Stichting NIOC en de NIOC kennisbank

Stichting NIOC (www.nioc.nl) stelt zich conform zijn statuten tot doel: het realiseren van congressen over informatica onderwijs en voorts al hetgeen met een en ander rechtstreeks of zijdelings verband houdt of daartoe bevorderlijk kan zijn, alles in de ruimste zin des woords.

De stichting NIOC neemt de archivering van de resultaten van de congressen voor zijn rekening. De website www.nioc.nl ontsluit onder "Eerdere congressen" de gearchiveerde websites van eerdere congressen. De vele afzonderlijke congresbijdragen zijn opgenomen in een kennisbank die via dezelfde website onder "NIOC kennisbank" ontsloten wordt.

Op dit moment bevat de NIOC kennisbank alle bijdragen, incl. die van het laatste congres (NIOC2025, gehouden op donderdag 27 maart 2025 jl. en georganiseerd door Hogeschool Windesheim). Bij elkaar zo'n 1500 bijdragen!

We roepen je op, na het lezen van het document dat door jou is gedownload, de auteur(s) feedback te geven. Dit kan door je te registreren als gebruiker van de NIOC kennisbank. Na registratie krijg je bericht hoe in te loggen op de NIOC kennisbank.

Het eerstvolgende NIOC vindt plaats in 2027 en wordt dan georganiseerd door HAN University of Applied Sciences. Zodra daarover meer informatie beschikbaar is, is deze hier te vinden.

Wil je op de hoogte blijven van de ontwikkeling rond Stichting NIOC en de NIOC kennisbank, schrijf je dan in op de nieuwsbrief via

www.nioc.nl/nioc-kennisbank/aanmelden nieuwsbrief

Reacties over de NIOC kennisbank en de inhoud daarvan kun je richten aan de beheerder:

R. Smedinga kennisbank@nioc.nl.

Vermeld bij reacties jouw naam en telefoonnummer voor nader contact.

ICT in verkeer

Smart-in-Car

Door: Henk Derksen; IBM.

Kernwoorden: ICT, Smart Traffic, Connected Vehicle, Road Maintenance.

The project Smart Traffic connects cars and brings their CAN data to the cloud. 12 organizations worked together to collect data from vehicles CAN bus and created valuable data from it (figure 1). As a result, it helped taxi drivers to improve their driving style and reduce fuel consumption (and emissions).

Figure 1. The participating organizations in het project Smart Traffic.

About IBM

IBM is a top 10 international ICT-company that participates in large projects to improve products and services by innovating using ICT-technology. The global project Smarter Cities addresses themes for city life, city management and city development (figure 2). Key elements are Intelligent (use of ICT), Interconnected (wireless & Internet), Instrumented (devices for measuring and control). One of the aspects is Transportation and the project Smart-in-Car fits in there.

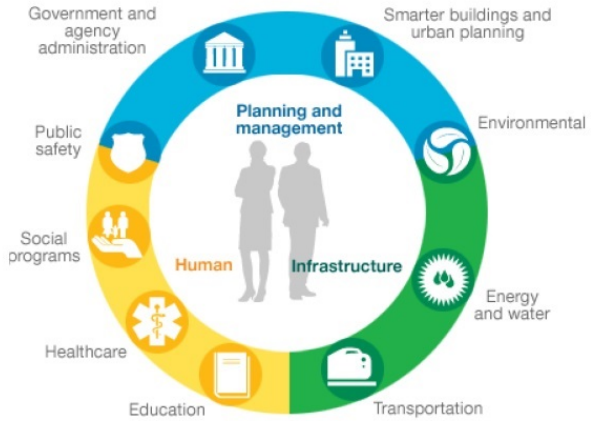


Figure 2. Aspects of Smarter Cities.

Smart-in-Car

A dedicated Integrated circuit (the size of an Euro!) developed and produced by NXP is mounted in a CAN-bus-measuring module for use in test cars (figure 3). The CAN-module can register all motor management data every day the test car is used. In that way the effect of the driver's behavior on motor measurement characteristics is registered. All registered CAN data of all test cars is

communicated wireless via Internet and collected in the cloud on a data secure server (figure 4). The complete dataset is analyzed and used for advice on driver's behavior for improving their driving.

Figure 3. Test cars, NXP chip and CAN-bus-measuring module.

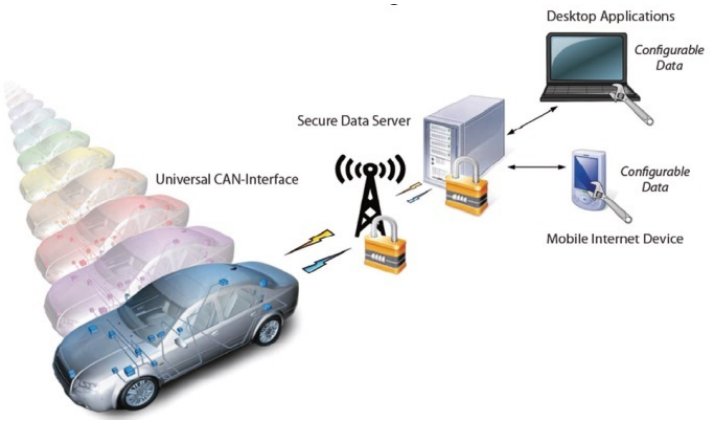


Figure 4. Measurement, communication, collection and analysis of CAN-data.

Data collection

The data is collected from navigation systems, dynamic maximum speed registration and in car motor management. The server and applications in the cloud produce information for different users distributed by apps and web portals for general public, professional drivers, fleet owners and road authorities (figure 5).

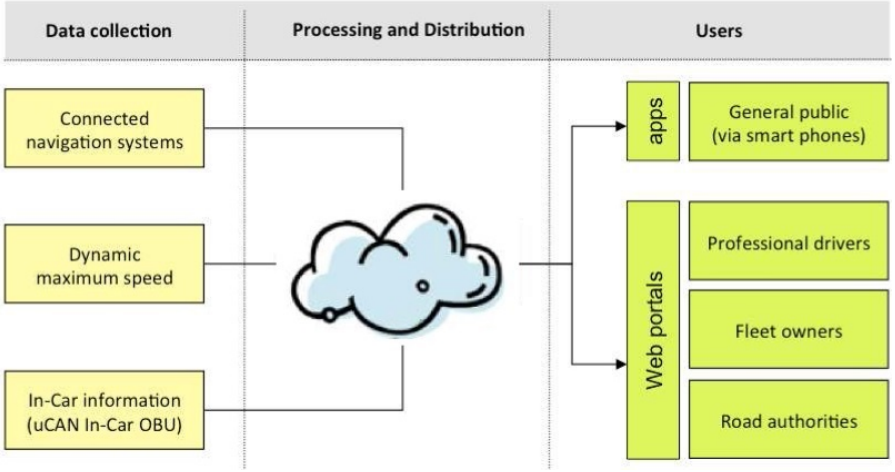
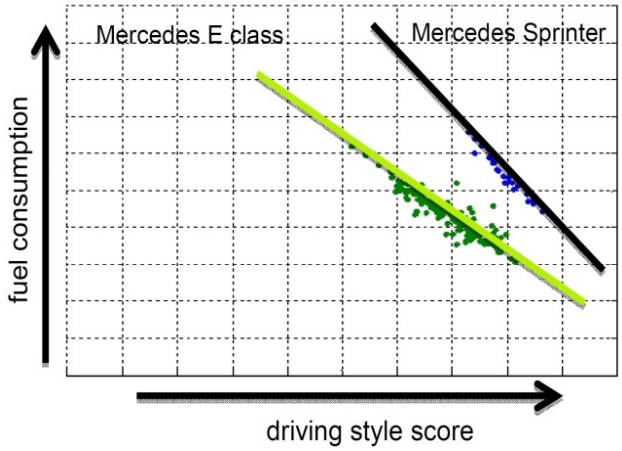


Figure 5. Data collection, processing and distribution for driving behavior improvement.

An app can inform drivers about real time traffic on the spot including weather conditions (fog, heavy wind or rain). Road authorities can control traffic signals for dynamic driving speed. Road assistance can be alerted at instant on a motor brake to the right GPS-position. Detailed information in jams and accidents can help to improve local safety measures.

Cibatax Drivers Have Improved Driving Style

In our zero measurement the most seen urban driving style score was 6.9 (on a scale of 0 - 10). After stimulating the taxi drivers to improve their driving style, the most seen urban score improved with 10% (to 7.6). Those who scored in the zero measurement below 6 in urban areas improved their average driving style score in the competition with 6%. The 10 drivers, who showed the highest urban improvement, have on average improved their score with over 18%. This shows better results in urban environments than on high ways and can be best achieved with direct driver feedback. Correct driving style really pays off in emissions and fuel savings (figure 6).



	Urban Rel Improve		
1235	0.55	7.29	8.78
1114	0.53	6.49	8.36
1883	0.46	9.48	9.72
1339	0.37	6.81	8
1887	0.35	6.92	7.99
1729	0.29	6.32	7.4

Figure 6. Fuel consumption, driving style score and urban relative improvement.

Mercedes E-Class: Monitoring Fuel Consumption from the CAN Bus

Almost 75% of the monitored cars showed reduced fuel consumption in urban areas. The average of these reductions in fuel consumption was close to 5%. Extrapolating this to all passenger cars in The Netherlands this would save an annual 730 Million tons CO2 emission and 800 million euro for fuel costs.

Smart-in-Car II has Stimulated Innovation

The innovation demonstrated is worldwide well recognized and is expected to be deployed large scale in the coming years (figure 7). Our consortium wouldn't have achieved this without In-Car II Lessons learned. Ask for real innovations, not for solving one mobility challenge: this will address the challenge and stimulate real 'exportable' innovation. It's too much a challenge to ask for real innovative solutions that are expected to be deployed large scale from day one.

Figure 8. Smart-in-Car Worldtour.

De regio Zuidoost Brabant heeft zich inmiddels geprofileerd als ontwikkelcentrum en proeftuin “SmartInCar”.

Figuur 10. Publiciteit rondom Smartcard in Nederland.

Wilt u reageren op deze presentatie? Neem dan contact op met:
Henk Derksen; Project Manager; IBM; Intelligent Transport SME.
Henk.derksen@nl.ibm.com