Projet SCOOP
véhicules et routes connectés
connected vehicles and roads

Information letter No 6

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Interviews with Vincent Abadie (PSA) and Christian Rousseau (Renault)

Why has your company decided to participate in the SCOOP project?

V. Abadie - Innovation Manager, ADAS Technological Strategy, electronically-controlled braking systems and autonomous vehicles, Master expert at PSA: The SCOOP project is a tremendous opportunity to test the ITS cooperative systems in real conditions with all the players in the field. In essence, working alone on this subject makes no sense. It was essential to work and exchange together in an extremely concrete framework, so we could confront real problems and issues.

C. Rousseau - Leader of the «transport mobility and systems» strategic expertise field, Strategy and Development Department of the Business Group at Renault: Renault has been a founding member of the Car2Car Communication Consortium (C2C CC) for more than 15 years. This Consortium has developed the vehicle-to-vehicle and vehicle-to-infrastructure communication concept in the 5.9 GHz bandwidth (7 channels) allocated by the European Commission to transportation and in particular 3 channels for road safety. The Dedicated Short Range Communication (DSRC) principle retained makes it possible through an open and free protocol, standardized by the ETSI and optimized for transportation, to exchange everywhere in real time without having to resort to a network or a telecommunication operator. The real time broadcasting of information about contextual events (accidents, wrong-way vehicle, stopped traffic or heavy congestion, roadworks, variable authorized speed limits, etc.) enable to enlarge the field of knowledge of conventional detectors.

What at the beginning was an advanced vision, developed in the context of the SCORE@F and Drive C2X projects with Renault participation, has become a reality today at the stage of implementation projects like the SCOOP project. Participating in the SCOOP project was the obvious continuation of SCORE@F. To understand all the ins and outs of this technology, the previous results had to be completed with a limited media application in closed environments. Only large scale implementation by the customer in real use conditions can identify all the conditions of success: choose the published standards and complete them with specifications particular to the infrastructure operators operating conditions in France, agree on the overall system architecture and in its details, decide on equipment for operators' vehicles to expand the warning potential, design and implement a security structure, Public Key Infrastructure (PKI), on nation scale that groups both automobile manufacturers, infrastructure operators and public authorities, conceive and discuss the possible forms of hybridisation and sell the vehicles. Furthermore, thanks to the consultation as of the end of 2013 with the ministry and the DGITM, SCOOP is the only European project in the C-ITS fields in which the automobile and motorway sectors work so closely together, under the guidance of the DGITM and with substantial involvement of local authorities.

In hindsight, today we can say that this choice was very wise. This mutual understanding of our needs and constraints has significantly helped demonstrate concretely and realistically what the C-ITS can contribute to road safety and traffic optimisation.
What you can test dynamically at the occasion of the ITS Congress in Strasbourg is just the first step towards an increasingly connected global system that is moving towards increased assistance and self-driving.

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With 3,000 vehicles in all, SCOOP is halfway between an innovative prototype and a production vehicle. How do you manage that?

C. Rousseau : SCOOP is a pilot project close to a production solution. Renault has committed to equip 1,000 Mégane saloon cars and to sell them to business customers in the SCOOP project's 5 major regions (i.e., Greater Paris, Brittany, Bordeaux, Isère and along the A4 motorway connecting Paris to Strasbourg). Consequently, we have decided to focus on a limited series that complies with all of Renault's production and process requirements for mass production. This concerns the choice of suppliers, the integration in the vehicle and the assembly under the control of the plant that usually produces the Méganes. Moreover, a customer who acquires a SCCOOP Mégane is supported by the Renault network just as well as any other customer. Indeed, this demanding principle forces us to surpass ourselves.

V. Abadie : For PSA, all of the services concerned are involved, from innovation through to development and industrialisation. Project management is handled by the innovation teams, the SCOOP system has been produced with a usual PSA partner in these fields and the integration in the vehicle has been fully approved by the development teams. The mass production and after-sales teams were also involved from the beginning!
This is quite unusual and it required establishing a flexible project structure so we could adapt on the fly as exchanges advanced in SCOOP. Consequently, we had to cope with numerous challenges like the cohabitation between the «SCOOP alerts» and the alerts already present in our production navigation screens. This type of representative constraint in the series allowed us to ask the right questions and to propose a really applicable system.

How is the cooperation going with your competitor and with the road operators?

V. Abadie : Most of the manufacturers have understood since a long time that it was fundamental to cooperate in this area. Our objective is the same as the operators: help the driver in his driving task and in this way improve road safety. The SCOOP project gives us the opportunity to further strengthen our relations with the operators in a good state of mind, which persists in spite of the technical difficulties that we sometimes run into. There are many technical exchanges, especially concerning the management of messages sent by the infrastructure and how to interpret them in order to construct and send the right information to the driver. The exchanges have been, and still are, very rich. From this point of view, SCOOP has been a real success.

C. Rousseau : To provide the necessary interoperability for a cooperative system like C-ITS, the different sectors of activities and the competitors have to work together to define and verify the necessary norms and standards and to approve their implementation. However, this doesn't prevent us from making different choices in terms of supplier or technical architecture inside the vehicle. Quite the contrary. Thus we make sure that in spite of these different choices, the overall ecosystem works, which validates the strength of the defined norms. They also let us compare the performances of different technical solutions, performances that intervene directly in the system's overall performance (e.g., the range of the antenna signal) that are taken into account in our future technical orientations.

What do you consider as the biggest challenge to resolve in the project?

C. Rousseau : The specifications completeness and the modification's traceability. To the extent that the common specifications between all of the SCOOP Consortium participants were developed in parallel with the detailed technical specifications that we shared with our suppliers, we had to exercise increased flexibility and responsiveness to adjust our requirements as the project advanced. For some suppliers, this was not always very simple (e.g., having to operate with incomplete instructions or specifications). This required a high degree of anticipation and autonomy to advance on a subject when some members of the Consortium were still not ready to contribute, especially on the technical validations.
Another lesson of SCOOP: practising very short loops with incomplete or changing design or validation specifications proved its worth over time. We had to learn together.

V. Abadie : We had already worked on the C-ITS, but not with so many players coming from such different fields. It was a real challenge to all talk the same language and to get the others to understand their problems Even if the general objective was common and well shared by the different partners, everyone's technical constraints were quite different.
For example, there are already a number of assisted safe-driving systems in the vehicle.This cohabitation between the new functions and the pre-existing ones was a major challenge for PSA, not always seen by the other participants. The challenge of the C-ITS is indeed there: know how to understand and adapt to the others' constraints!

The vehicles are ready now. How can one buy them?

C. Rousseau : Yes indeed. Since the authorisation by the CNIL (French Data Protection Agency), we are able to sign sales contracts with interested customers. It is rather simple to buy a SCOOP vehicle. As long as the customer is a company established in one of the 5 French regions equipped with the C-ITS infrastructure, it contacts its usual Renault «fleet» sales rep or the local Renault sales network. One can also submit a request through the SCOOP project's official website, hosted by the Ministry: http://www.scoop.developpement-durable.gouv.fr/en/participate-to-scoop-a35.html

V. Abadie : The SCOOP system will be offered to current owners of a C4 saloon car or a DS4, manufactured between May 2015 and May 2017 and equipped with a navigation system. A telephone number will soon be posted on the SCOOP website for interested persons. But they can already reveal themselves via the site!

What future do you see for the ITS G5 technology deployed in SCOOP?

V. Abadie : LThe C-ITS make it possible to have real time information obtained directly from the source and therefore especially reliable. This point is key for the future assisted driving functions and in particular for the autonomous vehicle. For high levels of autonomy
and for high speeds, it is likely that secure information available in real-time will be necessary to guarantee the vehicle's operating safely under all circumstances. Having this information on sections upstream, the vehicle will makes it possible to anticipate potentially hazardous events. This is essential for the future autonomous functions. The C-ITS are therefore a major asset in road safety and of course for the autonomous vehicle.

C. Rousseau : The ITS G5 technology deployed in SCOOP concerns the IEEE 802.11p DSRC protocol and therefore a WiFi mode adapted to the transportation sector capable of operating over distances of a few hundred metres and in broadcast mode. It makes it possible to broadcast and therefore to exchange very short messages with a very short latency with all possible receivers around the vehicle without knowing their identity. This technology is now standardised in the same bandwidth, in Europe and in the United States. It is mature and ready to be applied more generally to other use cases, like the connected ADAS and the autonomous vehicle in the context of European projects like C-Roads, whose purpose is to homogenize and accelerate the deployment in Europe.
The United States has announced a regulation for 2019. VW has announced its first production applications for 2019. The potential of this technology and its customer and society value are recognised unanimously. One condition still has to be fulfilled: road investments have to be synchronised with vehicle launches.
To do this, a clear response to the question of the choice between cellular and DSRC ITS G5 must be provided responsibly and transparently by all parties.
As for the Car2Car Communication Consortium, we believe that the lasting solution is the combination of the 2 technologies in hybrid communication systems. We are not alone: the founders are launching bi-technology chipsets.

SCOOP at the ITS Congress in Strasbourg

Monday 19 June, 14:00-15:30: SIS08 «C-ITS : the French know-how»

Tuesday 20 June, 14:00-15:30: SIS17 «CEF: supporting real ITS implementation»

Wednesday 21 June, 14:00-15:30: SIS36 «C-ITS deployment: the story unfolds»

And test the PSA and Renault vehicles on our demonstrator!

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