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ORGANIZATION: TOFAŞ Türk Otomobil Fabrikası A.Ş.

WORKSHOP NAME: Twin Green and Digital Transition of Industry

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## Description of the Organisation



R&D Center

Founded in 1968, one of the most important automotive manufacturer of Türkiye. Joint venture of Koç Holding and STELLANTIS.

Producing Fiat Tipo, Egea passenger cars and Fiat Scudo, Peugeot Expert, Citroen Jumpy, Opel Zafira



As one of Stellantis's important manufacturing and R&D centers, Tofaş creates added value for Türkiye's economy, industry, and R&D know-how.

- Production capacity: 450.000 cars/year
- 1.000.000 sqm total area, 350.000 sqm closed area
- 5.000 employees

### **Production Technology**

- Stamping – Die Engineering
- Painting Process Engineering
- Body in White Process Engineering
- Assembly Process Engineering
- Suspension Process Engineering
- Quality Engineering
- Logistics Engineering
- Facilities & Energy Center

### **Product Technology (R&D)**

- Complete Vehicle Development
- Powertrain & Drivetrain (ICE, Hybrid, EV)
- Vehicle Integration & Performance Validation
- Virtual Simulation & Physical Testing
- Embedded Systems & Software Development
- Electronics & Electrical Architecture
- Advanced Materials & Lightweight Design
- Thermal & Energy Management
- NVH



Manufacturing engineering  
Process design (2d-3d)  
Fixture design  
Process simulation  
Robot programming  
Ergonomics analysis  
Logistics engineering & optimization  
Energy engineering



Laboratories  
(Materials, NVH, Emission, HVAC, E&E)  
Test Benches (body-chassis)  
Prototype Shop  
Virtual Analysis  
Road Tests & Validation Dept.  
Reverse Engineering



## Your Research Fields

Human robot collaboration  
Autonomous mobility



Safer production for people  
Connected mobility



Energy aware manufacturing  
Vehicle electrification  
(Battery- BMS-E- Motor-Power Electronics)



Efficient production  
Sustainability



## On-going Projects – Production Technologies

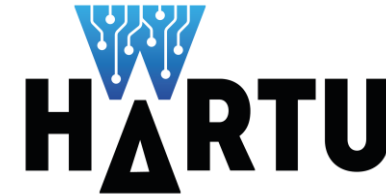


### Eco-innovative Energy Factory Management Platform

- Energy aware manufacturing (real time energy data)
- Operations management (components-materials-lines etc.)
- Dynamic LCA - LCCA
- Combine smart sensors, IIoT, advanced data-driven services, etc. through effective communication between IT/OT layers

Production Technologies: 4 (Horizon 2020-HEU Projects)

Product Technologies: 12 (Horizon 2020-HEU Projects)



### HANDLING WITH AI-ENHANCED ROBOTIC TECHNOLOGIES FOR FLEXIBLE MANUFACTURING

- Manipulating multiple objects of different sizes, shapes and characteristics
- Introducing new and innovative gripper concepts
- Artificial Intelligence learning techniques, able to continuously learn and adapt to the needs of the object and the task required.

## On-going Projects – Production Technologies



### Immersive learning for imperfection detection and repair through human-robot interaction

- Develop robotic solutions which will identify and repair aesthetic defects in manufacturing products autonomously
- Designing robotic solutions in a modular way to make them applicable for various purposes and needs
- Improve safety conditions for human operators and make production processes more efficient.
- Human-robot collaboration in manufacturing based on trust and safety.



### Advancing human-robot collaboration in a user-centric manner

- Develop a reusable set of tools that enable AI driven multimodal means of interaction
- Develop interfaces for physical and remote information exchange, robot control and programming
- Development of socially interactive robots
- Application of human robot interaction in large scale pilots

## On-going Projects – Product Technologies



Bio Foaming B Pillar Plastic

TWINLOOP

Software Defined Vehicle



A.Veh. Sensor Needs Res



Data Based BMS



Recycled magnet e-motor



Autonomous Vehicle Validation



Innovative Battery Management



EV Thermal Mng.



Laser Welding of Different Metals



ACCOMPLISH  
Ambient Lighting for  
safety

Digital Integration in Steel

## Interested Calls – Cluster 4

HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-01	Twin Green and Digital Transition of Industry	Integrated approaches for remanufacturing (Made in Europe Partnership)
HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-02	Twin Green and Digital Transition of Industry	Physical and cognitive augmentation in advanced manufacturing (Made in Europe Partnership) (RIA)
HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-05	Twin Green and Digital Transition of Industry	Advanced manufacturing technologies for leadership of EU manufacturers in products for the net-zero industry (Made in Europe Partnership)
HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-32	Twin Green and Digital Transition of Industry	Green and resilient flexible production processes (Processes4Planet partnership)
HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-33	Twin Green and Digital Transition of Industry	Integrated use of renewable energy carriers in industrial sites (Processes4Planet partnership) (RIA)
HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-34	Twin Green and Digital Transition of Industry	Smart integration of net zero technologies into Energy Intensive industries (Processes4Planet and Made in Europe part
HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-36	Twin Green and Digital Transition of Industry	Safe and clean processing technologies and products (Processes4Planet partnership)
HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-38	Twin Green and Digital Transition of Industry	Synergies and mutual learning with national and regional initiatives in Europe on Industrial decarbonisation (Processes4Planet and Clean Steel partnerships)
HORIZON-CL4-INDUSTRY-2025-01-MATERIALS-43	Twin Green and Digital Transition of Industry	Innovative Advanced Materials (IAMs) for robust, fast curing sealants and coatings for manufacturing and final assembly
HORIZON-CL4-INDUSTRY-2025-01-MATERIALS-45	Twin Green and Digital Transition of Industry	Materials Commons for Europe
HORIZON-CL4-2025-03-MATERIALS-47	Twin Green and Digital Transition of Industry	Innovative Advanced Materials (IAMs) for conformable, flexible or stretchable electronics (RIA) (Innovative Advanced Materials for Europe partnership)
HORIZON-CL4-INDUSTRY-2025-01-MATERIALS-62	Twin Green and Digital Transition of Industry	Strategic Partnerships for Raw Materials: Innovative Approaches for sustainable production of Critical Raw Materials
HORIZON-CL4-INDUSTRY-2025-01-MATERIALS-43	Twin Green and Digital Transition of Industry	Innovative Advanced Materials (IAMs) for robust, fast curing sealants and coatings for manufacturing and final assembly
HORIZON-CL4-INDUSTRY-2025-01-MATERIALS-44	Twin Green and Digital Transition of Industry	Innovative Advanced Materials Innovation Procurement
HORIZON-CL4-INDUSTRY-2025-01-MATERIALS-45	Twin Green and Digital Transition of Industry	Materials Commons
HORIZON-CL4-2025-04-DIGITAL-EMERGING-05	Digital emerging	Soft Robotics for Advanced physical capabilities (IA) (AI/Data/Robotics Partnership)
HORIZON-CL4-2025-04-DIGITAL-EMERGING-07	Digital emerging	GenAI4EU in Robotics and industrial automation (RIA) (AI/Data/Robotics & Made in Europe Partnerships)



## TOFAŞ Contribution

- **Use case definition:** TOFAŞ can prepare use cases relevant to technologies to be developed within the proposal scope by the help of wide industrial expertise and shop floor.
- **Technology Integration:** TOFAŞ can bring its technology integration knowledge in automotive to the project, particularly in areas like electric mobility, connectivity, autonomous vehicles, smart manufacturing solutions.
- **Testing and Validation:** With our state-of-the-art testing facilities and engineering expertise, TOFAŞ can help in the validation and testing of new technologies and solutions developed within the project.
- **Dissemination and Exploitation:** TOFAŞ can support the dissemination of project results, ensuring the exploitation of new knowledge and technologies across the automotive sector and related industries.
- **Project Management:** As an experienced leader in large-scale innovation projects, TOFAŞ can provide strong project management capabilities, ensuring timely delivery of project milestones.



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