New Technologies to achieve sustainable transport in cities:

*Bringing intelligence into urban mobility to improve traffic management and increase traffic safety*

THE PEP Workshop
Sustainable development of Urban Transport
Moscow, 7-8 June 2012

Vincent Blervaque
Director of Development and Deployment
ERTICO - ITS Europe
ERTICO Partners

Users
› 5 partners
Mobile Network Operators
› 2 partners
Public Authorities
› 29 partners
Service Providers
› 14 partners

Research
› 14 partners
Traffic and Transport Industry
› 13 partners
Vehicles Manufacturers
› 10 partners
Suppliers
› 11 partners
ERTICO Partnership Vision

Bringing Intelligence into mobility to achieve

» safer mobility towards zero accidents

» smarter mobility towards zero delays and fully informed people

» cleaner mobility with reduced impact on the environment
Safer mobility towards zero accidents

» Provision of updated safety related road and traffic data
» Deployment for pan-European eCall
» Deployment of Cooperative ADAS including towards highly automated driving
» Safe interaction between users, vehicles and infrastructure
Smarter mobility towards zero delays and fully informed people

» Optimal use of traffic and travel data for EU-wide multi-modal travel and traffic information
» Europe-wide platform for Cooperative ITS services
» Demand responsive cooperative transport and network management
» Deployment of information and booking systems for safe and secure truck parking
Cleaner mobility with reduced impact on the environment

- Support drivers to adopt an energy-efficient driving behaviour
- Energy-efficient cooperative fleet management and logistic operations
- Energy efficient traffic network management and infrastructure
- Integrate electric chargeable vehicles into the transport and energy networks
EXAMPLES OF ITS SOLUTIONS TO ACHIEVE SUSTAINABLE TRANSPORT IN CITIES
Connected Mobility

Key issues:

» Seamless connectivity between users (drivers, travellers, fleet owners & operators), transport infrastructure and vehicles (multimodal)
» Based on mature and standardized wireless communication technologies
» Data sharing and exchange of high quality, real-time and reliable information from multiple sources
» Communities of users and providers
» Prediction from users ‘point of view, traffic managers, operators and service providers
» Multi-actor ecosystem from public and private sectors

Benefits:

› Road safety
› Energy efficiency
› Traffic efficiency
Cooperative mobility to increase traffic safety

DRIVE C2X contributes to the creation of a harmonized Europe-wide testing environment for C2X technologies

Application areas for connected vehicles

- Safety Warning (DSRC)
  - Construction Zone
  - Stopped Traffic
  - Weather
  - Emergency Vehicle
  - Red Light

- Mobility (DSRC/3G/LTE)
  - Traffic Information
  - Traffic Smoothing
  - Dynamic Route Guidance

- Commercial / Internal OEM Use (3G, LTE)
  - Connectivity
  - E-Payment
  - Telediagnosis
Pan European eCall to increase traffic safety

HeERO pilot prepares for the deployment of the necessary infrastructure in Europe for making the interoperable Pan-European in-vehicle emergency call service eCall a reality for all European citizens.

Cooperation with Russia (ERA GLONASS)
Highly Automated Vehicles for Traffic Safety
Automated Queue Assistance (AQuA)

- Offer highly automated driving in low speed congested traffic
- Increase safety in driver underload situations
- Implemented semi- to highly automated functionality and transition strategies
- Common HMI and automation scheme
- Adaptation of automation level to driver state
Highly Automated Vehicles for Fuel Efficiency
Active Green Driving (AGD)

» Reduce fuel consumption by hybrid control strategy based on prediction of future driving scenario
» Power split between diesel engine and electric motor
» Powertrain mode diesel engine on/off
» Fuel optimal operating for complete system by influencing gear shifting strategy
» Driver Coaching helps driver to drive fuel efficient and improves predictability
Cooperative Mobility Systems and Services for Energy Efficiency

eCoMove aims to reduce as much as possible wasted energy in road transport.

The eCoMove Concept is that of the “perfect eco-driver” travelling through the perfectly “eco-managed” road network.

Main Objective

To develop a combination of cooperative systems and tools using V2V and V2I communication to help:

- drivers sustainably eliminate unnecessary fuel consumption,
- fleet managers to provide incentives to drivers to save fuel, and most economical vehicle management
- road operators manage traffic in the most energy efficient way

Target is to reduce by 20% fuel consumption & therefore CO₂ emission
Open platform for traffic data collection & processing

Open platform to support transport operations, planning and provision of wide range of traveller information services

The Open Platform

Transport Planning
- Planning of public transport
- Environmental benefit planning

Transport Operation and Management
- Urban traffic management and control
- Public transport operation
- Taxi fleet operation

Information Generation
- Real time traffic information
- Environmental benefit planning
- Dynamic route guide
- Public transport information
- Booking and payment
- Cross modal journey planning

Information Dissemination
- Display system in buses and metros, at bus stops and interchanges
- On-board navigation system
- Mobile phone traveller information to support cross modal journey

Data Exchange Network

Demo Cities
- Athens
- São Paulo
- Beijing
- Shanghai

ERTICO - ITS Europe
Future Internet for connected mobility

Instant Mobility brings the world of ITS together with the innovative potential of future Internet features and technologies - to create Mobility 3.0 for people & goods

» Explore novel mobility & transport scenarios highlighting use of future Internet, e.g. for travellers, drivers, goods transport, collective transport & traffic management

<table>
<thead>
<tr>
<th>Scenarios</th>
<th>List of Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal travel companion</td>
<td>Dynamic multi-modal journey</td>
</tr>
<tr>
<td></td>
<td>Dynamic ride-sharing</td>
</tr>
<tr>
<td></td>
<td>Optimized public transport usage</td>
</tr>
<tr>
<td>Smart city logistics</td>
<td>Load sharing and optimizing</td>
</tr>
<tr>
<td></td>
<td>Dynamic time/place drop point</td>
</tr>
<tr>
<td></td>
<td>Itinerary booking and real time optimized route navigation</td>
</tr>
<tr>
<td>Transport infrastructure as a service</td>
<td>Eco-optimised driving, vehicle and driveline control</td>
</tr>
<tr>
<td></td>
<td>Real-time traffic and route information</td>
</tr>
<tr>
<td></td>
<td>Floating passenger data collection</td>
</tr>
<tr>
<td></td>
<td>Virtualized intersection intelligence</td>
</tr>
<tr>
<td></td>
<td>Cooperative traffic signal control</td>
</tr>
<tr>
<td></td>
<td>Area wide optimization strategies</td>
</tr>
</tbody>
</table>
Summary

Connected Mobility is part of the solution to achieve smart, safe and efficient transport of people and goods by

» **Saving lives** (safety & security)

» **Saving time** (traffic efficiency, multimodality & optimal use of all modes of transport)

» **Saving money** (better use of existing infrastructure + reduced congestion)

» **Saving energy** (fuel efficiency, low carbon transport, electromobility)

» **Reducing stress** (driver comfort, users’ satisfaction)

ITS is the way forward through international multi-sector cooperation to make connected mobility a reality.
ERTICO PARTNERSHIP VISION ON URBAN MOBILITY
Vision for Sustainable Mobility in Cities

- i-Car
- i-Truck
- i-Plane
- i-Bus
- i-Ship
- i-Motorcycle
- i-Pedestrian
- i-Bicycle

- Phone
- Traveller
- Driver
- In-vehicle
- Public transport operator
- Goods transport operator
- Infrastructure

- Warning
- Assistance
- Awareness
- Payment
- Affordable

- Ubiquitous
- Safe
- Interoperable
- Situation adjusted
What needs to be done for successful deployment

Technologies
- Interoperability
- Standardisation
- Cost-efficiency
- Economies of scale
- Integration

Products & Services
- Seamlessness
- Continuity
- Quality
- User Acceptance

Business models
- End-to-end value added for all stakeholders
- Cost-benefit analysis
- Public-Private Partnership

Policy frameworks
- Liability
- Data protection
- Security
- Quality standards
- Coordinated deployment
22 – 26 October 2012 in Vienna (Austria)

- 1 public day
- 1 day dedicated to **Urban Mobility** (24/10)
- 40 demonstrations on public road, closed demo area and parking zone
- 300 exhibitors from all over the world
- 3000 delegates to the conference
- 10000 international participants...

... Including decision & policy makers