This project is co-financed by the European Union
and the Republic of Türkiye

ICTürkiye2025
10 April, İstanbul

PRESENTER FULL NAME: Berç ULUK

ORGANIZATION: Ford Otosan

WORKSHOP NAME: Smart Mobility

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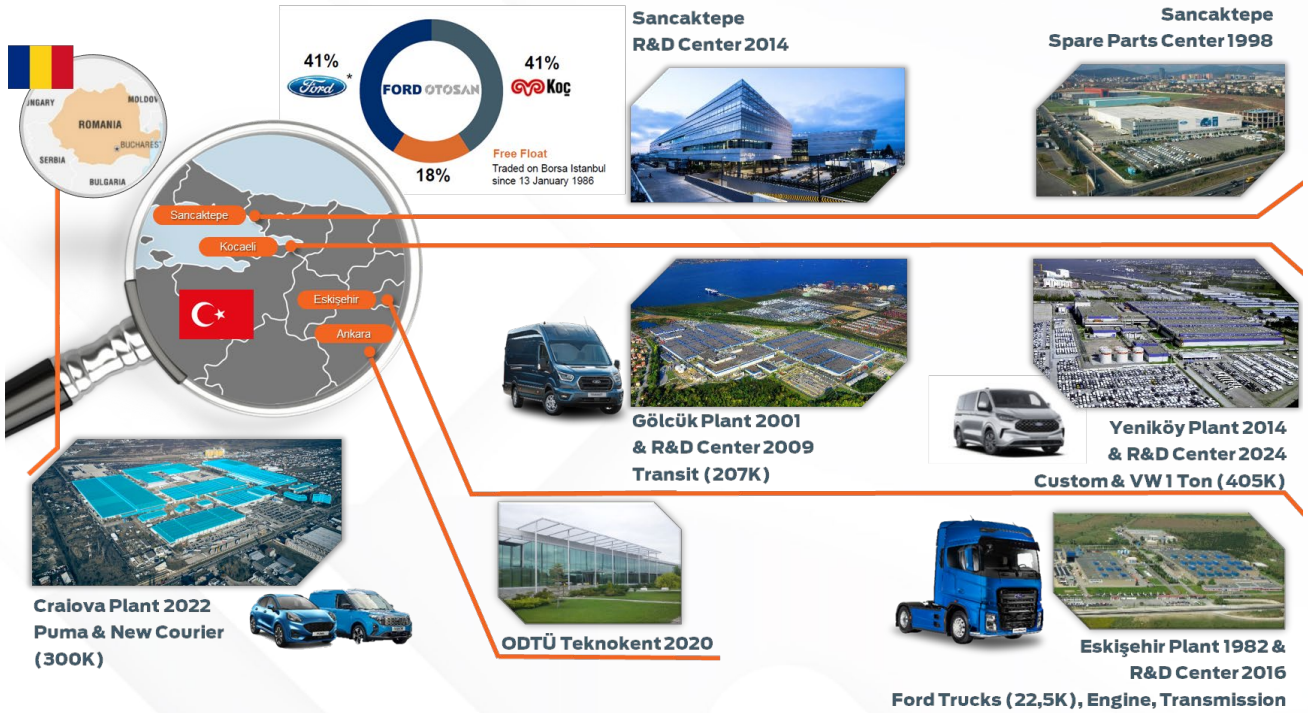
FORD OTOSAN

Description of the Organisation

Ford Otosan, a **joint venture** of Ford Motor Company and Koc Group, is an automotive OEM in Türkiye, designing and manufacturing heavy duty trucks, light/medium commercial & passenger vehicles, diesel engines and transmissions for global markets.



Ford Otosan, which operates in 6 **main centers** with Gölcük and Yeniköy Plants in Kocaeli, Eskişehir Plant in Eskişehir, Sancaktepe R&D Center and Spare Parts Warehouse in Istanbul, METU Technopark Office in Ankara and Craiova Plant in Romania, employs **more than 25,000 people**.

Ford Otosan is **the largest commercial vehicle producer** in Türkiye with a production capacity of 934,500 vehicles (end-2024).

More Details About Ford Otosan

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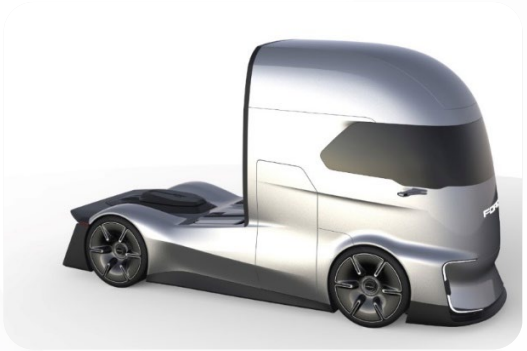

Teams' Expertise

HOT TOPICS

- H2 ICE
- H2 Fuel Cell
- H2 Truck
- Electrified HD, LCV, PC
- ADAS
- SDV

- Global Hub for HD Trucks & Powertrains
- Global Spoke for Light Commercial Vehicles
- Global Spoke for Diesel Engines

- Ford Otosan is **the only Turkish automotive company,** that designs vehicles, as well as powertrains and do styling.

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Research Fields

Vehicle Related

- Autonomous Driving
- Electrification
- Connectivity
- Lightweight
- CO2 Reduction, H2

Factory Related

- Quality control
- In-Plant Logistics
- Robotics
- Smart Manufacturing
- Digital Twin

General

- AI
- Cloud
- Smart Cities
- Sustainability

AGV & UGVs

[Bluepath Robotics - Bluepath Robotics]

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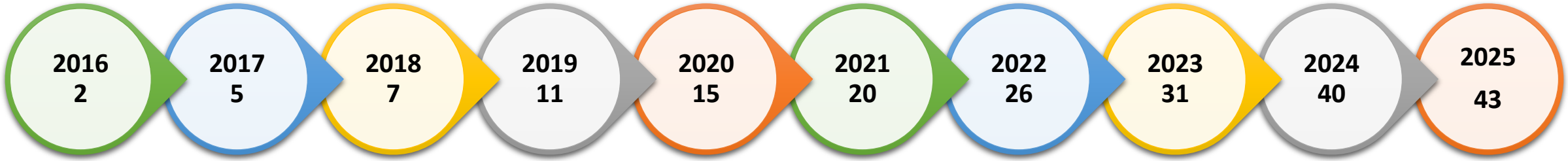
Ongoing H2020 & HE Projects

- Ford Otosan applied for 1st Horizon project in 2015.
- As of today, FO has **43 approved project w/ total of € 15,93M fund granted**.
  - 20 **H2020** Projects w/ € 7.29M,
    - 16 Completed, **4 Ongoing**
  - 23 **Horizon Europe** Projects w/ € 8.64M
    - **21 ongoing**, 2 to start in 2025 (3 of them in associated partner role.)



Ford Otosan is **the most funded organization in Türkiye Horizon 2020 and Horizon Europe programs** (https://ufukavrupa.org.tr/tr/en-basarili-turk-sanayi-kuruluslari)

Ongoing H2020 & HE Projects

Project Title	Technology Area	Content
PEACOC	SUSTAINABILITY	The project aims to demonstrate the technical, economic and environmental feasibility of a novel metallurgical process for the recovery of PGM (Platinum Group Material) from a wide variety of end-of-life (EoL) product.
RECIRCULATE	SUSTAINABILITY	Reuse of batteries through characterization, smart logistics, automated pack and module dismantling and repackaging and a blockchain enabled marketplace.
BATRAW	SUSTAINABILITY	BATRAW main objective is to develop and demonstrate two innovative pilot systems for sustainable recycling and end of life management of EV batteries, domestic batteries, and battery scraps contributing to the generation of secondary streams of strategically important CRMs and battery RMs.
RHINOCEROS	SUSTAINABILITY	Rhinoceros will develop, improve and demonstrate, in an industrially relevant environment, an economically and environmentally viable route for re-using, re-purposing, re-conditioning and recycling of EoL EV and stationary batteries.
BASE	SUSTAINABILITY	The main goal of the BASE project is to develop, validate, and implement a working DBP service, as mandated by the “Regulation». BASE will develop transparent methodologies to calculate battery performance and ESGE indicators, ensuring traceability down to the CRM level throughout the entire battery value chain.
PerMaNet	SUSTAINABILITY	PERMANET is a sustainable network focusing on the entire Rare Earth Elements (REE) Permanent Magnet (PM) value chain, from extraction to production. It includes connected tech hubs, scalable innovations, and R&D infrastructure, aiming to boost REE supply, demonstrate cost-effective extraction methods, and promote circular PM technologies in the EU.
CRUSADE	SUSTAINABILITY	The CRUSADE project recycles up to 500 tons/year of end-of-life vehicle components, recovering 40 tons/year of critical raw materials (e.g., Cu, Co, Ni, Li, Pt) at commercial standards. Using blockchain tracing, a pan-European collection network, low-CO2 leaching, and AI-driven automation, it delivers high-quality recycled materials 15% cheaper while ensuring sustainability and efficiency.
HAL4SDV	AUTONOMOUS DRIVING	The HAL4SDV project proposes new methods for designing future vehicles (post-2030) that are tightly integrated with smart infrastructure and heavily reliant on software updates, powerful processing, and robust security. This project aims to solidify Europe's position as a leader in car manufacturing by creating a standardized system for building these software-defined vehicles.
IEXODDUS	AUTONOMOUS DRIVING	Autonomous vehicles offer a future of safer and more efficient transportation, but their ability to handle complex situations is limited. The iEXODDUS project aims to improve this by expanding the Operational Design Domains (ODDs) which define where these vehicles can operate. This will involve better sensors, smarter software, and addressing legal and regulatory issues. By working with industry experts, iEXODDUS hopes to pave the way for reliable self-driving cars that can navigate a wider variety of roads and conditions.
ROADVIEW	AUTONOMOUS DRIVING	Roadview's overall goal is to develop robust and cost- effective in-vehicle perception and decision -making systems for connected and autonomous vehicles with enhanced performance under harsh weather conditions and different traffic scenarios
FEDERATE	AUTONOMOUS DRIVING	The project aims to collect and evaluate future trends, derive a common understanding (glossary), prepare and maintain a road-map, help to create a vibrant SDV community in Europe and furthermore, foster a European initiative and to orchestrate a strong open European collaborative community.

Ongoing H2020 & HE Projects

Project Title	Technology Area	Content
HIPE	ELECTRIFICATION	Development of highly energy-efficient, cost-effective, modular, compact and integrated wide bandgap (WBG) power electronics solutions for the next generation of battery electric vehicles (BEVs).
ESCALATE	ELECTRIFICATION	The project includes thermal management and powertrain studies to be carried out as part of Türkiye's first Truck with Fuel Cell Powertrain technology. Simultaneously, sizing studies of Fuel Cell, battery and e-motor parts will be carried out and the focus will be on the development of a control algorithm that will minimize hydrogen consumption.
H2Upscale	ELECTRIFICATION; CO2 REDUCTION	H2UpScale project aims to design, build, test and validate key BoP components for PEMFC systems generating more than 250 kW electric power suitable for heavy-duty transport applications (aviation, maritime, on-road long-haul).
ALBATROSS	ELECTRIFICATION; CO2 REDUCTION	EV battery development and fast charging optimization
NexETRUCK	ELECTRIFICATION; CO2 REDUCTION	Efficient and affordable zero-emission logistics through NEXT generation Electric TRUCKs
ZEFES	ELECTRIFICATION; CO2 REDUCTION	Fuel Cell Development Project
ZEV-UP	ELECTRIFICATION; CO2 REDUCTION	ZEV-UP aims to develop modular, cost-effective, and user-centric EVs for both passenger and goods transportation. Key innovations include a base L7e BEV model that is designed respectful of affordability and can be upgraded and adapted for various purposes and needs, including commercial applications and higher-value passenger vehicles.
IBATTMAN	SUSTAINABILITY; ELECTRIFICATION	iBattMan aims to incorporate novel sensors and methodologies for monitoring the State-of-Health (SoH) of the cells during operation and in charging, together with cutting-edge technologies and tools for V2X and second-life applications and use advanced physics- and data-based models implemented on-board and on-cloud for performance evaluation, diagnosis, health management and safety evaluation tools, to trigger actions to address safety and cyber-security concerns.
MaaSBrakeAM	INDUSTRY 4.0	MaaSBrakeAM aims to develop Euro7-compliant brake disc coatings using LRC technology, focusing on powder recycling, remanufacturing, and sustainability. The project seeks to reduce energy use, lower the carbon footprint, and extend brake disc lifespan while ensuring traceability with a Digital Product Passport (DPP).
FlexIndustries	INDUSTRY 4.0	Digitally-enabled FLEXible industries for reliable energy grids under high penetration of Variable Renewable Energy Sources
Matdema	INDUSTRY 4.0; SUSTAINABILITY	Project will develop a one-step automated (robotized) inline manufacturing process for sustainable net shape Thermoplastic-Fibre Metal Laminate composites.
OPTIPUL	INDUSTRY 4.0; SUSTAINABILITY	The OPTIPUL focuses on developing hybrid composites with variable cross-sections to enhance flexibility, reduce material waste, and improve sustainability. Targeting applications in aerospace and automotive, it seeks to demonstrate innovative, sustainable technologies with strong commercial potential.
Nanosis	INDUSTRY 4.0; SUSTAINABILITY	SOBA sense, developing sensors for detecting rotten foods in the cold areas like refrigerator. Developing sensor component for detection Aspergillus spores and legionella in air.
HICONNECT	AUTONOMOUS DRIVING; CONNECTED VEHICLES; INDUSTRY 4.0	The new sensors, IoT chip, machine & vehicle control and tele-operation console, e-actuators, VLC & RF communication HW & SW technologies such as 5G, C-V2X modems, precise indoor-outdoor localization, edge computing will be developed and demonstrated.

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Project Idea - Connected Cooperated and Automated Mobility (CCAM)

Ford Otosan is developing **teleoperated urban mobility vehicles** and **autonomous trucks** within ongoing Horizon projects. Ford Otosan is seeking new HE projects to enhance its solutions.

Call	Call Description	Ford Otosan Scope
HORIZON-CL5-2025-01-D6-02-SRP	Advancing CCAM towards large-scale demonstrations (CCAM Partnership)	➢ Supporting large-scale demonstrations of autonomous vehicles with autonomous driving algorithms and in-vehicle communication technologies. ➢ Actively participating in fleet management and field tests.
HORIZON-CL5-2025-01-D6-04	Integration of human driving behaviour in the validation of CCAM systems (CCAM Partnership)	➢ Analyzing human driving behaviors, validating these behaviors, and optimizing human-machine interaction to develop safer, more user-friendly, and compatible autonomous driving systems for real-world conditions.
HORIZON-CL5-2025-01-D6-05	Approaches, verification and training for Edge-AI building blocks for CCAM Systems (CCAM Partnership)	➢ Developing in-vehicle control systems and software solutions for validation processes of Edge-AI technologies used in autonomous systems.

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Project Idea – Materials

Ford Otosan has significant expertise, supported by its strong R&D capabilites, in the application of **functional surface coatings, advanced sealing solutions, and functional materials** that are resistant to harsh enviromental conditions.

Call	Call Description	Ford Otosan Scope
HORIZON-CL4-INDUSTRY-2025-01-MATERIALS-51	Development of safe and sustainable by design alternatives to PFAS (IA)	➢ Defining critical technical requirements and stress conditions specific to the automotive sector for newly developed alternative materials. ➢ Testing environment for safe and sustainable alternatives in PFAS-containing components ➢ Contributing to the validation processes of developing products compliant with policies.
HORIZON-CL4-INDUSTRY-2025-01-MATERIALS-43	Innovative Advanced Materials (IAMs) for robust, fast curing sealants and coatings for manufacturing and final assembly (IA)	➢ Defining the usage scenarios, stress conditions, and environmental impacts for the newly developed coating. ➢ Using body, assembly, and paint to evaluate the impact of new coatings. ➢ Conducting Energy consumption measurements, production efficiency analyses, and time-cost-impact simulations.
HORIZON-CL4-2025-04-DIGITAL-EMERGING-01	Active sensor technologies and multimodal sensor integration for multiple application domains (IA) (Photonics Partnership)	➢ Providing feedback and technical support on large-scale testing, standardization, and cost optimization related to the integration of new sensor technologies into automotive manufacturing processes.

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Project Idea: Battery - BMS - Power Electronics Requirement Definition

Ford Otosan is developing **EVs** and would like to take part in **requirement and system requirement definition**, and to contibute to **Battery- BMS-Power Electronics developments** in Horizon projects.

Call ID	Call Topic	Ford Otosan Scope
HORIZON-CL5-2025-01-D5-03	Safe Post-crash Management of Road Light Duty BEVs	➢ Provision of engineering support and battery safety technologies. ➢ Contributing to the communication of which tests the batteries have to dispel safety concerns of BEV users as well as policy decision makers. ➢ Develop and implement Battery Teardown procedure for more detailed data analysis. ➢ Post crash battery second-use evaluation (in second life ESS) with respect to test outcomes and Support development for handover /EOL Protocols, LCA study. ➢ Evaluation of Affects of Battery aging on Thermal Management systems ➢ Define personel protective equipments for emergency response teams.
HORIZON-CL5-2025-01-D5-05	Road Battery Electric Vehicles (BEV) optimised user-centric solutions for energy efficiency design and consistent range throughout weather conditions	➢ Development of user-centric energy management systems. ➢ Integration of smart energy solutions into the vehicle ecosystem.
HORIZON-CL5-2025-01-D2-01	Development of sustainable and design-to-cost batteries with (energy-)efficient manufacturing processes and based on advanced and safer materials (Batt4EU Partnership)	➢ Working on new battery design and production technologies for energy-efficient battery manufacturing processes for HCV.

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Call ID	Call Topic	Ford Otosan Scope
HORIZON-CL5-2025-02-D2-02	Cost-effective next-generation batteries for long-duration stationary storage (Batt4EU Partnership)	➢ Providing expertise in battery design and application experience to develop cost-effective batteries for long-term energy storage for HCV.
HORIZON-CL5-2025-D2-04	Integrating advanced material, cell design and manufacturing development for high-performance batteries aimed at mobility (Batt4EU Partnership)	➢ Collaborating on advanced cell designs and testing processes to develop high-performance batteries for mobility solutions.
HORIZON-CL5-2025-D2-06	Battery Technology and Innovation Platform and Information Observatory (Batt4EU Partnership)	➢ Establishing a knowledge platform for battery research ➢ Providing sectoral expertise and technological infrastructure support.
HORIZON-CL5-2025-D2-07	Fostering an Excellent Battery R&I Community for Better Projects and Innovation Uptake (Batt4EU Partnership)	➢ Offering solutions and industry experience to foster innovation projects and build a collaborative research community for battery advancements.

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