DEPARTMENT OF MATERIAL HANDLING AND LOGISTICS SYSTEMS
WOULD LIKE TO JOIN A CONSORTIUM FOR HORIZON-CL4-2022-DIGITAL-EMERGING-02-05:
AI, DATA AND ROBOTICS FOR INDUSTRY OPTIMIZATION

We can contribute to the following tasks as described in the Topic:
Providing industry with more autonomous and more intuitive and easier to operate technologies, smart devices and next generation networks, optimise value-chains and associated processes

Our approach:
Our competencies range can be defined from modelling complex city logistics networks integrated with drone-based and other intelligent technologies to data fusion of traditional sensor data and smart mobility data, model based (predictive control) and data driven control approaches. An important element of our approach is co-simulation: we have demonstrated experience in realizing digital twins of the considered traffic network based on real-time data, microscopic, and agent-based traffic simulations.

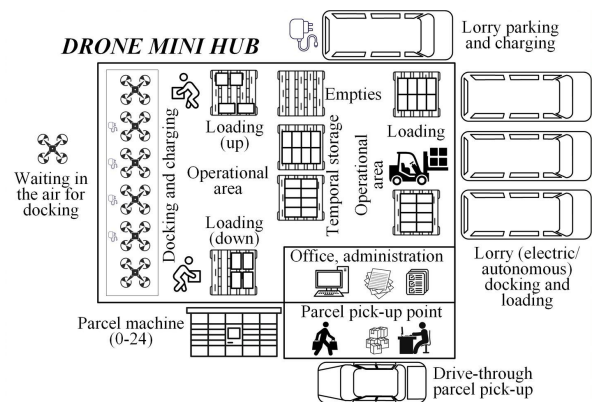### Team of the Department of Material Handling and Logistics Systems

Our team consists of two subgroups: ALRT City Logistics Research Group and BME Traffic Lab. Our primary focus is scientific research but we have close ties to the automotive industry. The scope of our research group involves road traffic modeling, simulation, and control using classical and data-driven methods. Our currently highlighted subject is called "Innovative modelling and sizing methods of supply systems of urban concentrated sets of delivery locations". Based on this theme, we are working on multiple publications, projects, and we are preparing conference presentations. We are also examining the possibility of using drones, urban railways, and waterways in service of supplying the city, or setting intelligent urban loading areas.
Website

COMPETENCES AND REFERENCES RELEVANT TO THE TOPIC

- We have a logistics laboratory infrastructure with various logistics tools
- We have experience with driverless forklifts
- We have extensive experience in developing logistics networks
- We provide logistics engineering services for many projects
- Our publication list: here and here

DRONE MINI HUB — Waiting in the air for docking; Docking and charging; Loading (up); Operational area; Loading (down); Empties; Temporal storage; Operational area; Loading; Lorry parking and charging; Lorry (electric/autonomous) docking and loading; Office, administration; Parcel pick-up point; Parcel machine (0-24); Drive-through parcel pick-up

BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS (BME)

With its regular high-ranking positions (between 200 and 800) BME is among the top universities (2-6%) globally. At the university's 8 faculties and 76 departments, there are 1,200 lecturers teaching 5,000 subjects and 10,000 courses each semester. In the H2020 Framework Programme BME has ranked #2 among the Hungarian institutions (67 funded projects). The University is an active member of the European Engineering Learning Innovation and Science Alliance (EELISA) European University, the CESAER association of universities of science and technology and the European University Association. University website

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**RESEARCH TEAM
FOR HORIZON-CL4-2022-RESILIENCE-01-25:
OPTIMISED INDUSTRIAL SYSTEMS AND LINES THROUGH DIGITALISATION**

KRISZTIÁN BÓNA, PhD, Associate Professor, Head of Research Team
Krisztián Bóna received the Ph.D. degree in logistics engineering in 2006. He is an associate professor and the supervisor of the logistics system planning and modeling area. In the practice, he was in the last twenty years the project leader of many logistics system development in the topic of production and warehousing systems and process at multinational companies. In the R+D projects, he supports the application of wide ranges of modeling techniques, and the integration of new technological solutions in the logistics applications. He is co-author of over 90 scientific papers. He is member of Public Body of Hungarian Academy of Sciences.

BME Profile page
ResearchGate

TAMÁS TETTAMANTI, PhD., Associate Professor
Tamás Tettamanti received the Ph.D. degree in traffic engineering in 2013. He acts as associate professor and also participates in research and industrial projects as researcher as well as project coordinator. His main interests include road traffic modeling and control with applications in intelligent and autonomous transportation systems. He is co-author of over 150 scientific papers, two patents and several books. He is member of Public Body of Hungarian Academy of Sciences.

BME Profile page
ResearchGate
Google Scholar

Balázs Varga, PhD, Research fellow
Balázs Varga received his Ph.D. in vehicle and transportation sciences in 2021 from Budapest University of Technology and Economics, Budapest, Hungary. He was a postdoctoral researcher at Chalmers University of Technology, Sweden in 2021. He is currently a research fellow at the Budapest University of Technology and Economics, Hungary with over 20 scientific publications. His main research interest is data-driven methods in transportation.

BME Profile page
ResearchGate
Google Scholar

Gábor Kovács, PhD, Senior Lecturer
Gábor Kovács received his Ph.D. degree in logistics engineering in 2012. His main interests include logistics network modeling, process modeling. He was in the last fifteen year project member of many logistics system development. He is co-author of over 50 scientific papers. He is a member of Public Body of Hungarian Academy of Sciences.

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