



Expression of interest

Contact details

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| Country | TURKEY |
| Name of the organisation | DHL Lojistik Hizmetleri AS |
| Name of the contact | Sinem Kalayci |
| Phone | +905389569676 |
| Email | sinem.boyaci@dhl.com |

Short description of the organisation

DHL is the leading organisation in Logistics worldwide and contributes to setting standards, defines new areas of research, participates in the international ecosystem, and supports the industry with new technological innovations.

DHL Supply Chain Turkey works to develop comprehensive and high value-added projects that will strengthen the R&D ecosystem, especially through academic collaborations. As of September 2017, DHL Supply Chain Turkey continues its activities with the R&D Center accredited by the Ministry of Industry and Technology as one of the leading research centers of Turkey. In the R&D center, some of important studies are carried out on technology issues such as Internet of Things, Physical and Software Robots, Data Analytics, AGVs (Automated Guided Vehicle) and AR-VR (Augmented Reality, Virtual Reality), while innovative efforts are made in the warehouse-transport operations of the customers, product and process development projects are studied with different approaches by a team of experts holding degrees in Engineering, Information Technology and Analytics.

Specific skills related to the project

Indicate the specific skills and competence in relation with “HORIZON-CL5-2024-D6-01-06: Optimising Multimodal Network and Traffic Management, Harnessing Data from Infrastructures, Mobility of Passengers And Freight Transport” topic:

DHL Supply Chain Turkey has significant experience in the skills as research performer, technology developer, and private buyer of results for worldwide implementation capacities as well as it has competence in activities like testing/validation of approaches and ideas, prototyping and demonstration, communication and dissemination of the project outcomes. DHL Supply Chain Turkey is not only contributing to national and international level research projects but also develops its own innovative products based on R&D projects for the last 5 years in Turkey together with local and international partners.

Regarding “HORIZON-CL5-2024-D6-01-06: Optimising Multimodal Network and Traffic Management, Harnessing Data from Infrastructures, Mobility of Passengers And Freight Transport” topic, DHL Supply Chain Turkey would like to involve in big data analytics based technology development using mobility of freight transport, actionable artificial intelligence with machine learning tools, and demonstration of results with real-life implementation.



Proposed activities for the project

DHL offers global express services and customised logistics solutions, and connects people every day, simplifying and improving their lives. DHL Supply Chain is committed to test and demonstrate technology solutions provided by this project where the development planned to automate custom processes to make them safer and human-free, to reduce time, to be more reliable, and to make legislative actions data-related. The purpose of these activities is to integrate risk analysis data obtained from shipping data, any other provenance data and metadata with detection data generated, fused and evaluated independently, with different data privacy requirements and typically in different facilities and across country boundaries in order to enable legal and accurate processing of analytics.

With this perspective, contributions of DHL Supply Chain Turkey will be directly related with expected outcomes of (a) optimised multimodal transport network and traffic management, for efficient door-to-door mobility of freight, (b) validated solutions for effective and secure data exchange across all modes of transport for dynamic and responsive multimodal network and traffic management, (c) validated systems for accurate detection and resolution of network bottlenecks, improving safety, security, resilience and overall performance of the transport network, (d) presenting new tools and services for optimising mobility of freight in cities and other areas, and (e) workable governance arrangements for multimodal transport network and traffic management, in view of further supporting regulatory and policy actions.

In order to fulfil these goals, DHL Supply Chain Turkey maintains capacities and capabilities to contribute to (1) the development and testing new generation multimodal, flexible, agile and adaptable, secure and resilient transport network and traffic management systems, leveraging state of the art technologies (artificial intelligence and big data); (2) assessment and simulation of the effects on multimodal network and traffic management of new forms of mobility (zero-emission, connected and automated vehicles, sustainable land/air transport modes and drones), as well as of innovative services (Mobility/Logistics as a Service), in different urban and rural environments; (3) performing simulations for network-wide optimisation of traffic models for multimodal mobility and freight flows; (4) demonstrating the collection, aggregation, analysis and use of network-wide data from infrastructures, vehicles and users from across transport modes, stakeholders and national borders, while preserving data privacy, security and confidentiality to data providers; (5) the development and showcasing workable governance and dynamic incentive models, for the effective engagement of public and private stakeholders in interoperable data exchange, in the optimisation of transport network and traffic management and in promoting a better use of transport systems.

References

Previous research projects

| Project acronym / starting date | Main objectives | Main activities | Role in the project |
|---------------------------------|--|--|--|
| ESCALATE (HE) 01.01.2023 | The ESCALATE consortium has brought together the collaborative efforts of 37 partners from 13 countries to not only increase component efficiency, but also to develop highly standardizable, ingenious, scalable and modular eco-designed electric powertrain components and flexible platforms for battery, fuel cell and range extender trucks, complemented by data-driven algorithms (energy and thermal management), tools and interfaces (fleet management and PdM), and high-speed charging and refuelling solutions, and bridge the physical and digital worlds (5 modular digital twins) to enable EU manufacturers and logistics companies to evaluate and quickly respond with cost-effective solutions to increase market penetration of innovative technologies faster than market forces alone. | Software Development Data Science | Co-definition of research and market needs Technology developer Prototyping and demonstration Private buyer of results |
| RECIRCULATE (HE) | RECIRCULATE will deliver an efficient, safe and commercially valuable circular extension to the life of batteries, increasing lifetime values and reducing reliance on scarce minerals, through innovative automation and development of a trusted second user marketplace based on battery passport verification with "trusted data" | Software Development Data Science | Logistics, transport & storage. Integration of safety approaches. ISO standards transportation and storage. Provision of research and technology infrastructure Technology developer Prototyping and demonstration |
| WIND (R&D) | Development of stocktaking software with image processing using high resolution industrial cameras to improve operational quality and stock accuracy of products. | Software Development | Identifying needs Performing analysis studies, Image Processing |
| ASRS (TUBITAK) | With the spread of PC/PLC/Embedded systems and the development of communication protocols, for the establishment of a system that can be monitored and controlled remotely, which is called "Smart" machines, which can work in harmony and communicate with each other. By blending this knowledge with the mechatronics, electronics, computer, industrial engineers in the R&D center and the operations engineers in the warehouses, the project has been applied efficiently in the logistics sector. | Software Development | Identifying needs Performing analysis studies, Determining the appropriate operation, Software development and testing |
| VR (TUBITAK) | For the first time in Turkey, innovative and efficient training modules and standards have been implemented in our company, with VR (Virtual Reality) supported Reach Truck (RT) driving training and OHS training platform. Occupational accidents were prevented by adopting a proactive approach, and the operator was given experience in real scenarios that would cause accidents with a zero occupational accident culture, without a real risk of danger in the virtual environment. | Data Science | Use-Case Provider Identifying needs Performing analysis studies |



Previous Research Proceedings

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| 5. International Conference on Data Science and Applications 2022 (ICONDATA-2022) - Attribute Extraction From Product Descriptions Based on Text Clustering |
| International Conference on Computing, Intelligence and Data Analytics (ICCIDA-2022) - Volume Forecasting in Supply Chain: A Mixed Study of Boosting and Prophet Algorithms |
| Intelligent and Fuzzy Techniques for Emerging Conditions and Digital Transformation (INFUS 2021)- Enabling Big Data Analytics and Artificial Intelligence Solutions for Smart Warehouse |
| Employee Training & Orientation in Supply Chain Facilities using VR (1. International Conference on Virtual Reality & IRDITECH'19) |
| 4th International Mediterranean Science and Engineering Congress (IMSEC 2019) – Getting the Depth Data of the Scene for Discovering the Unknown Indoor Environments and Detecting Appropriate Road for Navigating AGV using the Monocular Camera of the UAV |
| 2019 6th International Conference on Electrical and Electronics Engineering (ICEEE 2019) - A Study on the Development of Semi Automated Warehouse Stock Counting System |
| 2019 6th International Symposium on Electrical and Electronics Engineering (ISEEE) - Indoor Drone Application with Acoustic Localization |
| 4th International Mediterranean Science and Engineering Congress (IMSEC 2019) - Real Time Detection of the Distance and the Velocity of the Worker Who Operates the Warehouse semi-Automated Ground Vehicle by Using Monocular Camera |