



COM2REACT

*COoperative CoMMunication System
TO Realise Enhanced Safety And
EffiCIency In European Road
Transport*

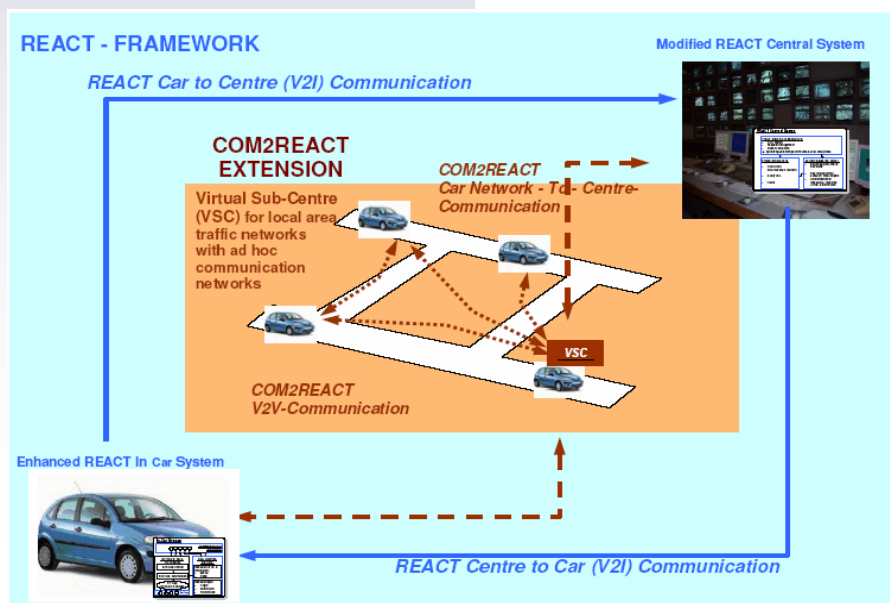
COM2REACT will develop and test a new concept of traffic management, introducing a new intermediate level: the **Virtual Sub-Centre (VSC)**.

COM2REACT will establish and test a scalable, cooperative, multi-level road transport **Virtual Sub-Centre** concept for local, short-term traffic control by Vehicle-to-Vehicle (**V2V**) communication and Vehicle-to-Centre (**V2C**) communication. These will facilitate significant improvement in the flow of information acquired by moving vehicles and in its quality and reliability, thereby enhancing road efficiency and traffic safety on urban, intercity arterials and rural roads.

More Information:

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The key to achieving greater road transport efficiency and safety is the availability of reliable and timely information to traffic control systems and to drivers. Effective large-scale control of traffic requires hierarchical, three-level control architecture:

- Low level control done individually within a vehicle
- Middle level control (Microscopic) provided by a local sub-centre over a limited number of nodes and links in the road network
- High level control (Macroscopic) over whole urban, metropolitan or regions provided by a Regional Control Centre (RCC) that acts as a strategic controller

A key feature of **COM2REACT** is a Virtual Sub-Centre, which controls a moving group of vehicles in close proximity. The virtual sub-centre (VSC) functions locally via the V2V communication system, processing data acquired by the vehicles and rapidly providing instructions related to local traffic and safety situations. It also transmits, by way of V2C communication, selective data to RCC and receives, in return, instructions to distribute to the vehicles. The role of VSC is set, unnoticeable by the driver, to one of the vehicles in the group according to rules imbedded in all **COM2REACT** vehicles.

COM2REACT will build upon the DG Research REACT project. REACT comprises sensor-equipped vehicles and RCC. **COM2REACT** will add VSC and integrate it with REACT to obtain a functioning 3-level control system and confirm VSC's added value. In addition, sensors complementary to the system functioning will be added.

TECHNICAL OBJECTIVES

The specific scientific and technological objectives of the **COM2REACT** project are as follows:

- 1) Develop the VSC concept
- 2) Develop traffic state, accident risk, environmental state analysis, prediction models and performance evaluation tools for a VSC.
- 3) Adapt additional sensing technology and testing methodology:
 - a. Front looking, wide field of view, low cost telemeter:
 - b. Sideways and backwards proximity ultrasound sensors
 - c. Driver state sensor to monitor changes in driver attentiveness,
- 4) Develop a communication unit with advanced technology:
 - a. In-car communication system
 - b. V2V communication system
 - c. V2C communication
- 5) Test the feasibility of the whole concept.

Project Acronym: **COM2REACT**
Project Reference: **IST-2004-027071**
Contract Type: **Specific Targeted Research Project (STReP)**
Start Date: **01/01/2006**
Duration: **24 months**
End Date: **31/12/2007**
Project Cost: **5.594.443 €**
EC project funding: **2.996.000 €**

Participants:

The project consortium consist of 13 partners: Motorola Israel, Halevi Dweck & Co. -ARTTIC Israel Ltd, Transver GmbH, Technical University of Munich, INRIA, ARMINES - Ecole des Mines, Peugeot Citroën Automobiles SA, DMR Consulting, Intempora SA, Jerusalem Transportation Master Plan Team, Sphericon Ltd., Telefónica I+D, NAVTEQ B.V. The project is coordinated by Motorola Israel Ltd.