Co-financed by the Connecting Europe Facility of the European Union

InDiD

Infrastructure Digitale de Demain

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Interview with Eric Ollinger, project coordinator

What is the InDiD project about?

InDiD stands for Digital Infrastructure of Tomorrow ("Infrastructure Digitale de Demain" in French). All the experts say it: the road infrastructure of tomorrow will no longer be just physical, it will also be digital. The project aims to prepare this digital infrastructure.

What the digital infrastructure of tomorrow will be like?

It will be made up of two parts. The first component is the infrastructure-vehicle connection, which allows the vehicle to receive information directly from the road manager and to provide information on the difficulties it encounters. It is also called Cooperative Intelligent Transport Systems or C-ITS. The second component is high-definition mapping (with an accuracy of a few tens of centimeters), which will allow the vehicle to be located transversely in its lane, unlike conventional mapping.

C-ITS were already at the heart of the SCOOP project, which ended at the end of 2019. What is the added value of InDiD?

InDiD starts from the results of SCOOP, and fits into the same architecture.

It extends the geographical coverage of the services deployed in SCOOP, and develops new advanced services.

InDiD is not limited to the technologies used in SCOOP (ITS G5 and 4G) but also studies the contributions of new technologies (LTE-V2X, 5G) and their hybridization possibilities with existing technologies. And above all, InDiD builds the C-ITS services that the automated vehicle will need.

What are these services ?

First of all, it should be remembered that the automated vehicle is essentially based on sensors and mapping to understand its environment. C-ITS can be seen as an additional sensor that allows it to deal with certain critical situations. For example, on arrival at a site that is difficult for the sensors to understand, a useful C-ITS service may be to indicate to the vehicle a path to bypass the site area. Better: in a conflict zone (passage from 3 lanes to 2 lanes, roundabout), if the infrastructure has a camera, it can detect the position of other vehicles, their speed and their heading, and provide this information regularly to the automated vehicle to allow it to clear its way.

This is called infrastructure-augmented perception.

Who is participating in the project?

The project is led by a consortium of 24 partners: communities, inter-departmental road directorates, motorway companies and their representatives, academic partners and businesses

Therefore, a Franco-French consortium?

The project is 50% co-funded by the European Union and is part of a federation of similar projects in 18 European countries: the C-Roads Platform. This harmonizes the specifications of the different countries and conducts cross-tests to ensure the interoperability of systems at European level.

What is the project calendar?

The project, which is due to end in 2023, is based on the agile method: it is organized in several successive stages, which add new services each time. Each level follows a specification / development / validation / evaluation logic. We are currently in the specification phase of the first level.

#0 > About

InDiD is one of the French projects selected by the European Commission within the framework of the Connecting Europe Facility (CEF) call for proposals. The project benefits from a co-funding rate of 50% on behalf of the European Union. It follows the Smart Cooperative Transport Systems projects SCOOP@F, C-ROADS France and InterCor.

#1 > Cooperative Intelligent Transport System (C-ITS)

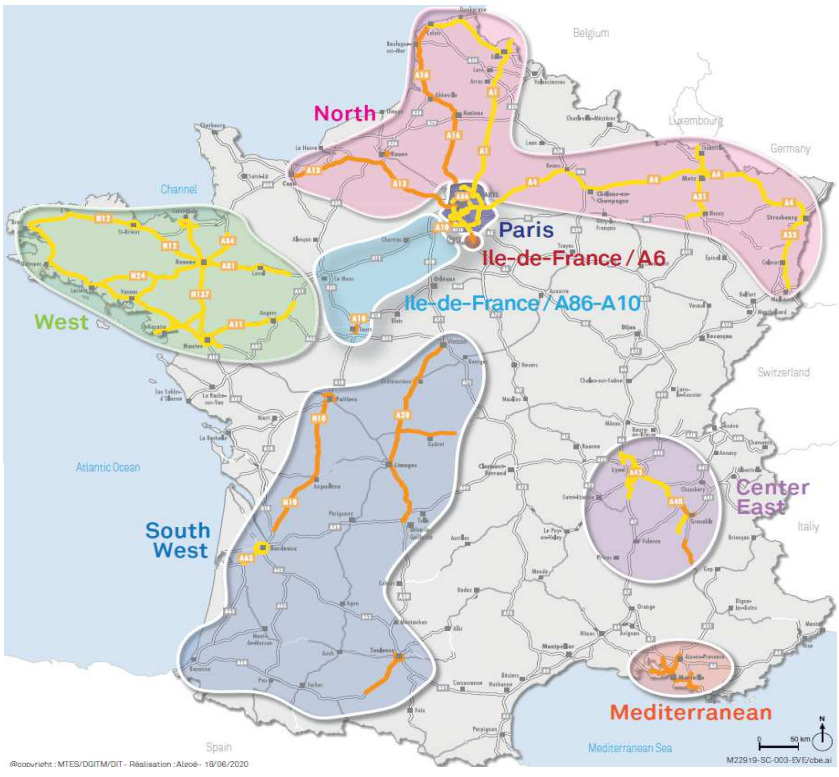
In cooperative systems, vehicles communicate with one another as well as with infrastructure. They exchange data and accurate information related to the crossed road section in order to **improve safety** and allow **cooperative traffic management**. Therefore, C-ITS offer the possibility to improve safety through considerable increase of the quality and reliability of the available information regarding cars, their location and the road environment.

#2 > Improving safety and preparing infrastructure for tomorrow's cars

The project aims at expanding the coverage of use cases deployed in previous projects (emer- gency braking, accident, work…) and develop new use cases dealing with **urban area**, but also use cases of increased **perception for auto- nomous vehicle**. In addition, it deals with high defi nition digital mapping of the infrastructure. Connectivity along with mapping shape the digital infrastructure of tomorrow, an essential addition to the physical infrastructure.

#3 > A strong consortium gathering actors of Industry, Mobility and Digital

The project relies on a strong consortium, gathering a plurality of actors of Industry, Mobility and Digital. In total, 24 partners, coordinated by the Ministry of Ecological and Solidary Transition, are involved including collectivities (Grenoble Metropolis,SMMAG, the City of Paris, Aix-Marseille Metropolis, and Isère Department), interdepartmental road directorate (DIRMED, DIRIF, DIRE, DIRCO, DIRSO, DIRA, DIRCE, DIRN, DIRO), highway service companies and their representatives (APRR, SANEF, Vinci Autoroutes et l'ASFA), academia (Université Gustave Eiffel, Université de Reims Champagne-Ardenne, le LAB, Bordeaux INP, Université Clermont Auvergne, Institut Mines-Télécom, Université Polytechnique Hauts de France, Eurecom, Vedecom, le Cerema et IGN) and companies (Valeo, TomTom, IDNomic, Green communication, Le LAB, Transdev Autonomous Transport Systems, ATC France).



#4 > Eight pilot sites

InDiD aims at continuing the deployment of Cooperatives Intelligent Transport Systems on new road experimentation sites in order to expand the services coverage offered by the infrastructure. 8 Pilot sites are located on 4 main French geographic areas, on the Mediterranean side, in the south-west area, at the center and in the north of (see map opposite - *New pilot sites*).

New services are also being deployed and will be upgraded to existing sites (see map opposite - *Upgraded sites*).
The 8 pilot sites are located in **4 large French geographical basins**, on the Mediterranean side, in the southwest, in the center and in the north of France.