AutoNet2030 – Cooperative Systems in Support of Networked Automated Driving by 2030

Panagiotis Lytrivis, ICCS

Andras Kovacs, Broadbit

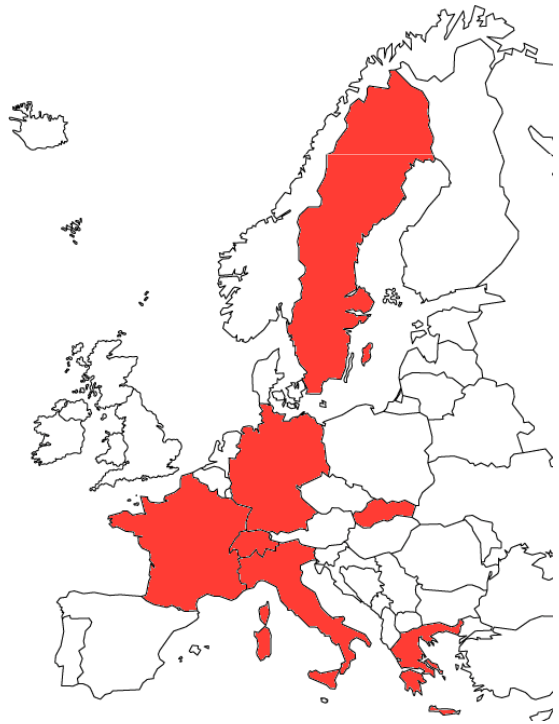
VRA meeting – 7 May 2014, Antwerp, Belgium

Outline

- AutoNet2030 introduction
- Challenges
- Expected impact
- Current status
- Next steps

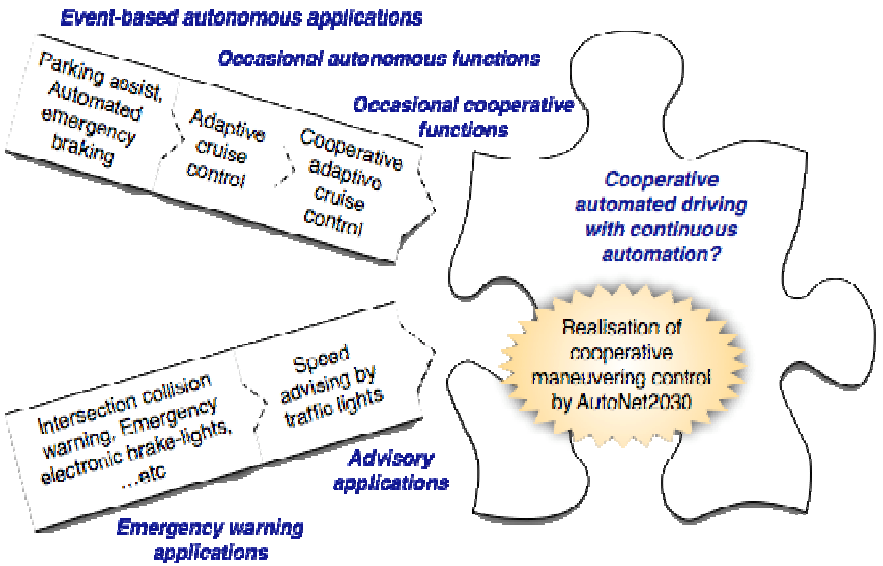
General facts

- **Project duration:** November 1, 2013 – October 31, 2016
- **Project budget:** 4.6M Euro
- **EC contribution:** 3.35M Euro
- **Partners:**
  - BroadBit (coordinator)
  - ICCS
  - ARMINES
  - BaseLabs
  - Fiat Research Center
  - EPFL
  - Hitachi Europe
  - Technical University of Dresden
  - Volvo Technology



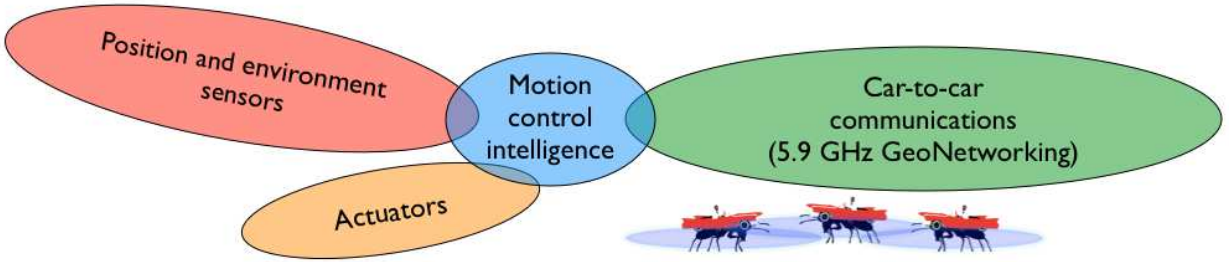
Context

- **Convergence** between *sensor-based* vehicle automation and cooperative *V2X communications*
- Key challenge is to develop the right concepts for mutually useful convergence of these trends, demonstrate improved **cost-efficiency** and **performance** as opposed to pure sensor-based solutions
- Develop common sense, deployable concepts – keep **complexity** as **low** as feasible!
- 2020-2030 expected deployment time horizon



Key challenges

- Cooperative **maneuvering control** algorithm
  - based on a decentralized decision-making strategy
  - enabled by mutual information sharing among nearby vehicles and infrastructure
- Flexible **architecture** for complex cooperative control systems
- Extended **Local Dynamic Map** for cooperative perception
- Reliable and accurate **positioning** technology for lane-keeping
- **HMI** for advised maneuvering of manually driven cooperative vehicles

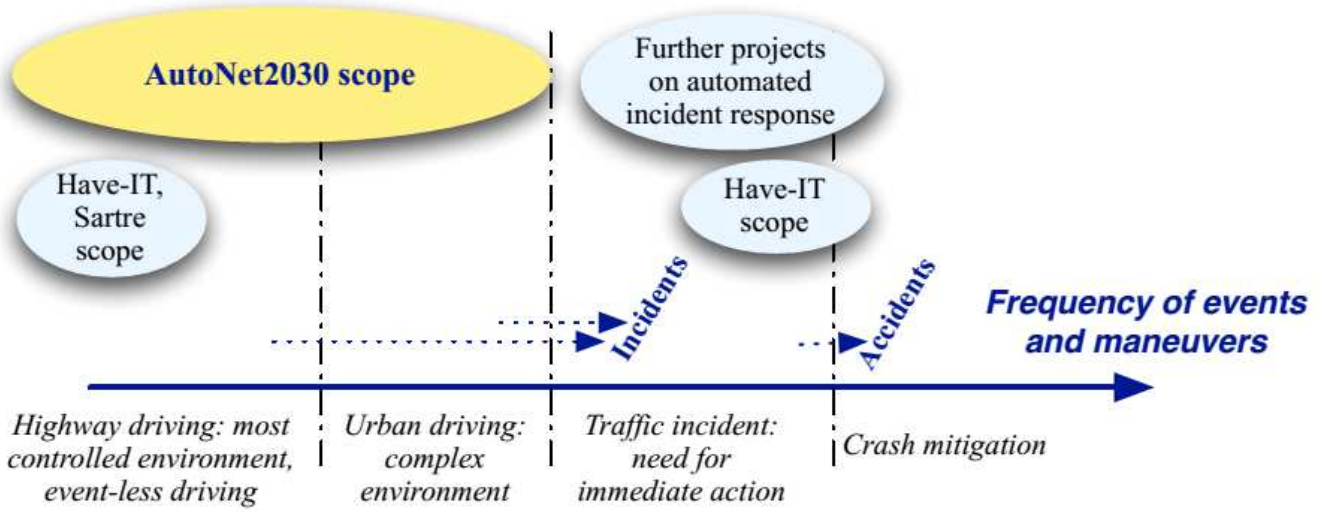


Expected impact (1)

Measurable improvements on

- **safety:** maneuvering control algorithms
- **energy efficiency:** cooperative speed planning (less traffic flow fluctuations)

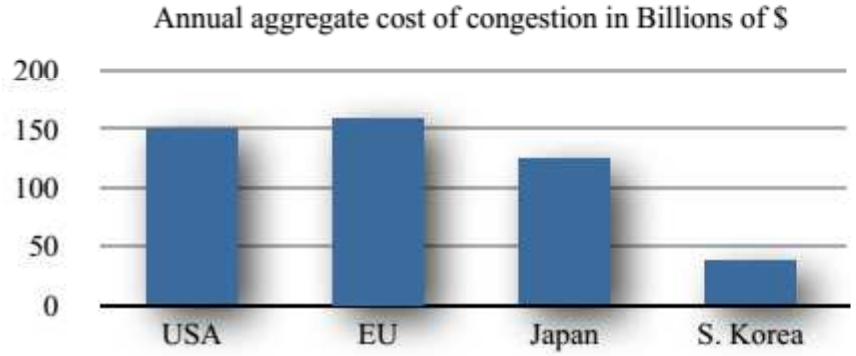
by demonstrations in several test sites (Gothenburg, Versailles, Turin) and simulations

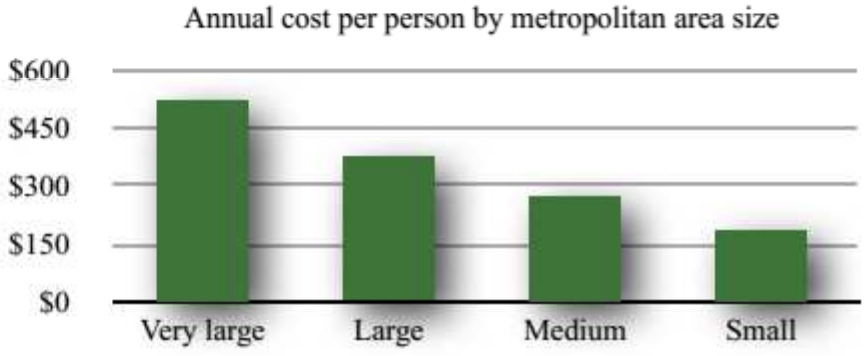


Expected impact (2)

- Mitigation of **urban traffic congestion** by gradually replacing vehicles with cooperative automated vehicles

Source: 2005 estimate by Texas Transport Institute (aggregate costs) and Cambridge Systematics (per person costs)





- Increased level of **user acceptance**
  - gradual transitions from ADAS to full automation through cooperative systems

Current status

- Definition of use cases
- Collection of system level requirements
- Mapping of system level requirements to components level requirements
- Deliverable D2.1: Cooperative automated driving use cases and requirements
- First draft of AutoNet2030 architecture

Next steps

- **May – August 2014:** Enhancements to architecture and cooperative control algorithms research
- **4-5 June 2014:** Consortium Meeting in Athens
- **August 2014:** Second draft of architecture with the feedback of algorithms research
- **September – October 2014:** System design and specifications

Contact

Project coordinator contact:

Andras Kovacs (BroadBit)

andras.kovacs@broadbit.com

skype: andras.kovacs

tel: +36 30 2189659