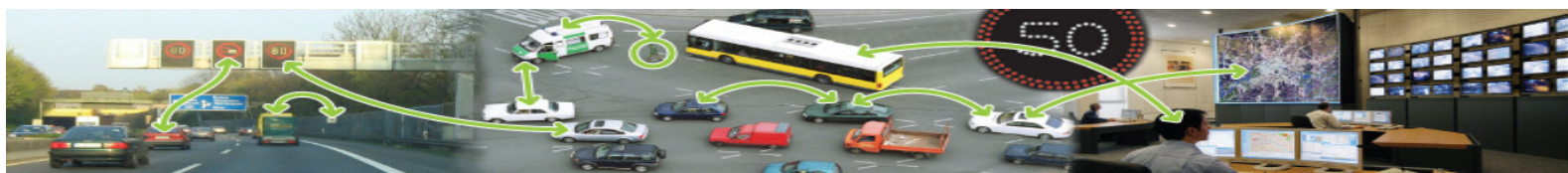




ITS applications and privacy

CVIS project

Lina Konstantinopoulou
Project Manager
ERTICO – ITS EUROPE





Outline



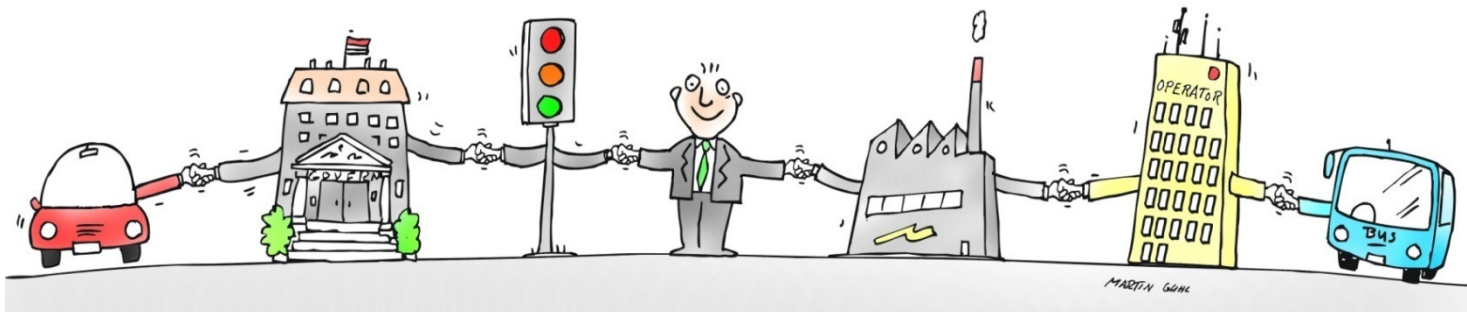
- CVIS project
 - Facts and figures
 - Applications
- CVIS Deployment enablers topics
 - Validation of high level objectives & questionnaires
 - CVIS - Big Brother?
 - CVIS – privacy issues
- Guidelines for design rules of Cooperative apps



CVIS Project

Increase efficiency and safety through V2V and V2I cooperation enabled by:

- an open architecture and an universal platform prototype
- a wireless network amongst vehicles & infrastructure
- a framework for application management
- enhanced positioning and mapping solutions
- cooperative data management and sharing
- innovative cooperative applications





CVIS facts and figures



Coordinator: ERTICO
Budget/EC funding: M€41/22
Partners: 61 partners

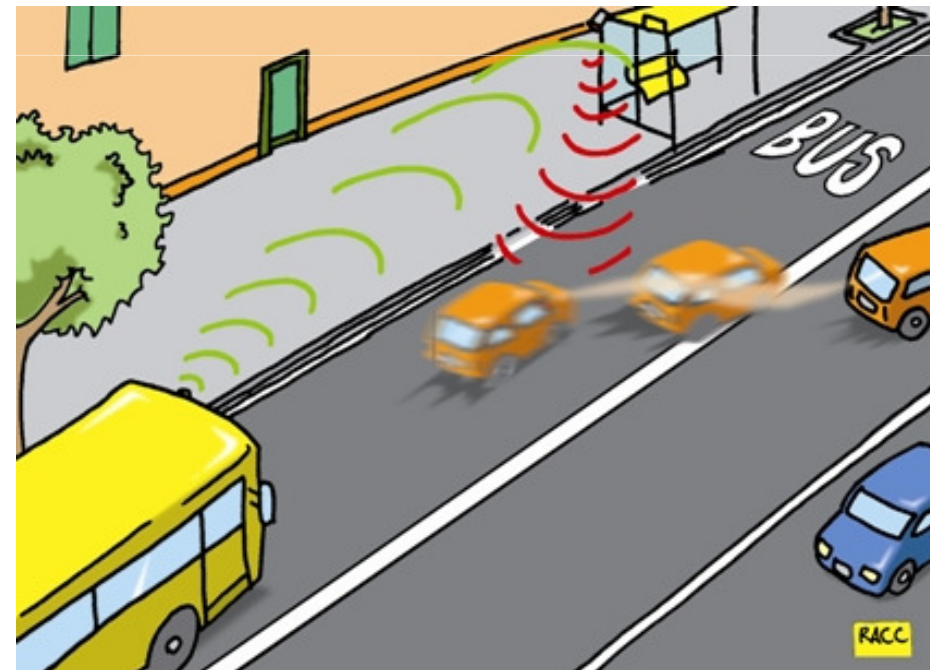




CVIS Applications

URBAN

- Cooperative network management
- Cooperative area destination-based control
- Cooperative acceleration/deceleration
- Dynamic bus lanes



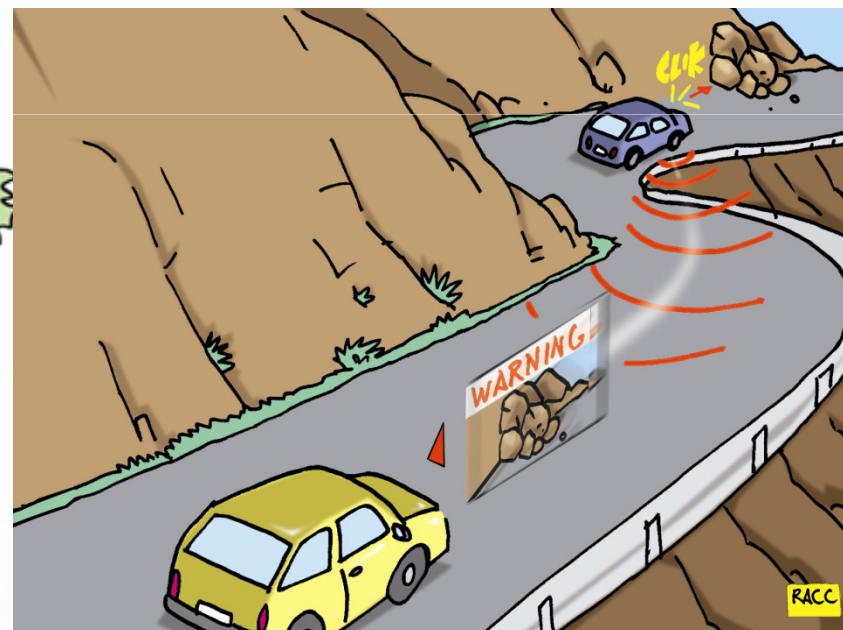
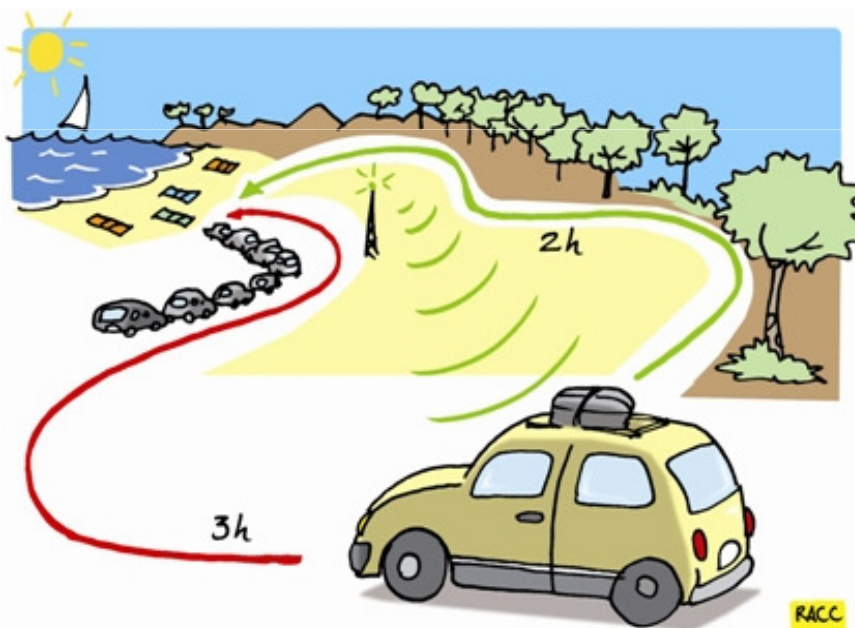


CVIS Applications

INTERURBAN

- Cooperative travellers' assistance
- Enhanced driver awareness

CVIS



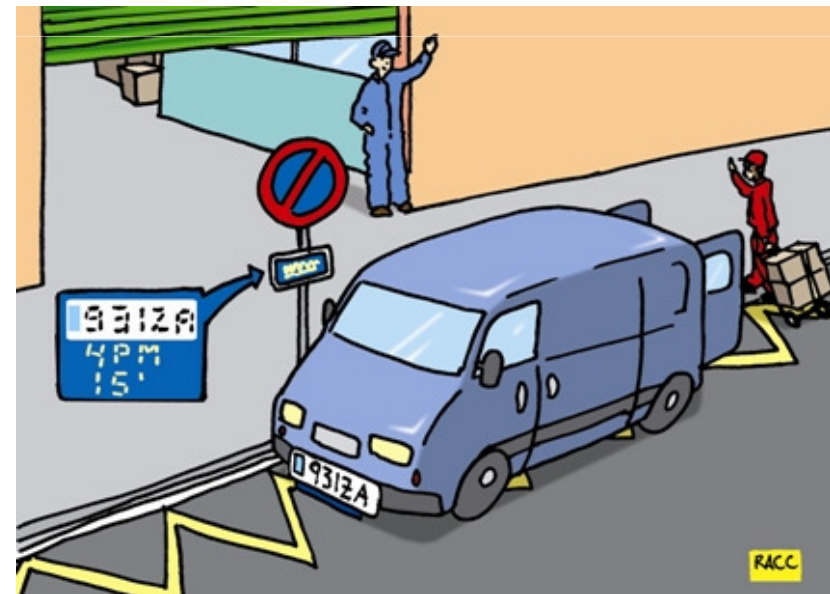
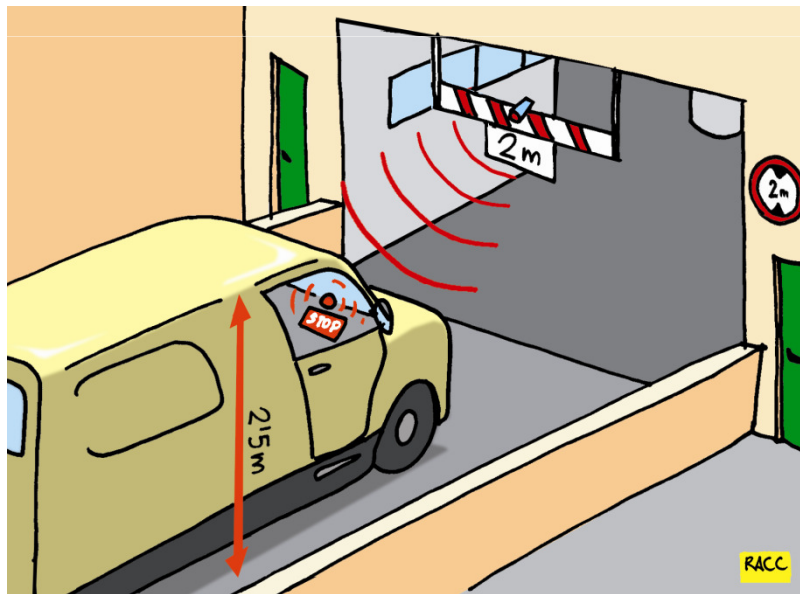


CVIS Applications

FREIGHT & FLEET

- Access control
- Dangerous goods
- Parking booking

CVIS



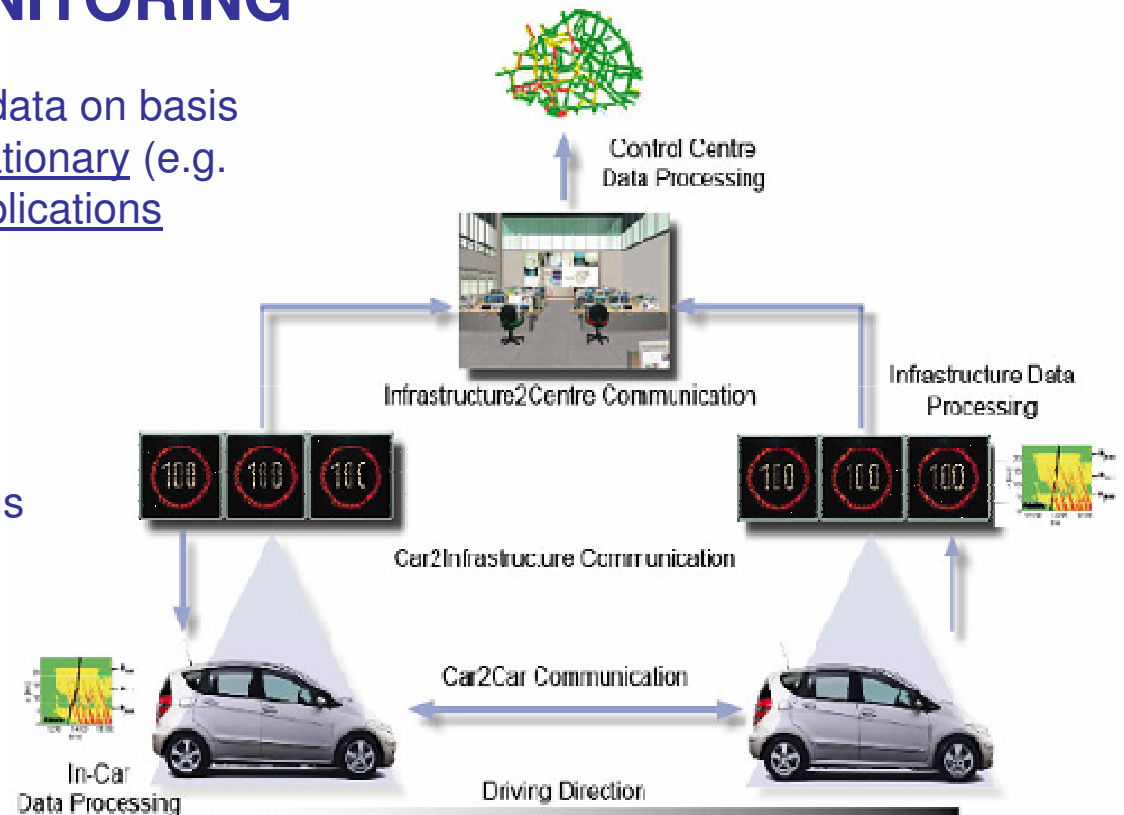


CVIS Applications

COOPERATIVE MONITORING

COMO provides merged traffic data on basis of mobile (XFCD/EFCD) and stationary (e.g. loops) detectors for all CVIS applications

- Network monitoring
- Incident and hazard detection
- Virtual loop detection for traffic control systems
- Local/area traffic state





CVIS Deployment enablers topics



- 7 separate “topic groups” - 7 significant non-technical issues
- ✓ Openness and interoperability
- ✓ Safe, secure and fault-tolerant design & Privacy issues
- ✓ Utility, usability and user acceptance
- ✓ Costs, benefits and business models
- ✓ Risk and liability
- ✓ CVIS and policy
- ✓ Deployment models and roadmaps



Validation of high level objectives



- Interoperability
- Open source
- Reference platform
- User acceptance (DEPN)
- Privacy (DEPN)
- Impact on driver behaviour



CVIS-User acceptance



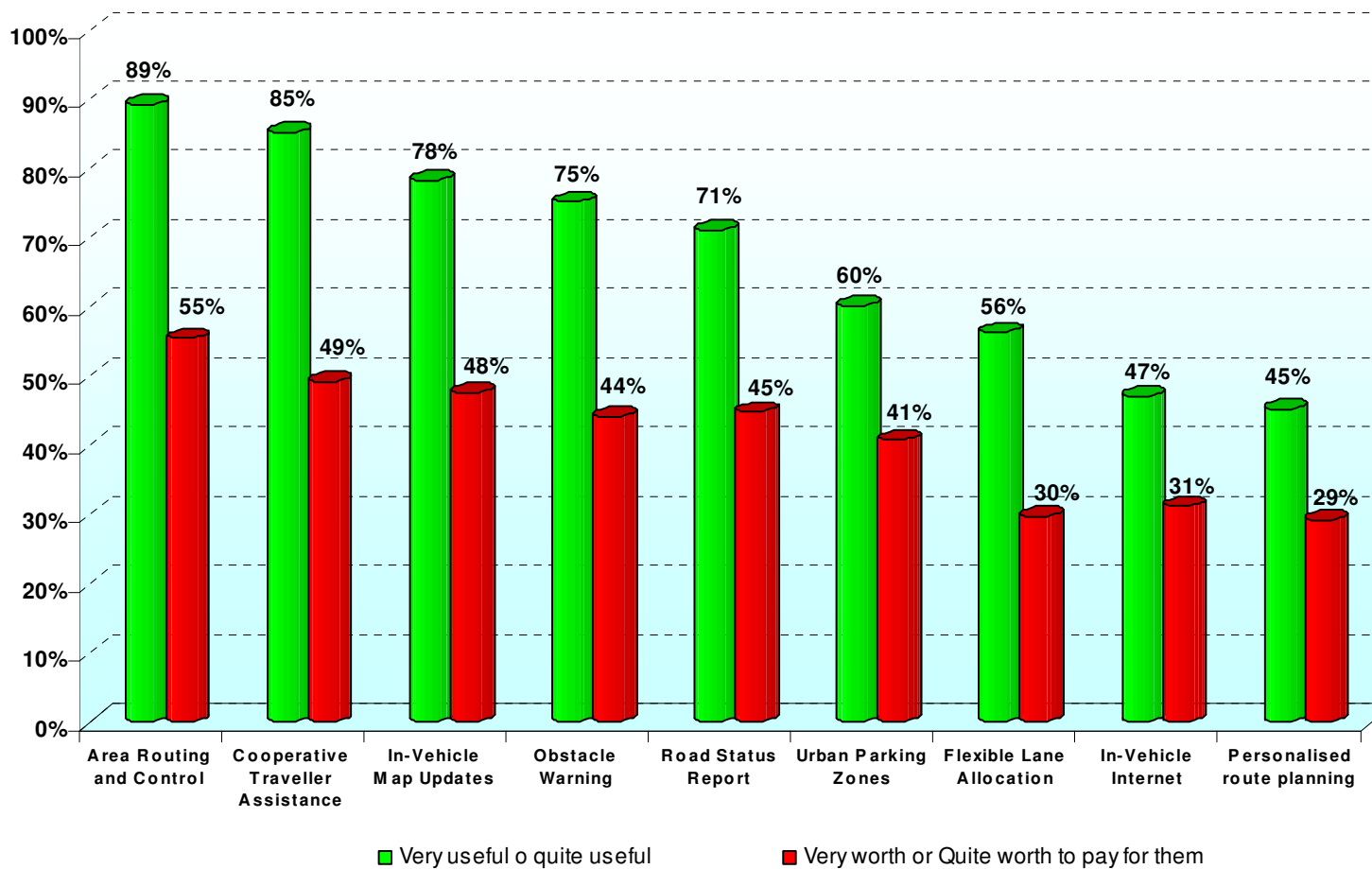
- Project objective:
 - Show that CVIS equipment and servers are accepted by the general public, and perceived to provide added value.
- Target:
 - 75% of sample of end users have a positive or neutral attitude to the acceptance and benefits of CVIS on-board equipment and applications
- Validation actions:
 - End user questionnaire
 - Simulator study
 - Event questionnaire
 - Freight operators questionnaire (TS London)



RACC questionnaire

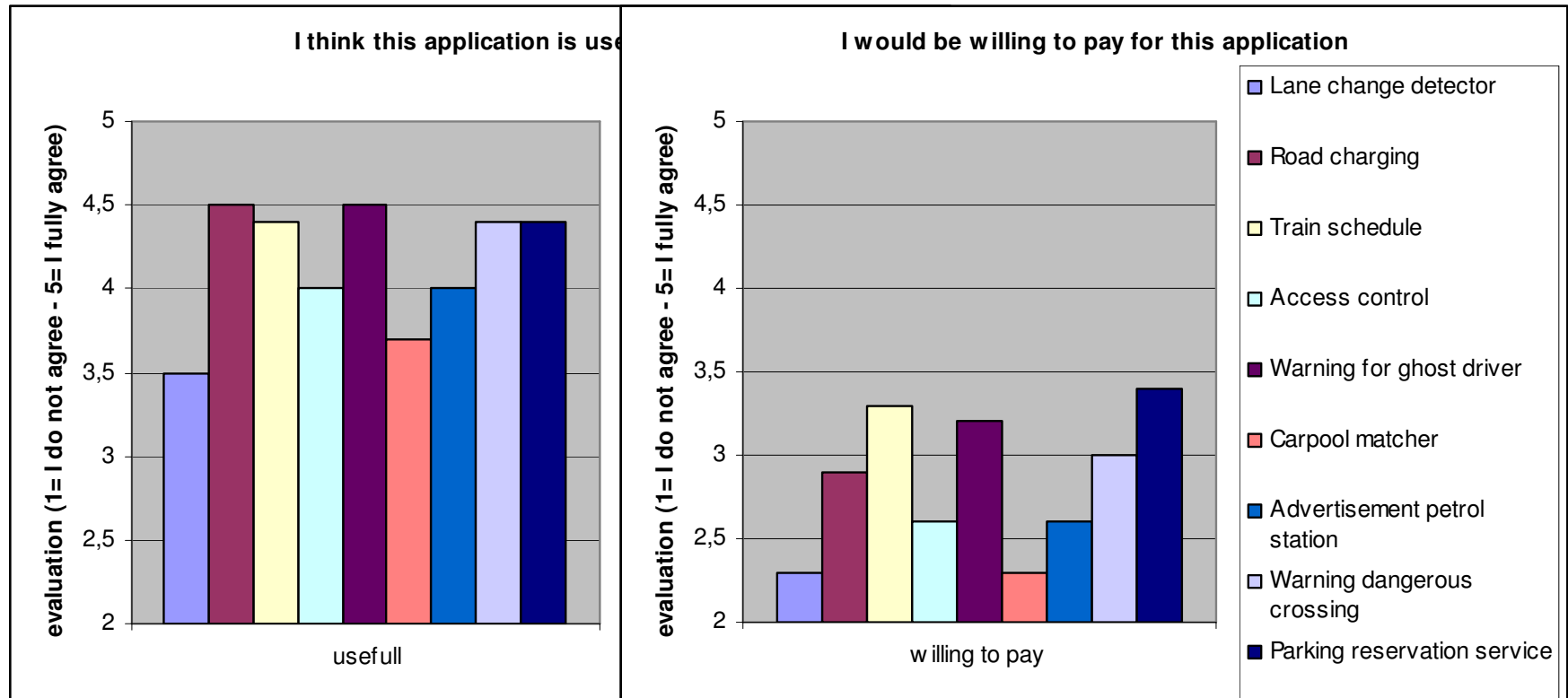


HOW DO YOU RATE THESE SYSTEMS IN TERMS OF USEFULNESS? /
WHAT DO YOU THINK THEY WOULD BE WORTH IF YOU HAD TO PAY FOR THEM? (European average)





User acceptance - ITS Stockholm

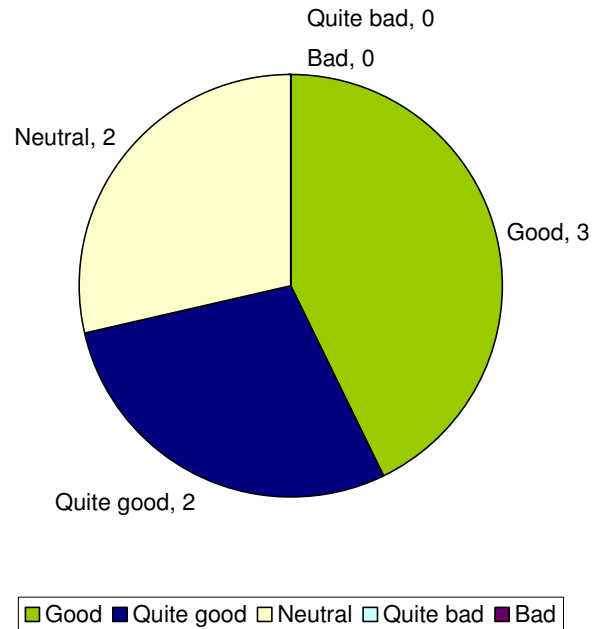




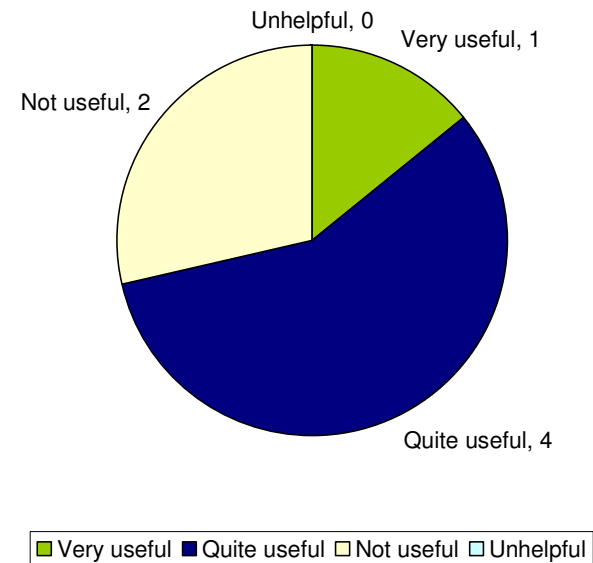
Freight operators - London



Q2.1: How did you rate your overall experience of the CVIS Trials?



Q2.2: How did you rate the usefulness of the Urban Parking Zones application?





User acceptance - Conclusions



- Based on the outcomes of all questionnaires we can conclude that:
 - The majority of the end-users considers the presented applications to be useful.
 - The majority of the end-users considers the presented applications to be easy to use
- However, end-users are less enthusiastic to pay for these services...



CVIS-Data privacy



- Project objective:
 - Show that a majority of end users of CVIS systems are willing to allow the use of data collected from their vehicle and journey, as input to cooperative monitoring services.
- Target:
 - Over 50% acceptance of a sample of end users for release of floating vehicle and journey destination data
- Validation actions:
 - Questionnaire end users
 - Inspection results DEPN Topic 3

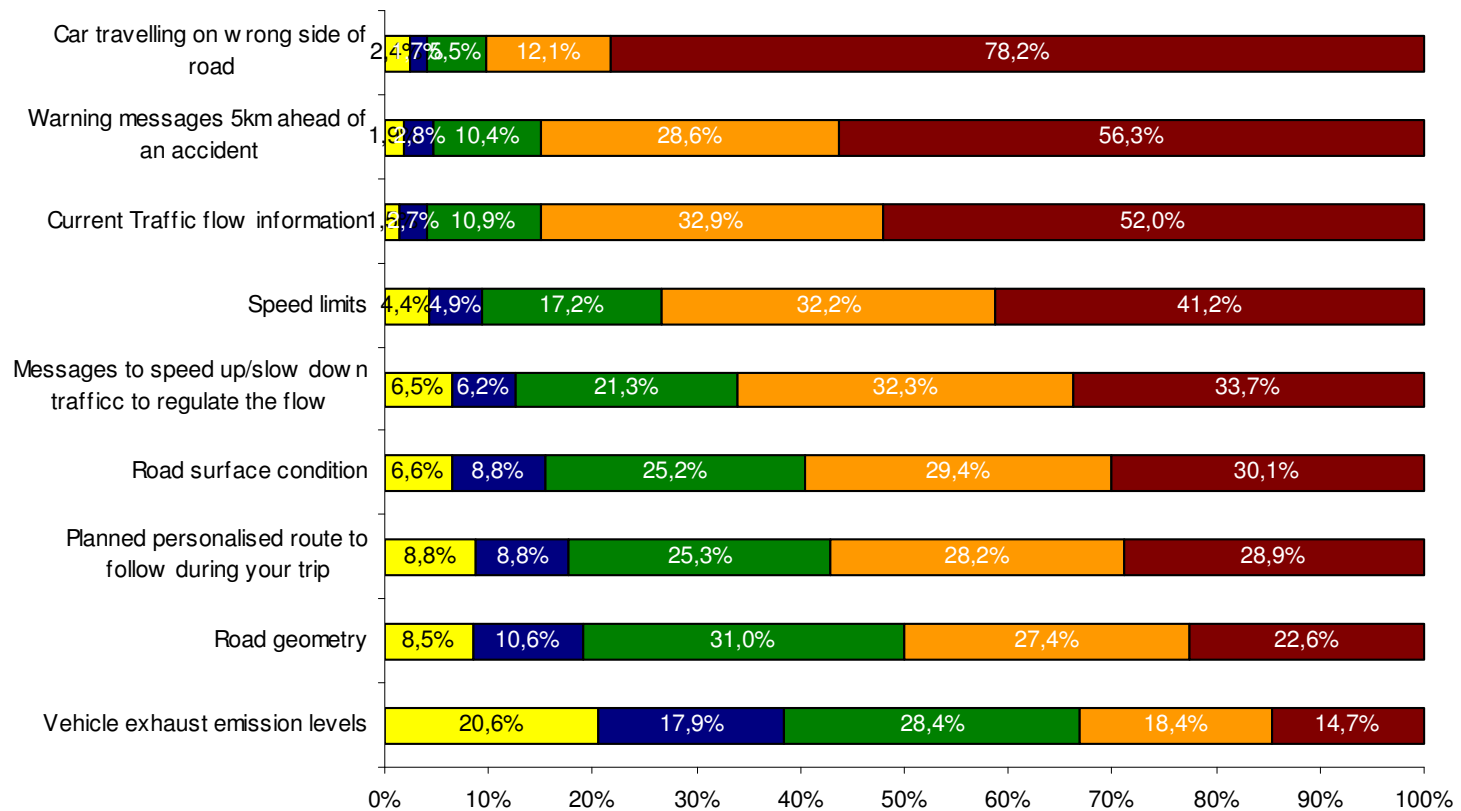


Utility of information shown



HOW DO YOU PERCEIVE THE USEFULNESS OF RECEIVING THE FOLLOWING INFORMATION IN YOUR CAR?

■ Of no use ■ 2 ■ Neutral ■ 4 ■ Very useful





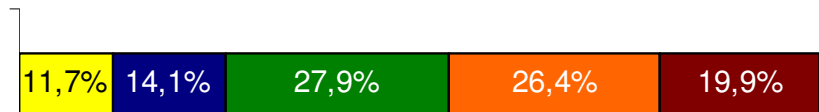
CVIS-Data privacy



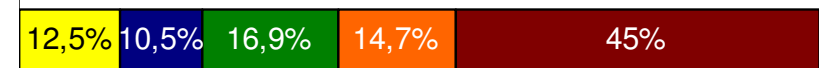
DATA PRIVACY (I)

■ Don't agree ■ 2 ■ 3 ■ 4 ■ Agree

I would be interested in these systems even through they might not be operative all the time (travelling by different countries, areas with no technical infrastructure, etc)



If these systems invade my privacy, I don't want to use them



Although these systems could invade my privacy I wouldn't mind because I think they are very useful



I would agree to be geographically located only if no personal data is involved (only car data)



0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
%

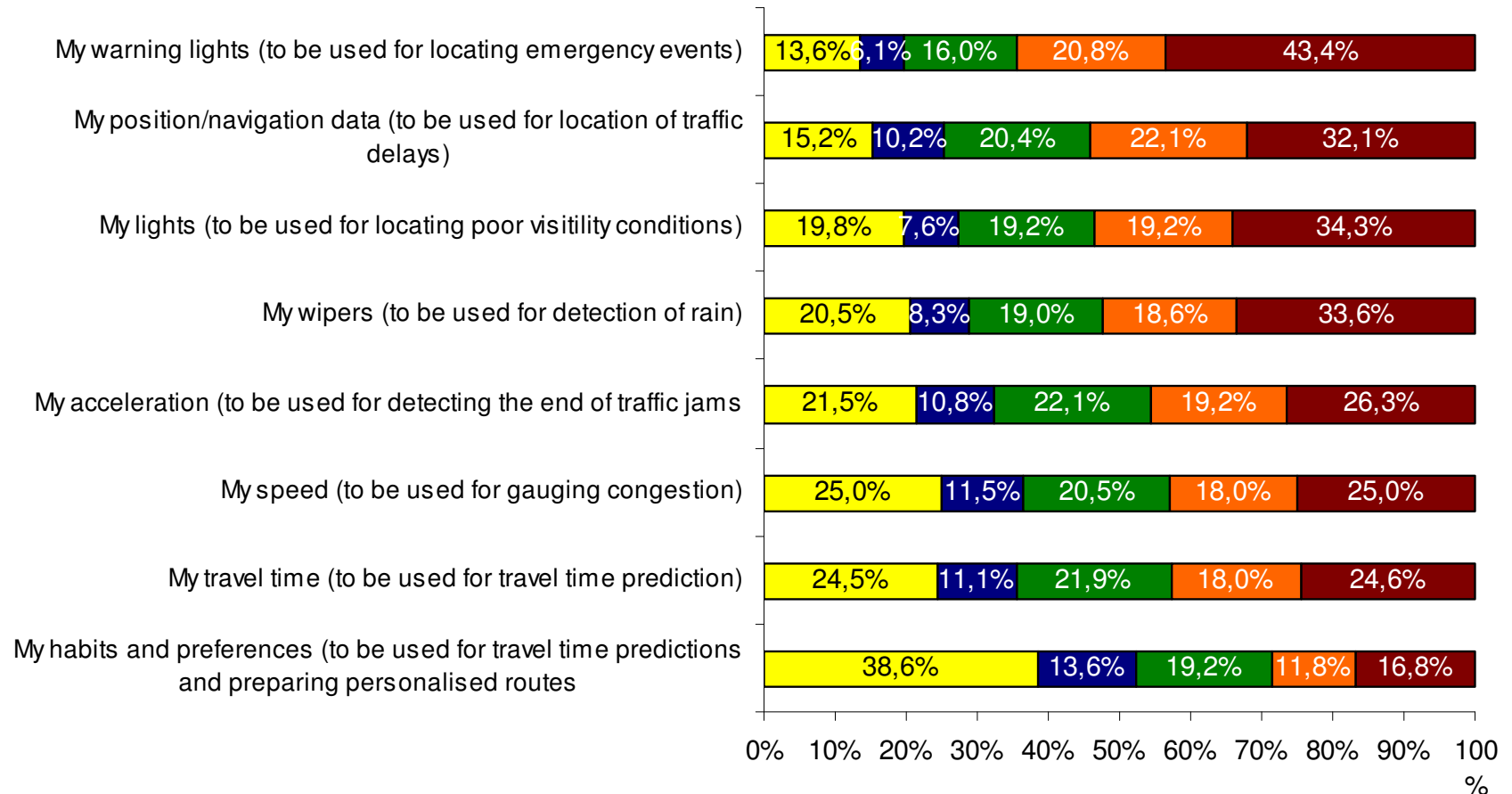


CVIS-Data privacy



DATA PRIVACY (II)

■ Not at all ■ 2 ■ 3 ■ 4 ■ Accept



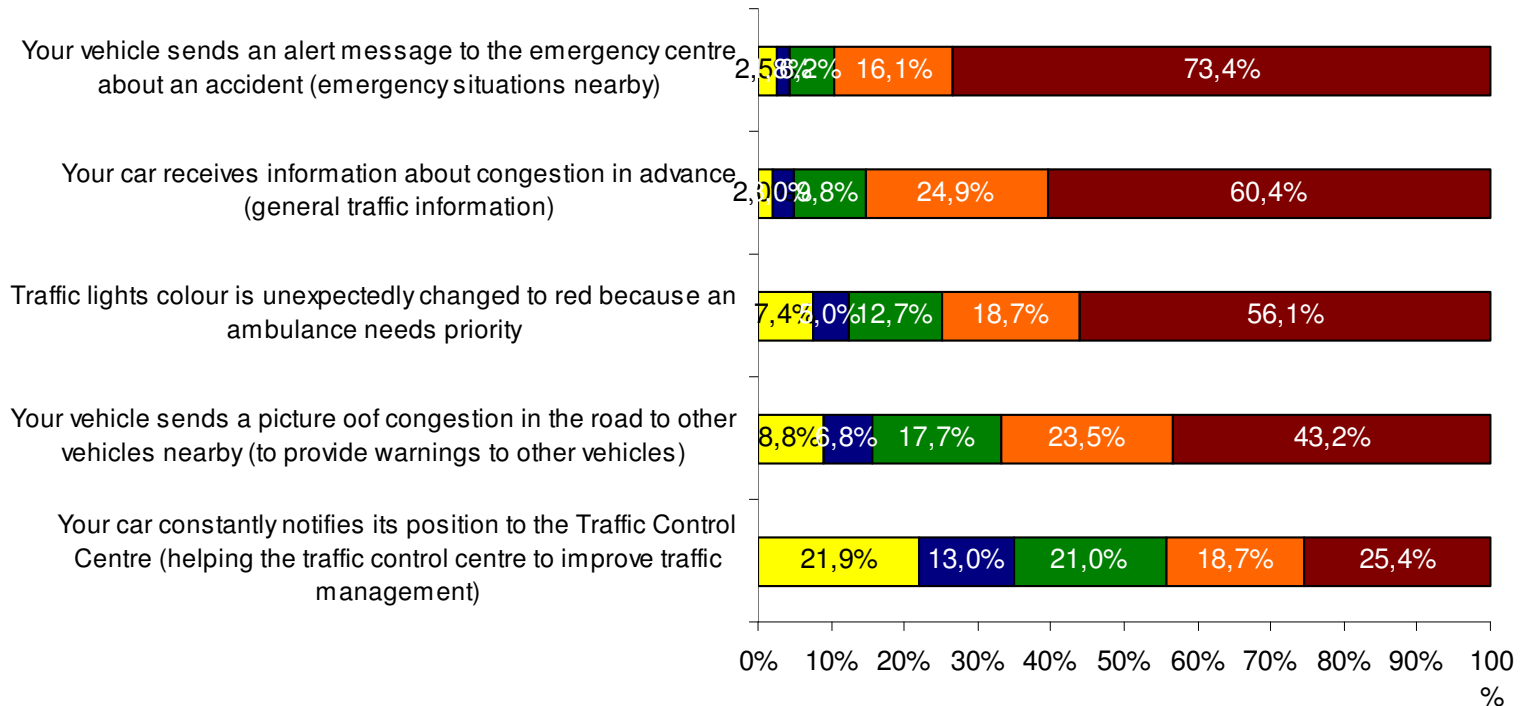


Information Exchange



THESE SYSTEMS WILL NEED SOME EXCHANGE OF INFORMATION BETWEEN YOUR VEHICLE AND THE INFRASTRUCTURE...PLEASE, MARK TO WHAT EXTENT WOULD YOU AGREE WITH THE FOLLOWING SITUATIONS

Legend: Don't agree (yellow), 2 (blue), 3 (green), 4 (orange), Agree (dark red)





Data privacy - conclusions

- European drivers (60%) are willing to share their data for supporting cooperative systems as long as no personal data is involved.
- In the future, users of CVIS applications will have to know about the importance and usefulness of the kind of data to be exchanged, as this may improve user acceptance and confidence in these systems.



CVIS - Big Brother?



© Original Artist
Reproduction rights obtainable from
www.CartoonStock.com



search ID: mgu0130



CVIS – Big Brother?



- Mar/09 Article on Guardian paper - **Big Brother is watching: surveillance box to track drivers is backed**
- Jul/09 Meeting CVIS - PRECIOSA projects for coordination
- Jan/10: Signature of CVIS/PRECIOSA cooperation agreement
- Mar/10 Decision by PRECIOSA to switch to a CVIS application for demonstration (COMO) by integrating the CVIS Reference execution platform.



CVIS and Privacy



- CVIS is a **Research** project **NOT** a product:
 - authentication and authorisation framework for CVIS applications and the identity management module.
 - **Sevecom project** provides the part on security of communication including for pseudonymity for CVIS
 - **Preciosa project** provides the part on data protection by using CVIS COMO app.
 - Provide input to discussions of eSafety eSecurity WG
- CVIS & SAFESPOT participation to meetings between the eSecurity Working Group, Art.29 WG, EDPS to examine from the privacy perspective a number of CVIS & SAFESPOT relevant use cases.



Guidelines for design for Cooperative apps



- **From privacy perspective:**
 - operate a service without using personal data;
 - personal data must be collected for explicit and legitimate purposes and used accordingly;
 - personal data must be relevant and not excessive in relation to the purpose for which they are processed;
 - process personal data fairly and lawfully;
 - safeguard that personal data is accurate and kept up to date;
 - safeguard that personal data that identifies individuals is not be kept longer than necessary;
- **From security perspective**
 - set up a circle of trust between cooperating actors and their units or centres;
 - protect data;
 - provide end-to-end security in communications;



Thanks for your attention...

Lina Konstantinopoulou
l.konstantinopoulou@mail.ertico.com

www.cvisproject.org

