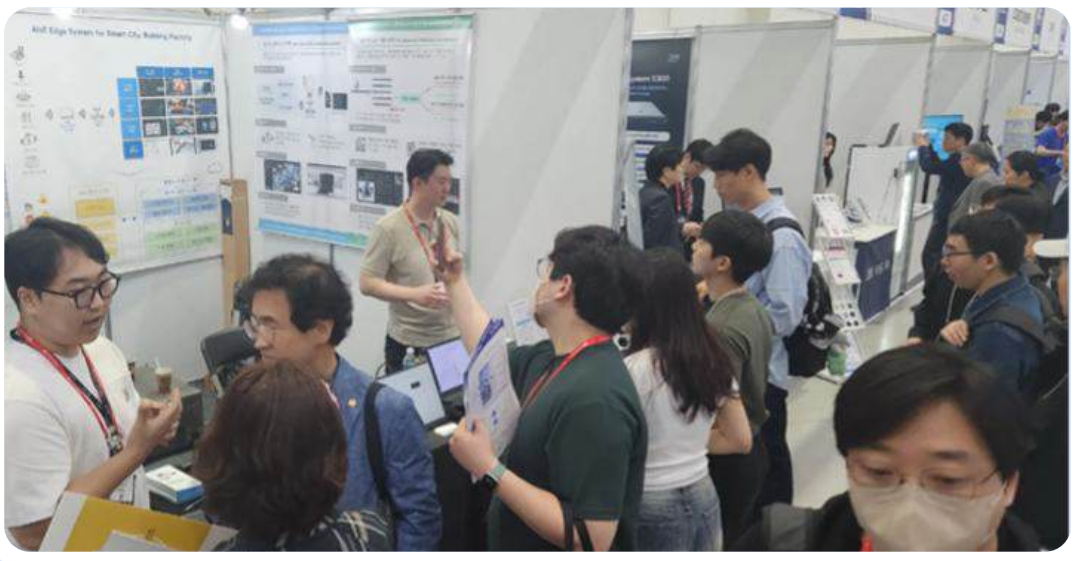
● Smart Tech Korea (STK) 2025 (Seoul, June 11–13)

IDB booth showcased robot-integrated SOP automation in collaboration with Erop Robotics.
Engaged with 50+ B2B stakeholders (KISTI, KT, Samsung-related groups) and advanced discussions on robot-linked SOP execution for industrial safety.

● NextRise 2025 (Seoul, June 26)

Networking session with VCs and ESG-related partners.
Proposed explosion prediction solutions for plastic injection companies and reinforced investment narratives highlighting the ESG value of our flagship AIoT-based safety solution.

● IFA Korea Press Forum (Seoul, June 26)



IDB receiving recognition as a Sustainability Winner.
Shared insights on CAPE Use Case 4 and emphasized the contribution of our flagship AIoT-based safety solution to building sustainable and safe smart factories.

FTP-Lda

FTP was present at the ISTEC Employability Fair!

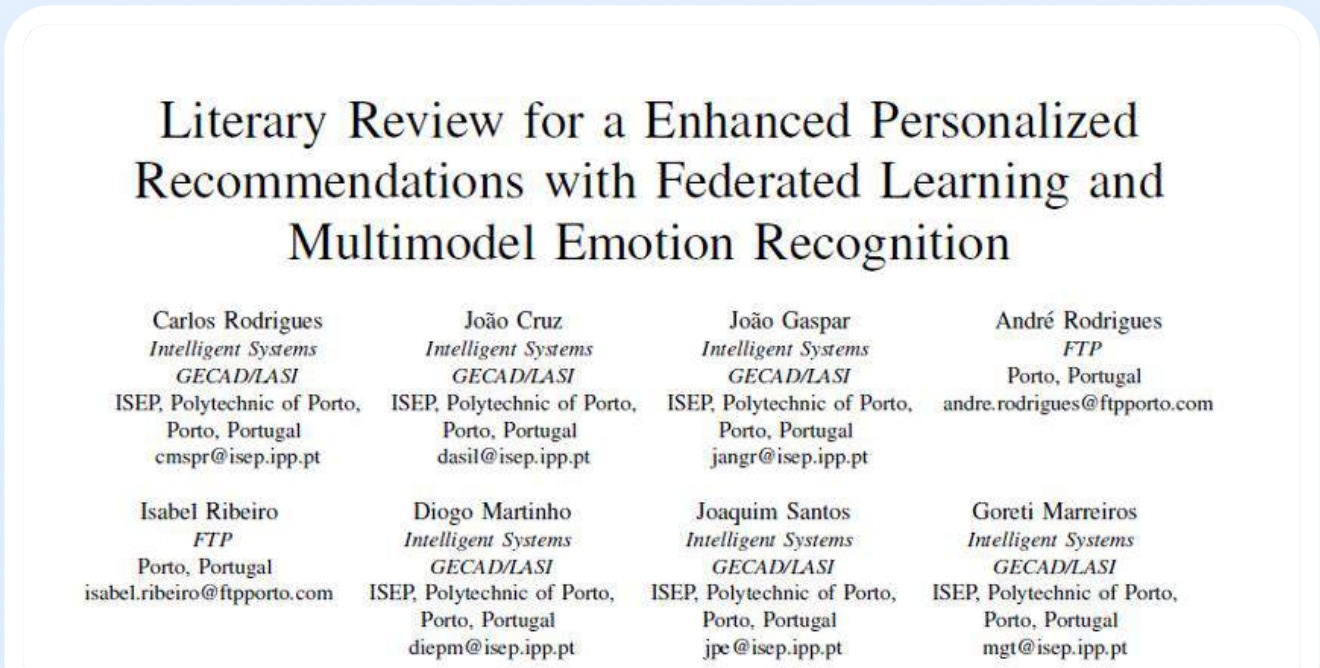
On July 1st, we were at ISTEC-Instituto Superior de Tecnologias Avançados, representing FTP as institutional partners at the Employability Fair.

This event was an excellent opportunity to make known the international projects in which FTP is involved, to reinforce our commitment to innovation and the training of young talents, and also to identify future professionals with a profile to integrate our projects.

ISEP- GECAD

Recently, the Literary Review for a Enhanced Personalized Recommendations with Federated Learning and Multimodel Emotion Recognition paper was accepted to be presented at Conference: 2025 Sixth International Conference on Intelligent Data Science Technologies and Applications (IDSTA2025)

The presentation will take place from September 1 to 4, 2025, in Varna, Bulgaria.



Literary Review for a Enhanced Personalized Recommendations with Federated Learning and Multimodel Emotion Recognition

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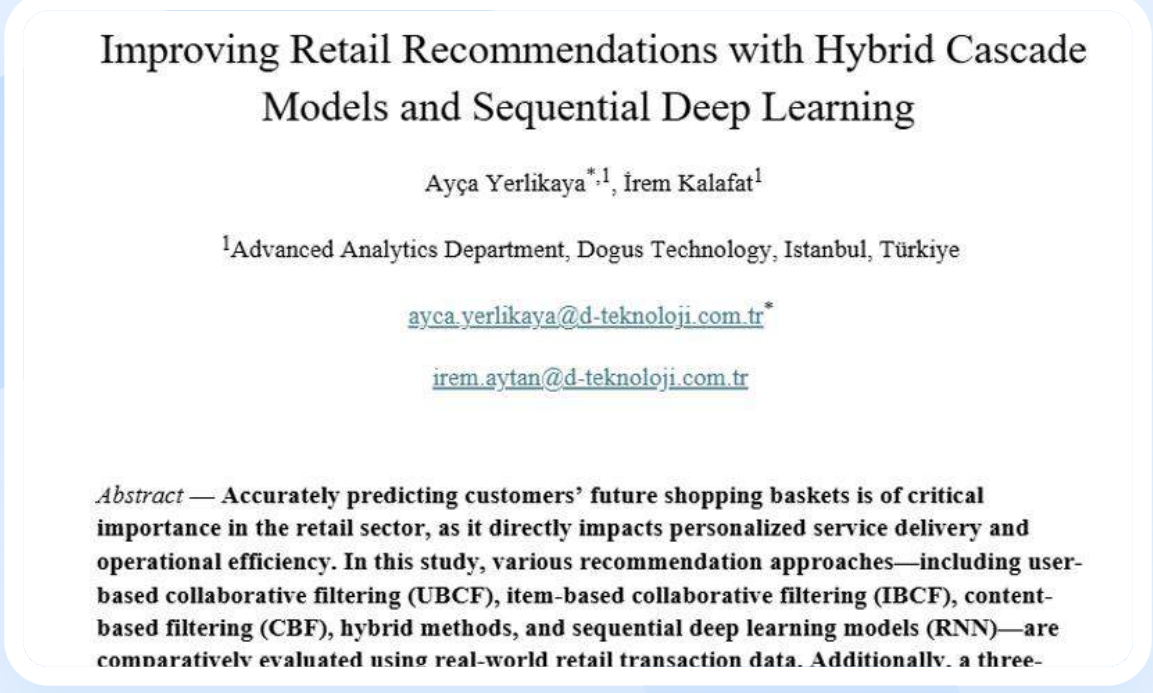
DOĞUŞ TEKNOLOJİ

Doğuş Teknoloji's paper "Improving Retail Recommendations with Hybrid Cascade Models and Sequential Deep Learning" has been accepted by ICITCA 2025. The paper, based on the literature review carried out within the CAPE project, will be presented at the conference in September.



Improving Retail Recommendations with Hybrid Cascade Models and Sequential Deep Learning

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Abstract — **Accurately predicting customers' future shopping baskets is of critical importance in the retail sector, as it directly impacts personalized service delivery and operational efficiency. In this study, various recommendation approaches—including user-based collaborative filtering (UBCF), item-based collaborative filtering (IBCF), content-based filtering (CBF), hybrid methods, and sequential deep learning models (RNN)—are comparatively evaluated using real-world retail transaction data. Additionally, a three-**