Track&Know – Big Data for Mobility Tracking Knowledge Extraction in Urban Areas

EU project Track&Know increases the efficiency of Big Data applications in transport, mobility, motor insurance and healthcare sectors in urban space

Track&Know is a project funded by the European Union's Horizon 2020 research and innovation programme. The consortium of 14 partners (researchers and industry representatives) from 9 different countries kicked-off in Jan. 2018. During this 3-year project (1 Jan. 2018 – 31 Dec. 2020), the goal is to research, develop, and exploit a new software framework to increase efficiency of Big Data applications in transport, mobility, motor insurance and health sectors in urban space. Moreover, the project will develop user-friendly toolboxes that will be readily applicable in the addressed markets after efficiency validation in real-world pilots.

University of Piraeus Research Center (UPRC) is one of the research partners and holds the role of the Technical Manager of the project. UPRC also leads WP3 on "Big Data Processing Toolboxes". The research in the project is performed by the **Data Science Lab (DataStories)** of the University of Piraeus; the lab is active in a wide range of Data Science topics, including big data management, data analytics, machine learning, text-, audio-, and mobility-aware data mining, semantic integration, and data privacy.

What is Big Data? We talk about Big Data when processing and making decisions using large amounts of varied data that continues to grow. Known as the **3 V's** of Big Data, these characteristics of Volume, Variety, and Velocity make the storage and processing of this data unsuitable for traditional database and processing systems. Sectors such as healthcare and transport can benefit for Big Data processing by applying data driven approaches to identifying patterns and trends that can reduce costs, lower the carbon footprint of various services, and improve consumer satisfaction. Through location data collected by smart devices (e.g. cars, black-boxes, medical monitoring systems) coupled with other public and proprietary datasets (e.g. socio-demographic makeup, environmental sensors, weather information, and propensity maps) different systems and processes can be optimised.

How will Track&Know make a difference in society? The Consortium Perspective: According to Dr. Ibad Kureshi, Inlecom Systems (project coordinator), "*Track&Know will develop new technologies and approaches in Big Data driven ecosystems. Think of applications in intelligent mobility services; autonomous, connected and shared vehicle technologies; healthcare; predictive maintenance, finance and insurance… We will develop user-friendly toolboxes for intelligent and integrated services with predictive safety capabilities, for example for collision avoidance, optimized emergency response and/or accident management, driving skills deterioration, adaptable insurance services…. Our goal is to reshape the way that visualization techniques make data accessible in ways humans understand.*"

Top researchers from different sectors apply their expertise on Big Data: Track&Know brings together interdisciplinary partners from the transport, insurance, healthcare industries, academia and research along with users and data-provision partners focusing on real-life and user-defined challenges. The complementary research team has a proven track record of high quality research capacity, all combining their expertise to deliver market-relevant outcomes of significant exploitation potential. According to Prof. Yannis Theodoridis, UPRC (technical manager): "*We address the open issues arising from the automotive transportation in modern metropolitan areas and increase the contextual awareness in urban mobility by delivering intelligent information and predictive analytics to user-interest groups, stakeholders and city managers.*"

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