Cooperative and Connected

The next step in traffic management

The mobility world is continuously changing and adopting new technologies. Cooperative and connected mobility is an important development in our society.

The use of cooperative mobility will ultimately result in vehicles on the road that are able to provide traditional traffic management systems with all the information that is currently obtained from roadside equipment and much more.

This next step in traffic management will benefit stakeholders by:

- improving safety by reducing accidents and congestion
- improving quality of life by reducing fuel consumption and air polluting emissions
- increasing economical attractiveness through improved accessibility
- reducing investment on legacy roadside infrastructure; cooperative mobility enables new services.

dynniq energising mobility

Connecting infrastructure with individual road users is the next step in traffic management.

Cooperative services chain.

Role of Dynniq

Dynniq was an early adopter and innovator in the cooperative and connected eco-system. Our research department has participated in research projects from the start; gaining extensive knowledge and establishing a good reputation in the cooperative community. We are proud to be considered an authority on the basic cooperative software, also known as Local Dynamic Map (LDM) and the roadside and on-board units. The next step is to implement the LDM in a central environment. Dynniq is not only implementing equipment according to current available standards, but also actively participating in the creation of new standards.

Project portfolio

2005: EU financing V2I
2006: CVIS (EU)
2006: SafeSpot (EU)
2010: FREILOT (EU)
2013: Compass4D (EU)
2014: CHARM (UK/NL)
2014: A58 Spookfiles (NL)
2014: MOBINET (EU)
2015: Beter Benutten Vervolg (NL)

Over recent years, Dynniq has developed hardware and software solutions on all levels of the cooperative chain. The 802.11p radio technology, and the ETSI standards that come with it, form the baseline for developments. 3G/4G technologies can be integrated to enable complete cooperative traffic management solutions.

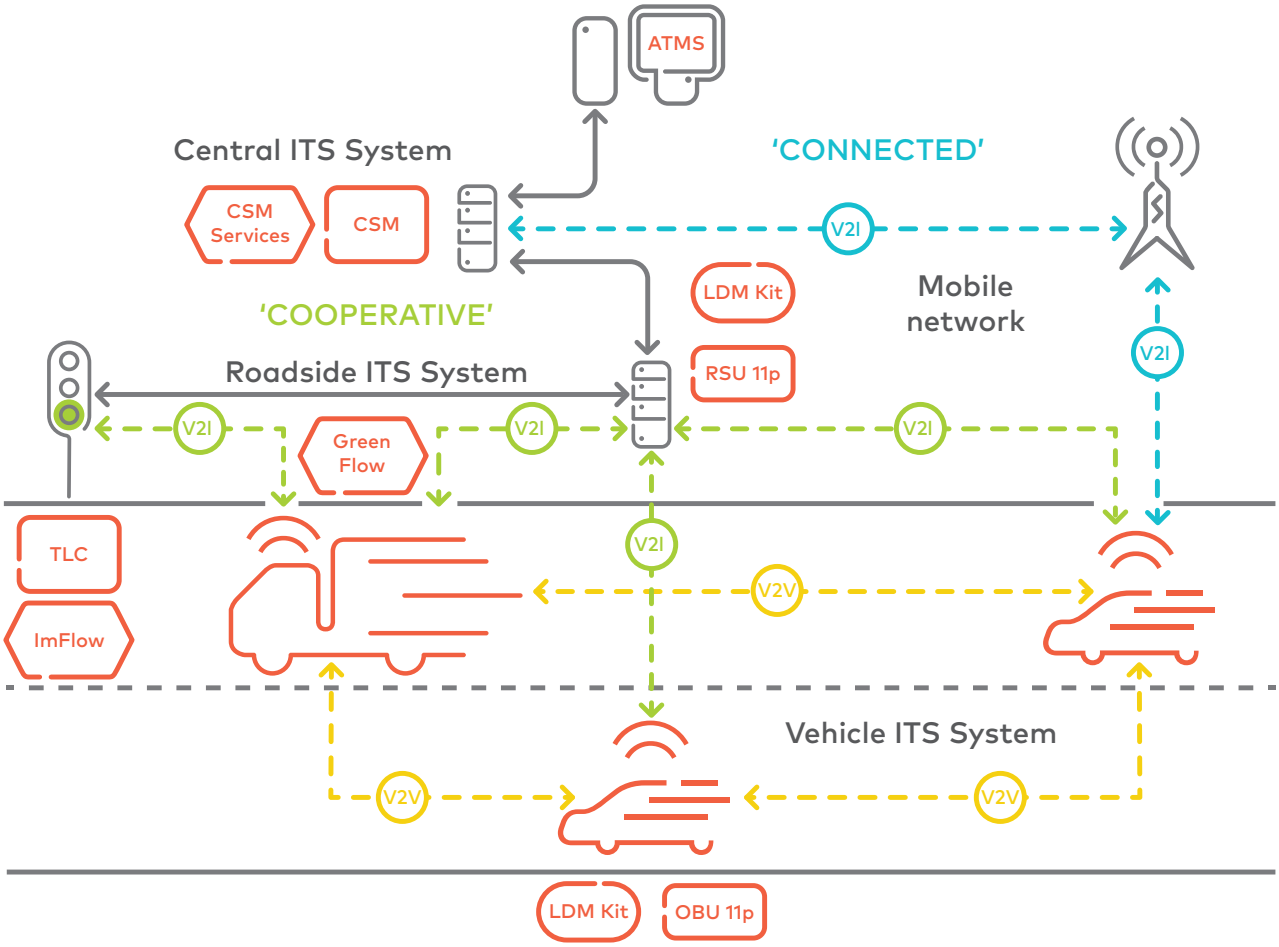
Cooperative Services Module

On the central level (C-ITS-S), Dynniq's Cooperative Services Module (CSM) will:

- enable interaction between centralised Traffic Management Systems and cooperative road users
- support the integration of Cooperative ITS functions in a TMC environment and operations
- facilitate traffic managers in informing travellers about traffic and road conditions, and incidents.

Roadside unit

At the roadside (R-ITS-S), Dynniq has developed and implemented the RSU11p MK2, a second generation RSU (roadside unit). The MK2 complies with current ETSI standards and offers a great range of interfacing and hosting opportunities. To date, approximately 100 RSU's are installed on sites in the Netherlands, Denmark and France.



On-board unit

In-vehicle (V-ITS-S), Dynniq has developed and implemented the OBU11p. This OBU (on-board unit) has been developed for implementation primarily in logistics and fleet vehicles. It interacts with legacy fleet management systems and separate devices for HMI (such as cellular phones). To date, approximately 150 OBU's are installed in logistics, emergency and public transport vehicles on sites in the Netherlands, Denmark and France.

Applications and services

In-vehicle services, such as conditional priority, speed advice and time to green are embedded in our GreenFlow product.
On a central level, services such as Speed Monitoring (DFCD based on CAM and PVD), Road Works Warning and In-vehicle Signage are embedded in our Cooperative Services Module.

Contact our experts today for more information on our cooperative and connected mobility solutions.

Glossary

Term	Description
ATMS	Advanced Traffic Management System
CAM	Cooperative Awareness Message
CAN	Controller Area Network
CEN	European Committee for Standardisation (https://www.cen.eu/)
C-ITS-S	Central ITS Station (CIS)
DENM	Decentralised Environmental Notification Messages
DFCD	Decentralise Floating Car Data
ETSI	European Telecommunications Standards Institute (http://www.etsi.org/)
FCD	Floating Car Data
GNSS	Global Navigation Satellite System
HMI	Human Machine Interface
ISO	International Organisation for Standardisation (http://www.iso.org/iso)
ITS	Intelligent Transport Systems
ITS-G5	5 GHz wireless communication (802.11p)
IVI	In-vehicle Information
IVS	In-vehicle Signage
I2V / V2I	Infrastructure-to-Vehicle and vice versa
LDM	Local Dynamic Map
LTE	Long Term Evolution (~4G)
PVD	Probe Vehicle Data
PCP	Pre Commercial Procurement
R-ITS-S	Roadside ITS Station (RIS)
RWW	Road Works Warning
SAE	SAE International
V-ITS-S	Vehicle ITS Station (VIS)

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