

RITS-Net

Final Conference

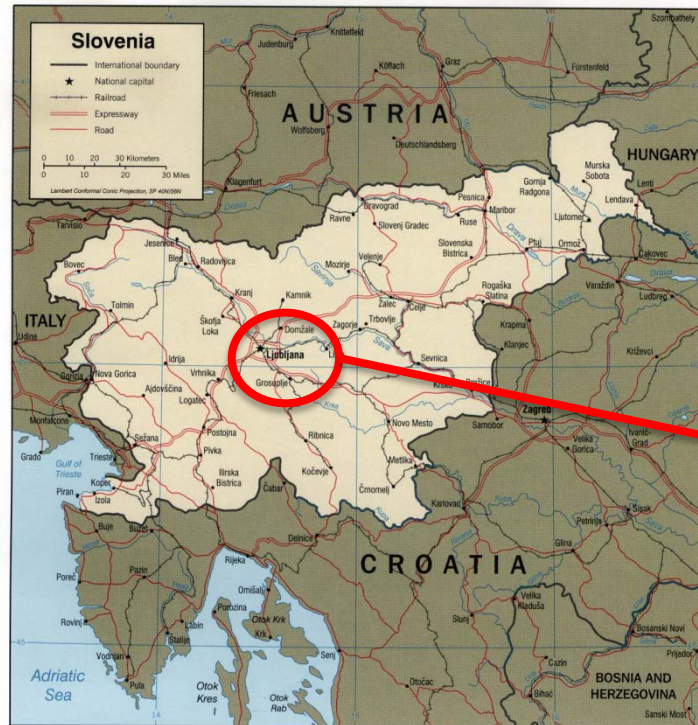
Rome, 4 December 2014

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centre of the Heart of Slovenia
<http://www.razvoj.si>



European Union
European Regional Development Fund

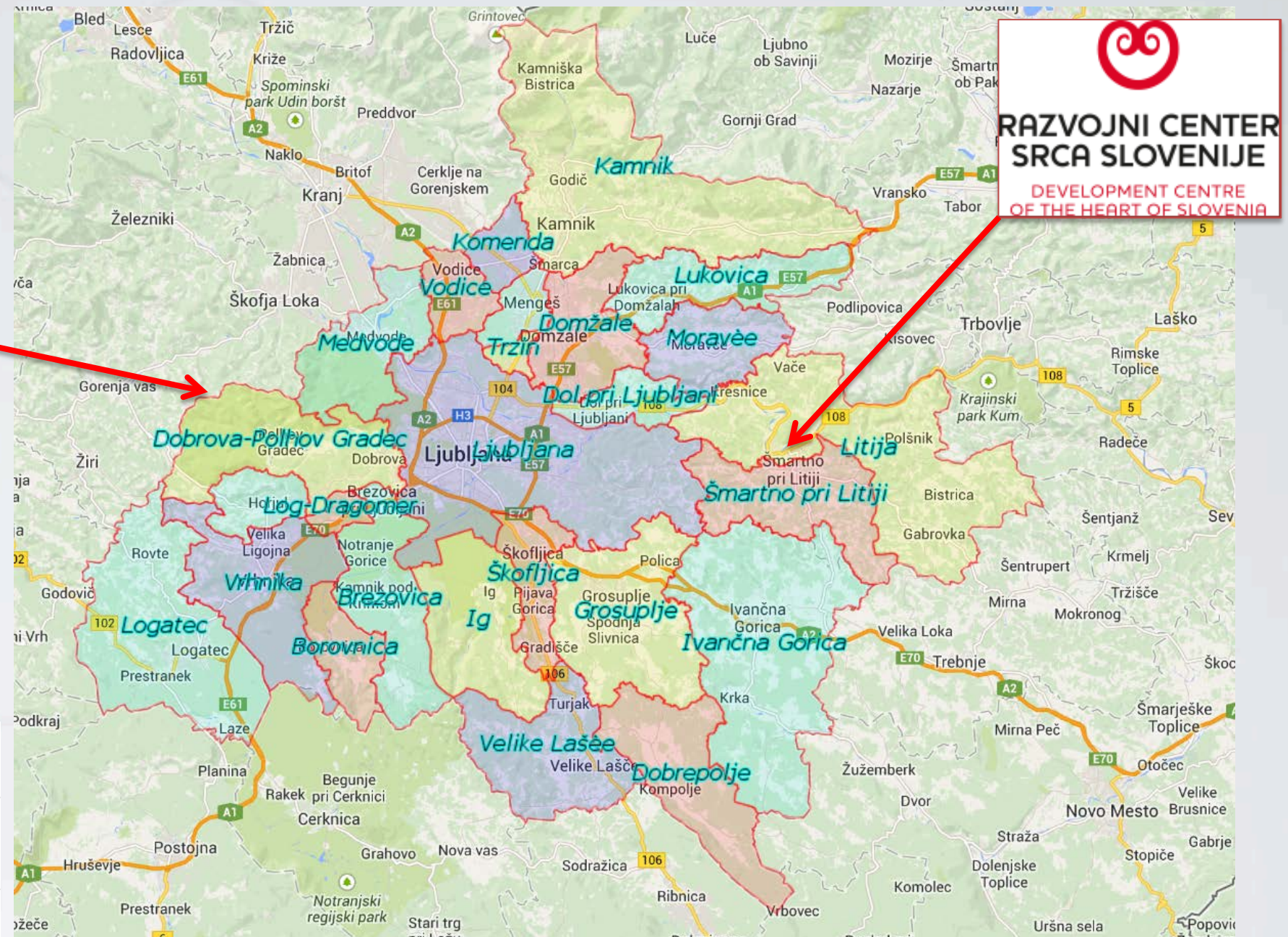
Ljubljana urban region (LUR), Slovenia



Population: 2 mio.
Capital city: Ljubljana

Statistical data of the region are valid for 2007 unless otherwise stated.

| | |
|---------------------------|------------------------|
| Area | 2,555 km ² |
| Population | 508.607 |
| Number of Inhabitants | |
| Population Density | 31 December 2007 199.1 |
| Number of Births | 5,570 |
| Number of Deaths | 4,021 |
| Natural Population Growth | 1,54 |



130.000 commuters travel to the city every day

252.000 workplaces

90% daily commuting with personal vehicle

Transport challenges

Roads & Railways: Any changes in the last decade ?

Human Behaviour

- + : TALKING about “traffic safety & security”: education, warning actions, consequences, studies, etc.
- : “hurry & rush business”, “door to door” delivery, settlement and migrations →
↑transport demand, degree of motorisation, modal-split (↑ car ownership , ↓ public transport)
↑congestion, ↑environment & safety impact,
- : changing age structure of population → changing human factors in transportation

Vehicles

- + : new technologies, favourable age structure of vehicle fleet
- : bigger & powerful vehicles → potential lower traffic safety for pedestrians, cyclist

Infrastructure

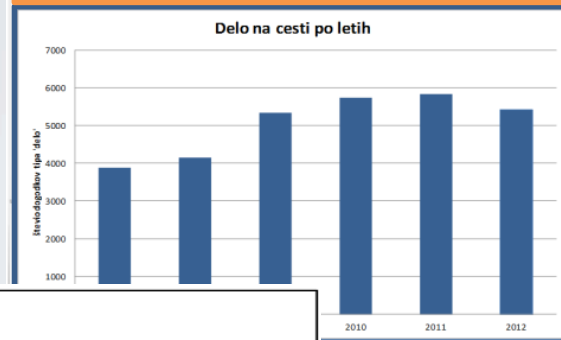
- + : new motorways, traffic calming measures, intelligent infrastructure, managing “black spots”
- : stagnation of other roads and railway renovation and modernisation
- : new vehicles & new technologies → need for standards in transportation and traffic engineering



Transport challenges

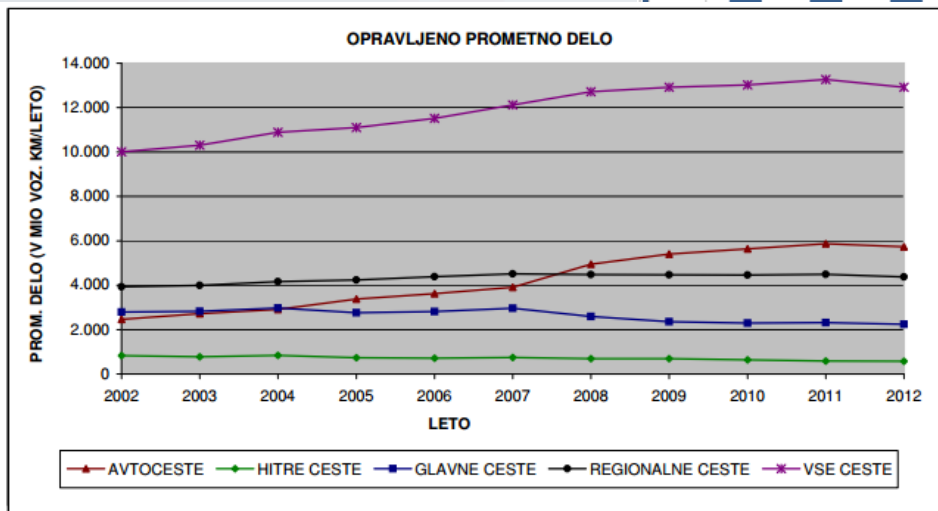
Users delay costs on slovenian motorway network (cca. 600 km) – value of time **100 – 120 mio. €/year** (source TIC-Kažipot)

Aging of transport infrastructure → work zones expected



124 fatalities 2013, slow falling trend (source: Police)

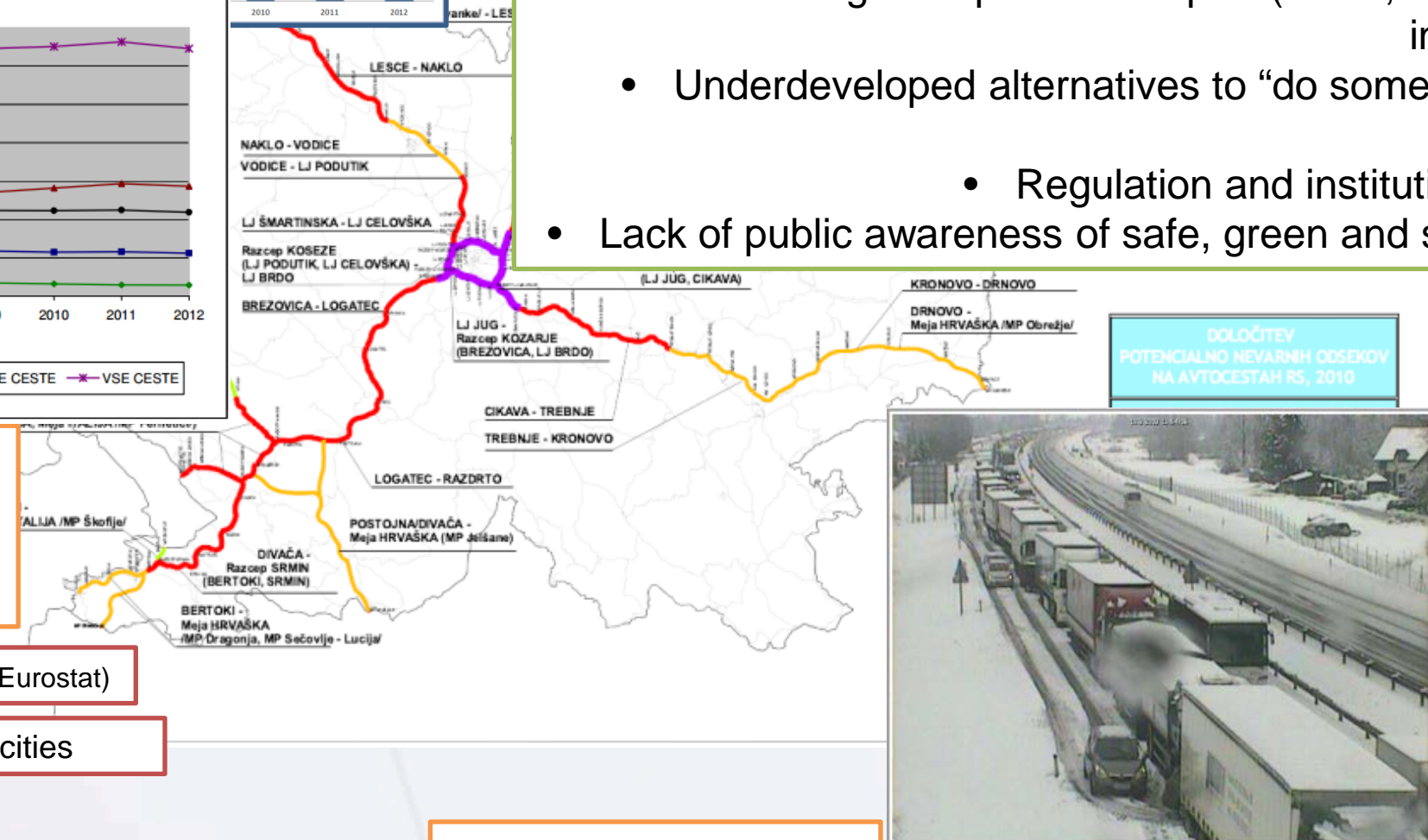
- Lack of integrated public transport (tariffs, timetables and infrastructure);
- Underdeveloped alternatives to “do something” without transport;
- Regulation and institutional barriers;
- Lack of public awareness of safe, green and smart mobility



Transport demand: still grows on TEN-T network **3-5 %/ year**, generally calm down (source Agency for Roads)

Emissions = 2,5-3,0 % GDP (source: Eurostat)

>50% population lives in cities



DOLOČITEV POTENCIALNO NEVARNIH ODSEKOV NA AVTOCESTAH RS, 2010

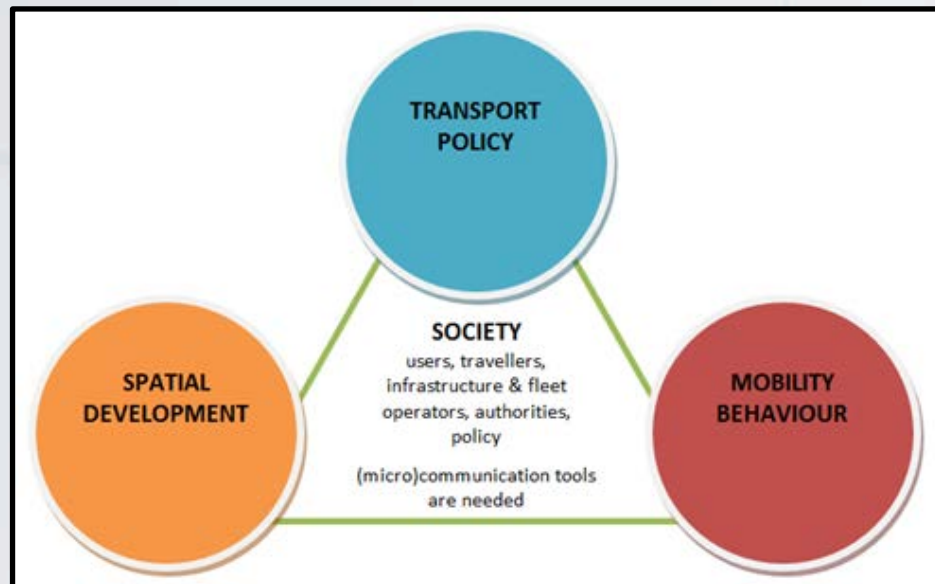


climate diversity

A1/E61/E70 Ljubljana - Koper,

Transport Priority Measures

MANAGING TRANSPORT DEMAND



MANAGING TRANSPORT SUPPLY

Optimization of transport system capacities:

- vehicles and fleet optimization;
- transport infrastructure;

Continuity of traffic and freight management (logistics optimization);

Decarbonisation of all transport modes, energy-efficient technologies while ensuring safety;

Optimising integration, inter/multi-modality and improving the interoperability of transport system and services;

Territorial integration of existing transport systems;

Transport accessibility, intermodal hubs and multi-modal logistics platforms.



tools of automatisisation, communication and information exchange

Main ITS applications in Use

TRAFFIC INFORMATION CENTRE FOR PUBLIC ROADS (TIC) Kažipot system as the main INFO TRAFFIC POINT

2 public road operators
(DARS d.d. and
Slovenian Roads
Agency) in 1 common
centre

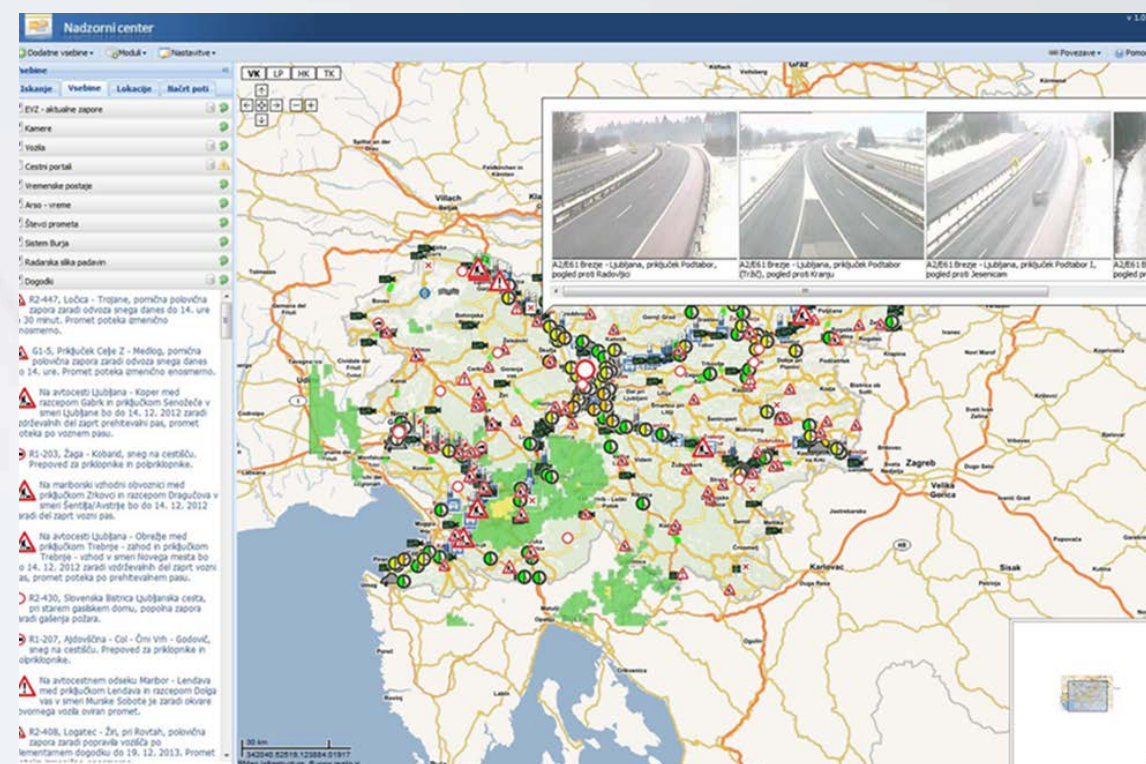
1. Web portal
www.promet.si
2. info@tel
answering
machine
(080 2240)
3. Call centre
(1970)



B2B channels
such as:
HTML/XML
traffic reports,
RSS and
geoRSS
feeds, RDS-
TMC alerts



Sensors, Users,
Operators, etc.

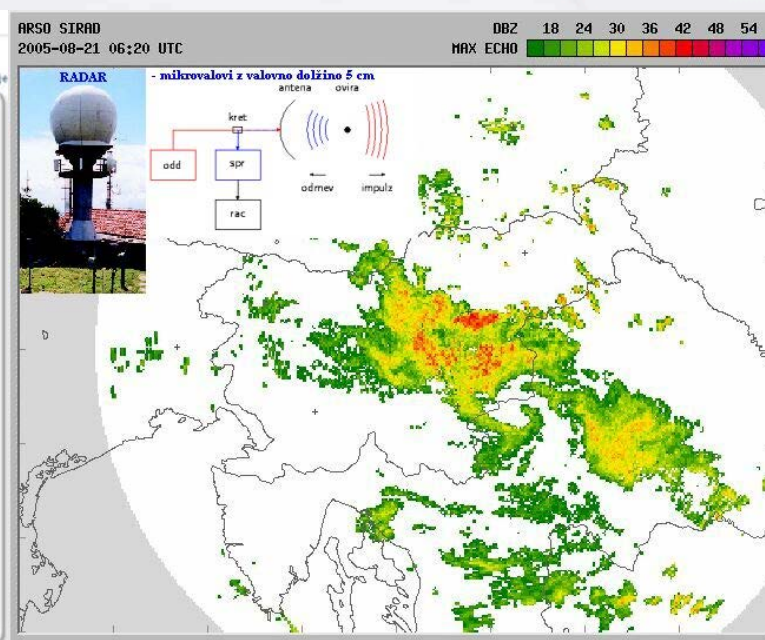
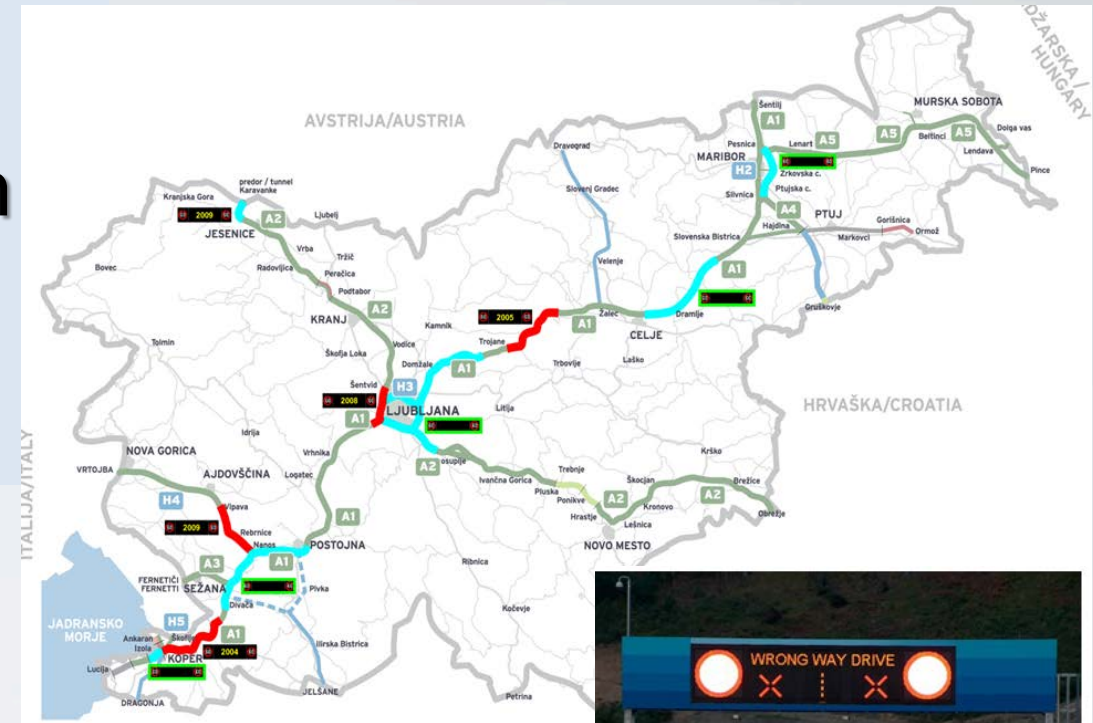


Main ITS applications in Use

Traffic Control System on motorways

RWIS – Road weather information system

- Reduction in the costs of winter road maintenance (saving of 20% on spreading materials)
- Optimization of road winter maintenance services;



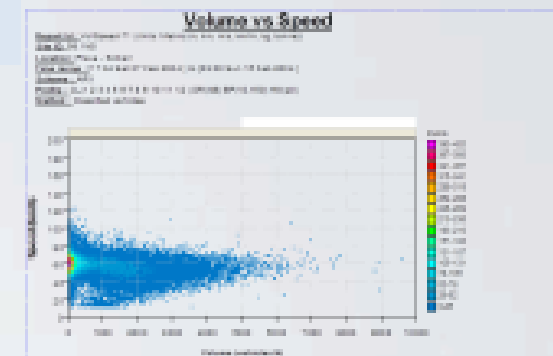
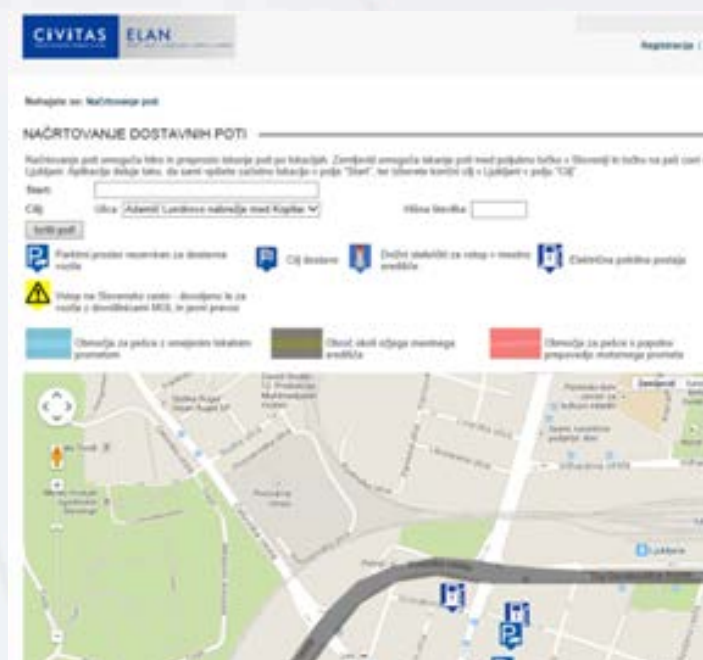
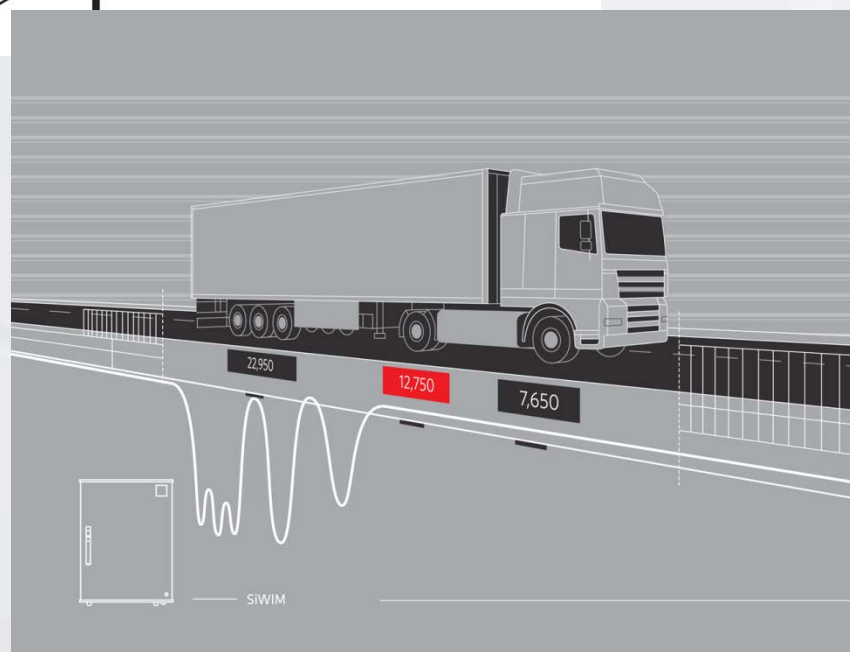
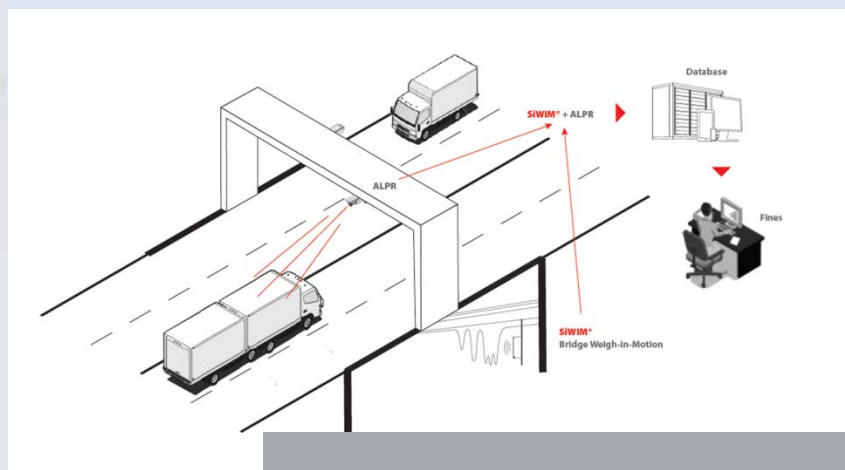
3 organisations with common Road Weather Information System (RWIS): Slovenian Road Agency, DARS d.d (road operators) and Slovenian Environment Agency

Main ITS applications in Use

Urban logistics – Dostave.si web portal and Access control

Weigh in motion monitoring system – called SI-WIM:

with determination of dangerous goods loads



Main ITS applications in Use

PT & Fleet management: Urban PT

Ljubljana Urban Region Cities / Conurbations

Time tables coordinated by 2 PT operators (LPP PT bus operator & Slovenian Railways) and collected by

Ljubljana as the case of „SoA“ for Urban PT management for other regions

Payment facilities

„The URBANA card – no-contact prepaid smart card for public services“

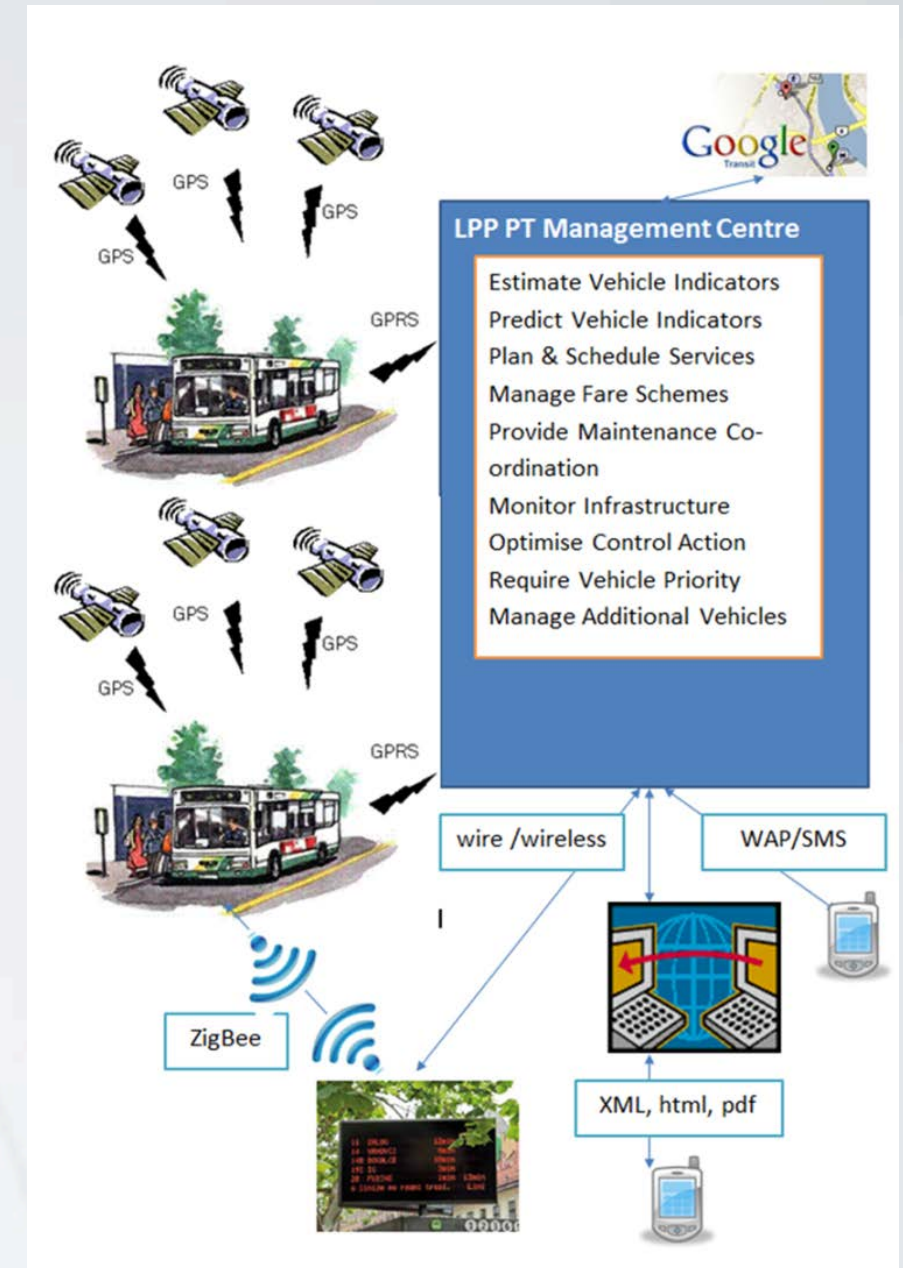
Transportation demand management

prevoz.org – www.prevoz.org

Carpooling/Ridesharing Service in Slovenia
(Students)

GoOpti – www.goopti.com

Transport on demand, Innovative Booking System
1 Company – 6 countries



ITS for future implementation

What should be done to implement the higher level of ITS understanding in Slovenia / LUR?

- Public discussion and presentations of specific intentions;
- **ADOPTION or UPGRADE** of strategic documents:
ITS Strategies on the National, Regional and Municipality level Update
- Rules and responsibilities of ITS actors in Slovenia definition: integrity, liability, etc.
- Geographical and Functional Integration

ITS for future implementation - LUR / Slovenia / EU -

Regional ITS Action plan 2014-2020 → should be adopted

Regional Mobility Center → should be established

Multilanguage and Multimodal travel information system & e-ticketing → project IJPP (Integrated PT)

Regional real-time PT management

eParking Info & Reservation

Smart mobility on highways in LUR

Traffic monitoring

Regional traffic data warehouse

Smart pedestrian and cyclists crossing

PT & emergency vehicles priority system

Education about ITS and iMobility



Feasibility Study

Smart mobility on motorways in LUR /Slovenia

Challenges ...

The growth of traffic

Congestion, Cost, Hazard, Carbon footprint

- Motorways interchanges and rest areas as **hubs**
- **ITS** - Intelligent Transportations Systems and services
- Collective transport (mass transit): public transport, carpooling, carsharing, BRT - Bus Rapid Transit ...

Feasibility Study

Smart mobility on motorways in LUR /Slovenia

Problems of collective transport on motorways - case LUR:

- The average occupancy vehicles in the LUR is 1.35 persons/vehicle
- Parking near motorways interchanges areas is disordered and dangerous (illegal parking); interchanges are not in the function of travelers hubs,
- Parking areas with no maintenance manager
- Lack of information about the service, parking facilities, etc.
- There is no promotion of alternative transport modes



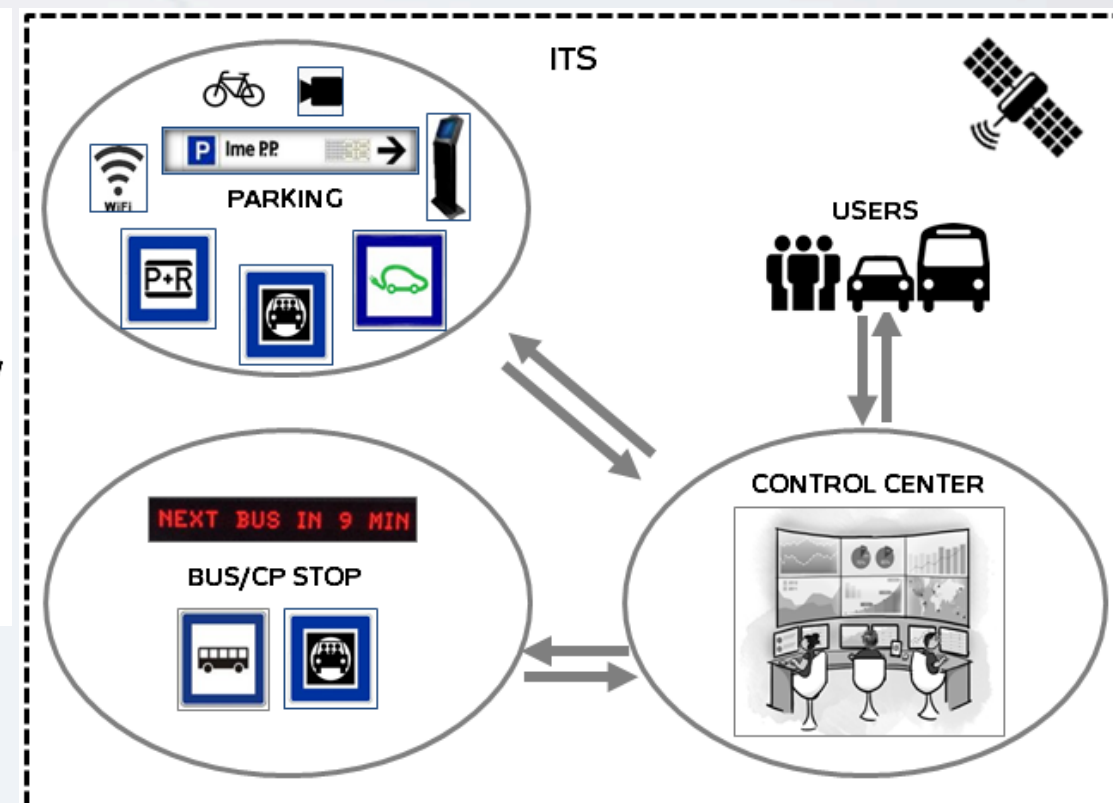
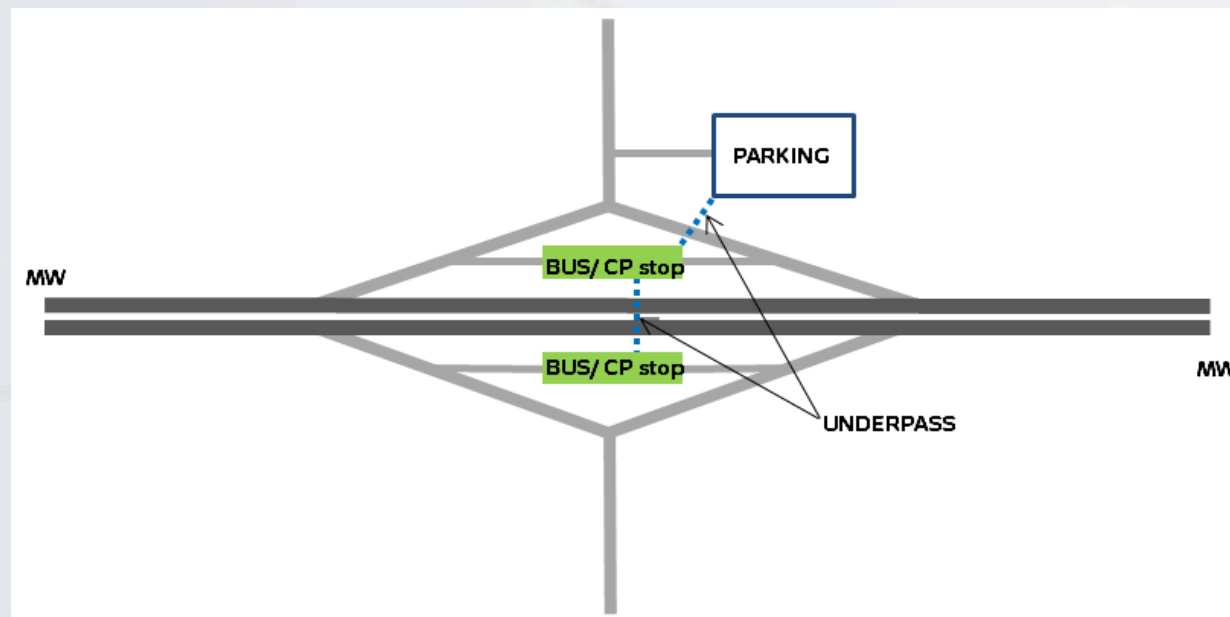
The purpose and objectives of the study

- Demonstration of potential development of missing infrastructure for sustainable mobility on motorways
- Correlating best practices: Torino – Milano (Italy)



Potential measures and guidelines

- **Infrastructure measures**
 - Integrating basic motorways infrastructure with other transport modes
 - ITS equipment
- **Management measures**
 - business model, management: signalization, ITS equipment and



Modeling the effects of measures

- Results - case of interchange Ivančna Gorica (20km east from Ljubljana)
- Scenarios
 - Scenario V0 – current state (Ivančna Gorica – Ljubljana): „do nothing“,
 - Scenario V1 – introduction of new parking area (Ivančna Gorica),
 - Scenario V2 – scenario V1 + carpoolers on bus priority lanes in Ljubljana,
 - Scenario V3 – scenario V2 + Congestion charging Ljubljana



V0



V1



V2



V3



RITS-net
Regions for Intelligent Transport Solutions

Modeling the effects

- Results - case of Ljubljana)
 - Scenarios
 - Scenario V0 – current situation
 - Scenario V1 – introduction of new parking area (Ivančna Gorica),
 - Scenario V2 – scenario V1 + carpoolers on bus priority lanes in Ljubljana,
 - Scenario V3 – scenario V2 + Congestion charging Ljubljana
- Annual savings of external and operating costs
 - Change in transport demand
 - Change of modal split (carpoolers as new transport mode?)



V0



V1



V2



V3

Lessons Learnt

- Some ITS and other measures are non-remunerative, but could be accepted as positive and opened to further spatial (regional) development
- ... but are much more cheaper than additional capacity extension of main transport infrastructure (e.g. new traffic lanes)
- „Ride-sharing“ (mass transit) and ITS → need for promotion (campaign) and need for education also in spatial and mobility planning
- Next generation of ITS technology (data exchange tools, automation tools and information tools) → need for ITS architecture design
- Vehicles and fleet optimization → sustainable design of future and upgrade of existing interchanges (transport infrastructure)