Graz
Urban Traffic Management

Prague Workshop on UTM

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02.12.2020
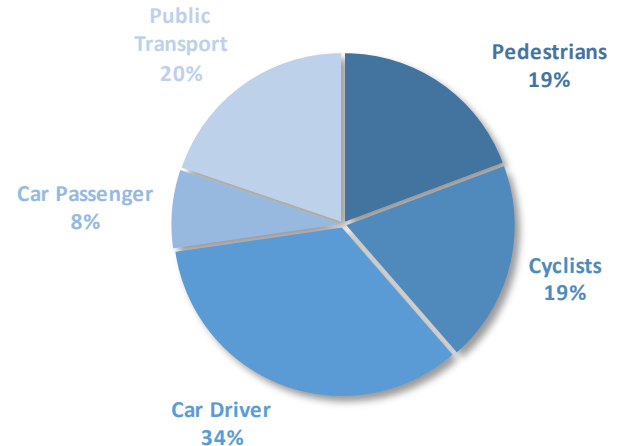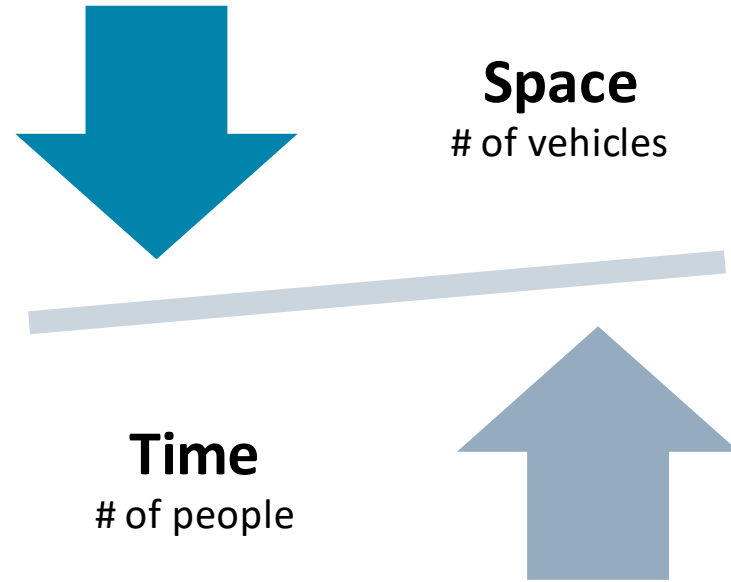
graz.at/strassenamt

Graz – a growing city

Facts and Figures

- *Second largest city in Austria*
- *295.000 inhabitants; ~400.000 greater Graz area*
- *1227 km roads*
- *128 km tram & bus routes*
- *~1mio trips/day*

Public Transport 20%
Pedestrians 19%
Car Passenger 8%
Cyclists 19%
Car Driver 34%

The challenge of urban traffic management

Space
# of vehicles

Time
# of people

What we will be talking about today

- *Technologies and functions*
  - *what we do and how we are doing it*
- *Organisational structure*
  - *who does what and how we are working together*
- *Strategy, Vision & Financing,*
  - *what is our strategy and vision and who's paying for all that*

Graz UTM Eco-System

Traffic Control

Traffic Information

Space Management

Enforcement

Traffic control

Elements, Functions & Services

- 305 Traffic lights – 50% public transport priority
- Dynamic traffic light control and local detection
- Traffic counting (stationary & mobile)
- 50+ CCTV traffic cameras + 2 mobile cameras
- Areal and city wide part-automated strategy management
- Dynamic routing for parking traffic

Traffic information

Elements, Functions & Services

- *VMS, Web & Co:*
  - *Routing-VMS for parking (main hospital, convention centre)*
  - *Traffic information via web, radio and social media*

- *VIS: traffic information system Southern Austria*
  - *LOS & travel time information*
  - *Planned events & incidents – in cooperation with EVIS-AT*
  - *Integration of live public transport information (Graz Linien)*
  - *Online data exchange with ASFINAG (highways) and public transport providers*

- *C-TMS:*
  - *C-ITS conform Central-ITS-Station (integrated in UTC-System)*
  - *16 stationary Roadside ITS-Stations + 2 "mobile" R-ITS-S*
  - *Day-1 Usecases, Testbed for R&D and future services*
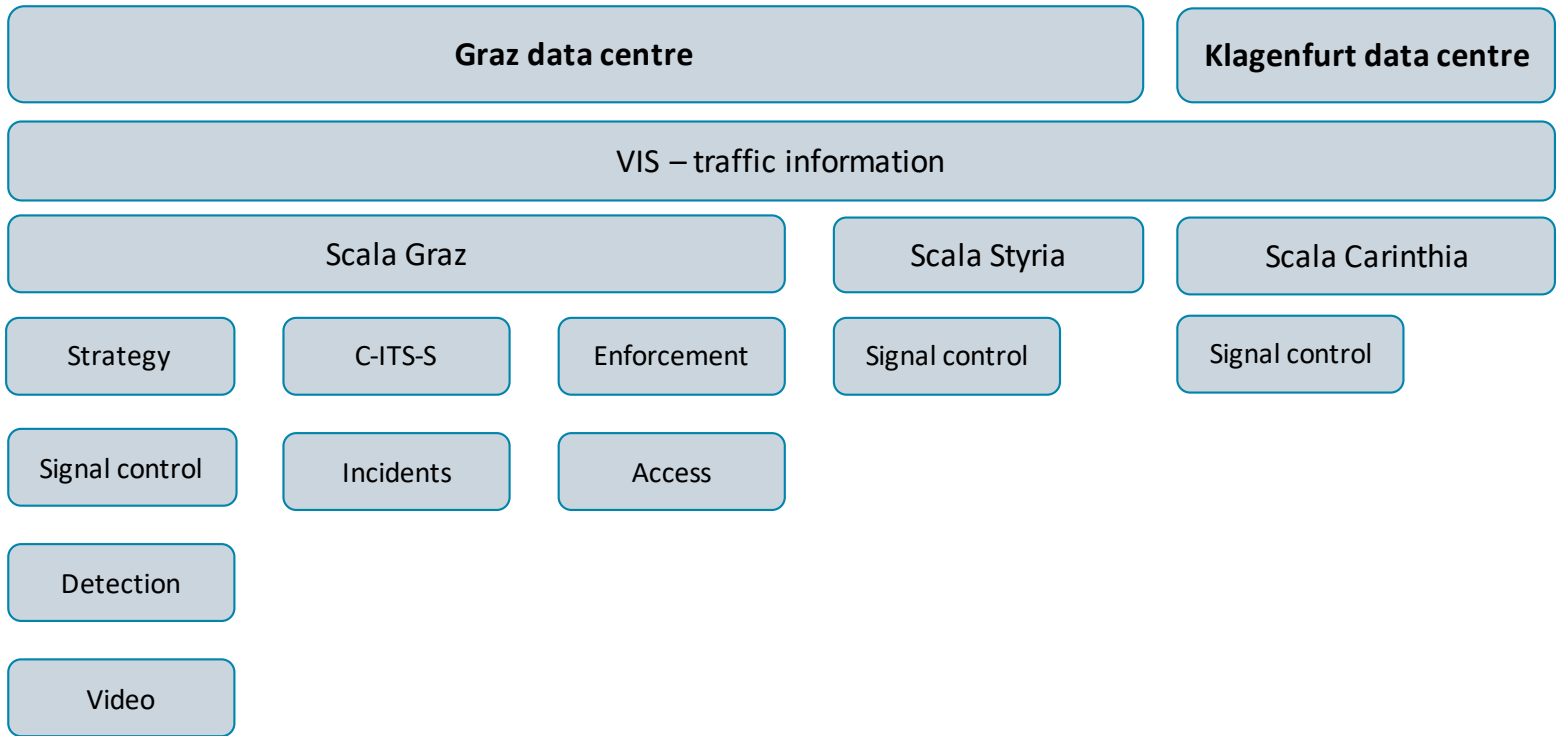
Space Management

Elements, Functions & Services

- Parking management
  - Paid short-time on-street parking (inner city)
  - Paid parking (middle ring)
- Access control system (city centre, pedestrian zones)
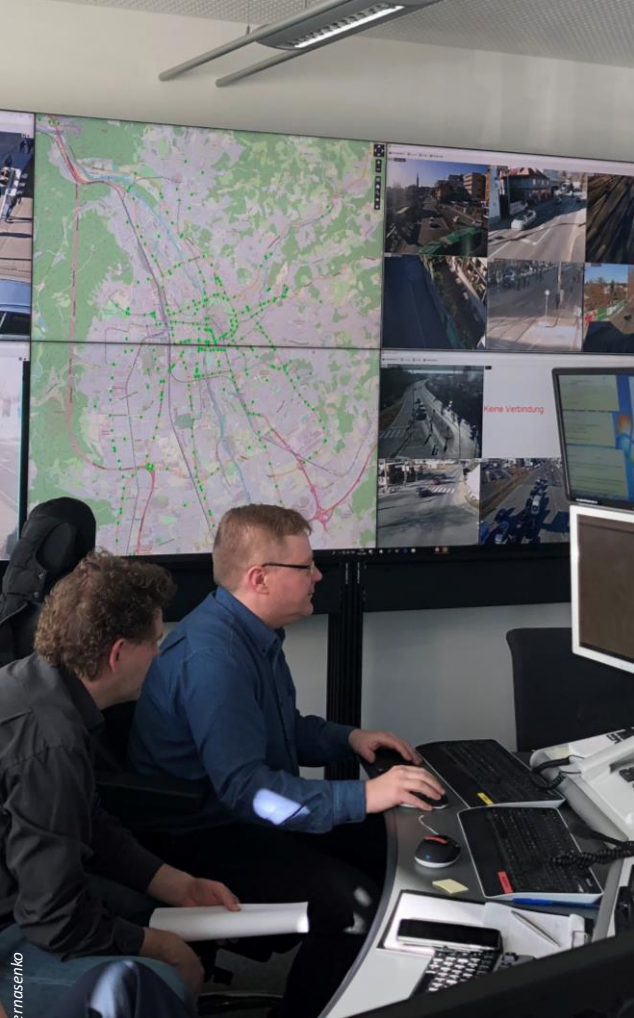- Dynamic parking space allocation

Enforcement

Elements, Functions & Services

- *Red-light enforcement*
  - *24 locations*
  - *10 cameras*

- *Speed enforcement*
  - *4 mobile units/cars*
  - *10 stationary locations / 3 cameras*

- *Parking enforcement*
  - *Manned enforcement (paid parking)*
  - *Enforcement of violations (pedestrian zones, loading bays, disabled parking)*

- *Vehicle removal*
  - *towing of obstructing vehicles*

Graz UTM Architecture

Graz data centre

Klagenfurt data centre

VIS – traffic information

Scala Graz

Scala Styria

Scala Carinthia

Strategy

C-ITS-S

Enforcement

Signal control

Signal control

Signal control

Incidents

Access

Detection

Video

Legal & administrational framework

- *2 material legal frameworks*
  - *Road traffic regulations (StVO): Authority = City of Graz*
  - *Road administration/maintainance: Authority = Owner*
- *Equipment vs. Operation*
  - *Adminstration responsible for equipment*
  - *Police responsible for operation*
- *3 Road Administrations*
  - *ASFINAG (Highways)*
  - *Province of Styria*
  - *City of Graz*

Joel Kernasenko

Operation in Reality

- *City of Graz as operator*
  - *Operational contract with Province of Styria*
  - *Renewal and investments within joint projects – executed by City of Graz*
  - *Steering board for strategic decisions*
- *Enforcement in conjunction with Police*
  - *Parking violations enforced both by police and city officers (city owned security)*
  - *Speed and red-light enforcement trough assigned employees*
  - *80% of penalty revenues go to maintainer/owner*
- *Cooperation as a result of projects*
  - *(Inter)National projects as starter for cooperation between road administrations and authorities*

The best is yet to come

What we are testing / working on

- *AI cameras & detectors*

- *Dynamic e-ink road signs*

- *C-ITS Services for automated traffic/transport*

- *Artificial intelligence in dynamic traffic management*

- *IoT & crowd sensing in traffic management*

Technology is only the tool to enable policy

Vision and Strategy

- *Management of people flows vs. vehicles*

- *Integrated regional (vs. urban) traffic management*

- *Supporting the transition from prototype to product/service*

- *Providing a testbed for new technologies and services*

The (white) elephant in the room…

Financial (Self)Sustainability

- *Operational cost outweigh investments by far*

- *EU/National funding is a great catalyst for innovation – but not for progress' sake*

- *Life-cycle-cost as key component of system design, tendering and organisational setup*

- *Integrating systems/services as tighly as possible, while keeping them open*

- *Vendors can be good partners – but try thinking from their perspective as well*

Thank you and please keep your visions