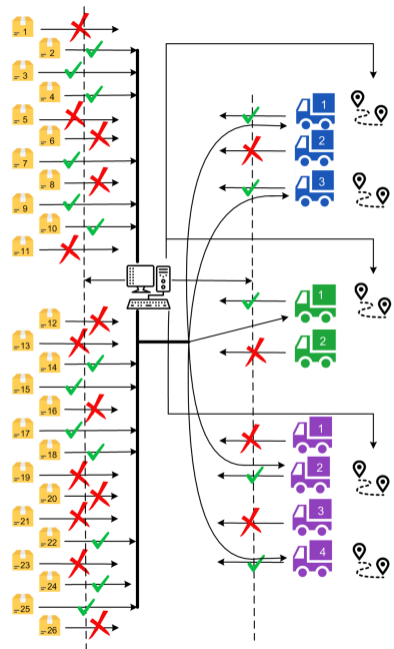
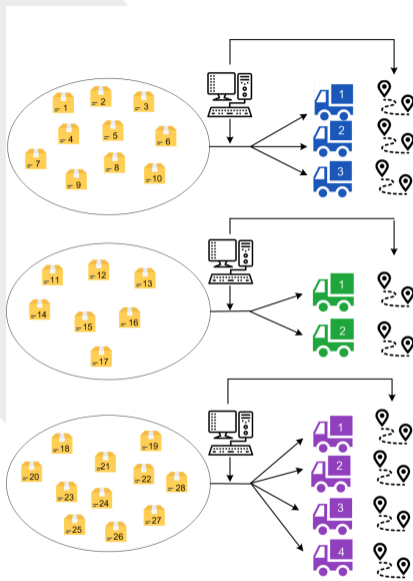


Dávid Csercsik
HUN-REN KRTK
csercsik.david@krtk.hun-
ren.hu
PPKE ITK
csercsik@itk.ppke.hu
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An auction-based cooperative delivery coordination platform

- ▶ There are several approaches for coordination/cooperation in transportation problems.
- ▶ The use of combinatorial auctions (CAs) for the efficient procurement of transportation services has a significant history and literature. The application of this approach started in the US truckload industry (see Ledyard et.al. 2002).
- ▶ Here, carriers are bidding to service a set of lanes defined by a shipper. Complementarities (e.g. preferred return paths of carriers) may be taken into account via package bids (e.g. 'I service lane A for 1 million or lane B for 1.2 million. If I can service both, I do it for 1.8 million.')
- ▶ These CAs typically allocate long term rights (years), thus there is significant uncertainty regarding the future delivery needs and implied payments.
- ▶ We aim to apply the auction approach for LMD package deliveries in a one-day timescale: A digital double (two-sided) auction-based coordination/cooperation framework. Package type bids for a given day: [source, destination, price], delivery capacity (vehicle) type bids: [start, return, price (fixed and km dependent component)]



- ▶ Ideally, we are looking for project coordinators, who are up to include this topic as a work package/project in an upcoming mobility / service digitalisation / etc. related H2020 Project, or partners who are embedded in H2020 cooperations, see potential in this approach, and are up to propose this project to a coordinator.
- ▶ What we provide: Proof of concept, operational research background to solve the auction clearing (and developers for prototype development).
- ▶ What we currently lack: Relevant data, which could be used to in-silico validate the model concept and algorithms.

Me (Dávid Csercsik)

- ▶ Academic researcher
 - ▶ 33 peer-reviewed published journal papers (16 Q1)
 - ▶ Total cites acc. to Google Scholar: 438
 - ▶ H-index 9
- ▶ Participation in previous H2020 grants (related to energy): 824330 INTERFACE (WP coordinator).

The team

- ▶ 3 academic researchers (one senior and 2 postdocs) and a Phd Student (developer).

PS: Some Hungarian universities are expelled from H2020 due to legal actions of the EU, but my affiliations (HUN-REN KRTK and PPKE) are not.