ROZVOJ DOPRAVNÍCH SYSTÉMŮ

Využití lokalizačních dat pro řízení a ovlivňování dopravy

Topics

1) Introduction
2) Trends in iMobility
3) Role of public authorities
4) RODOS – Strategic Research Agenda

Centrum pro rozvoj dopravních systémů RODOS

RODOS (ROzvoj DOpravních Systémů, Traffic System Development): Financed by the Centra Kompetence (Competence Centres) programme for the support of long term cooperation between private and public sector in research, development and innovations, operated by the **Technology Agency of the Czech Republic**.

Duration of financial support for the centre: 1.5. 2012 – 31. 12. 2018

Total budget of the centre: 211 800 000 CZK

Centre's consortium

Recipient:

- Vysoká škola báňská – Technická univerzita Ostrava, IT4Innovations

Partners:

- Transport Research Centre v.v.i.
- Czech Technical University in Prague, Faculty of Transportation
- Brno University of Technology, IT Faculty
- CAMEA, spol. s r. o.
- CE Traffic, a.s.
- Central European Data Agency, a.s
- ELTODO Group
- Kapsch Telematic Services spol. s. r.o.
- KVADOS, a.s.

Near future – Information revolution

- **Mobility** is recently on the verge of **fundamental changes** caused by rapid advancement of mobile connectivity supporting technologies and services.
- The number of smart phone, mobile internet and mobility support application users will significantly increase
- In the near future, vehicles, travelers, and the transportation infrastructure will collectively have **millions of sensors/devices** that can communicate with each other
- **Road transportation** will thus experience **information revolution** as we know it from air, railway and water transport
- Movement of airplanes, ships and trains is monitored and controlled at the unit level and it is accepted as a matter of fact
- In the near future, **the travelers will be flooded with real-time information** coming from prospectively ubiquitous **communication networks**

Trends in seamless mobility of passengers and drivers

Near future – Information revolution

- Today isolated drivers-actors will be informed about **the behavior of the mass of actors** - everyone will act based on knowing the behavior of most other travelers
- Present-day intuition based way of **decision making** will change to the one **based on knowledge of ambient conditions**
- **SHARE YOUR DATA**
- **CONNECTED TRAVELLER IS SMARTER TRAVELLER**

Role of public authorities it this field

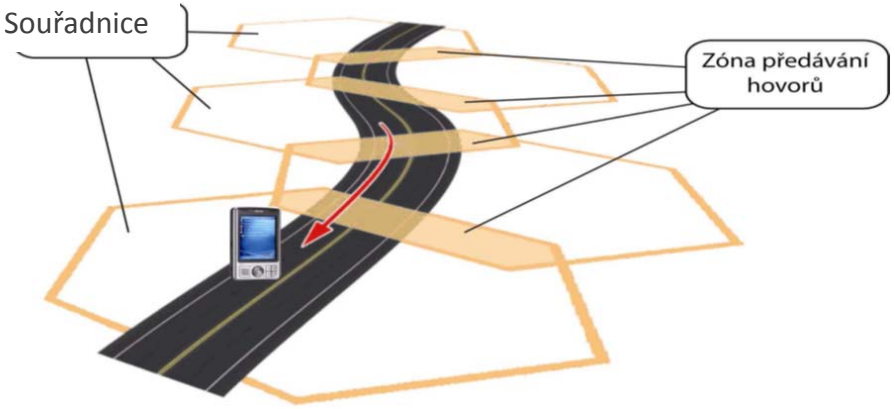
Management of Mobility of passengers and drivers – Whose job is it?

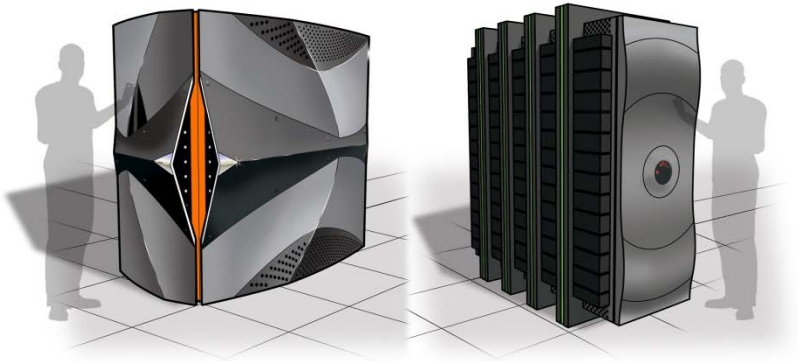
- Trends are totally driven by **private sector** – potential **threat**
- **Monoculture effect** – private service providers does not cooperate
- The task of **public administration** will be to drastically **adjust recent approach** to transport regulation issues, created for decades
- Informed mass will request **more sophisticated and coordinated regulation** systems
- Today's isolated transport management systems will be replaced by **centralized control systems**
- **Complex travelers' support** information applications will be introdused

Role of public authorities it this field - gaps

Management of Mobility of passengers and drivers – data fusion, data processing

- There are particularly **large gaps in data collection**, data integration and analytics especially across modes, and customer relationships in typical city environment
- There is a need to devise mechanisms that can assist in making sense of the **coming huge volumes** of heterogeneous and distributed data
- Processing of the expected amount of data in real-time will also make extreme demands on **processing performance and memory of central systems**
- It will be necessary to systematically incorporate the **supercomputing methods**





How GNSS helps in this area?

TOPICS FOR DISCUSION

Refines the localization –accuracy at the Lane

- Traffic data/management systems
- Charging

Location in buildings

- Passenger navigation
- Security
- Other LBS

Guaranteed availability/Higher transmission power

- Charging
- Future V2V, V2I cooperative systems

SVA centra RODOS

- RODOS centre presents currently missing platform that enables systematic view of traffic as interconnected, communicating and cooperating system.
- The research strategy responds to recent state of research and development, mid-term needs and new opportunities **in the fields of data collection and analysis as well as simulation and optimization of passenger and goods mobility**.
- New methods of mobility **monitoring, modelling, management, affecting, support and pricing** will be developed in the course of research strategy realization.
- The aim is to create complex information upgrade utilizing **supercomputing** tools and artificial intelligence methods.
- The centre **connects top experts** from the fields of intelligent traffic systems, IT, economy, sociology and social geography, environmental and safety engineering.

Ojectives and outputs

- Starting pilot operation of a **complex database of passenger and goods mobility** in the area of the Czech Republic.
- Starting pilot operation of **Dynamic Mobility Model (traffic, emission and energy model),** including integration of submodels, analytic and predictive functions and dedicated interfaces designed for related systems, applications and special maps.
- **Starting pilot operation of innovative traffic control systems** based on new control methods and entry data types.
- Formulation of new methods for traffic infrastructure pricing. **Pilot test of the toll for passenger vehicles.**

External links of the centre

- **External advisory board of the Centre** has been established in order to promote more effective practical implementation of its results. It is composed of competent public officials whose expertise complies with scope of the centre.
- **Participating institutions**:
  - Ministry of Transportof the Czech Republic,
  - Road and Motorway Directorate of the Czech Republic,
  - Technical road maintenance Prague Inc.,
  - Roads of Brno Inc.,
  - Roads of Ostrava Inc.,
  - Association of Regions of the Czech Republic.

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