



## Stichting NIOC en de NIOC kennisbank

Stichting NIOC ([www.nioc.nl](http://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](http://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](http://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](mailto:kennisbank@nioc.nl).

Vermeld bij reacties jouw naam en telefoonnummer voor nader contact.



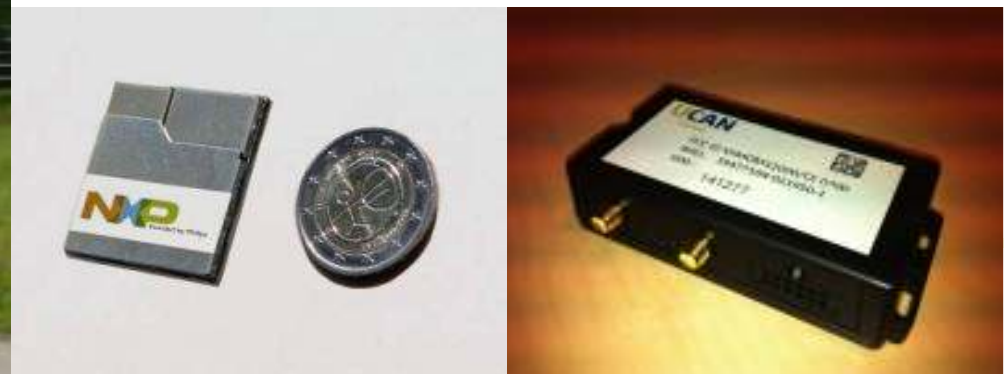
# SMART-IN-CAR

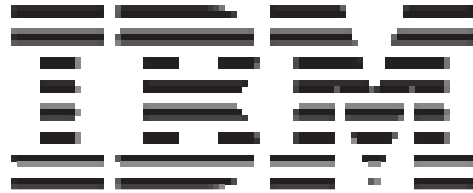


Henk Derksen

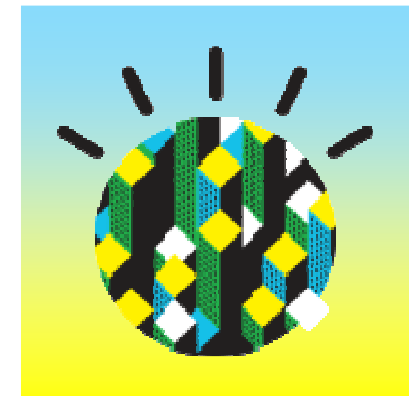
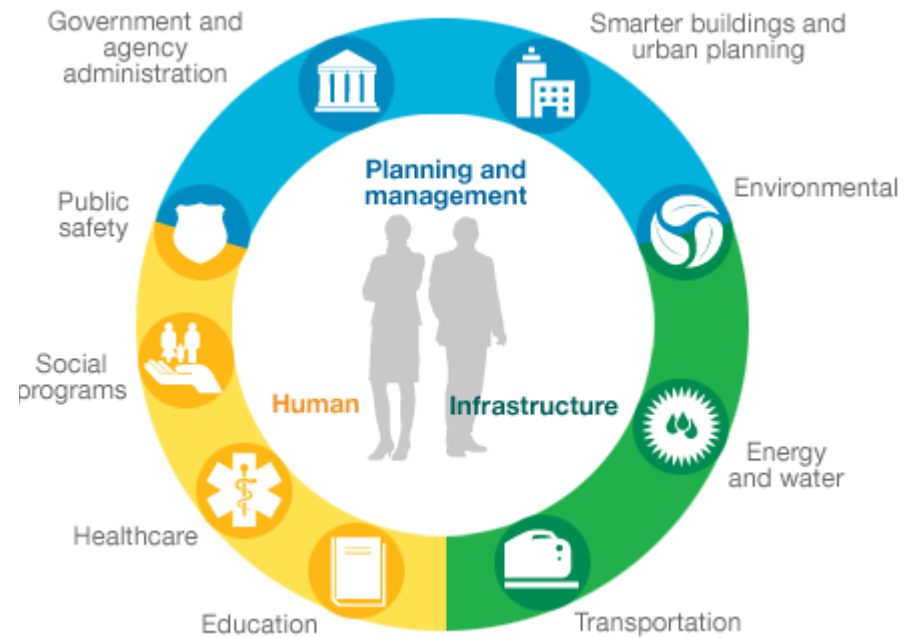
Project Manager IBM

Intelligent Transport SME

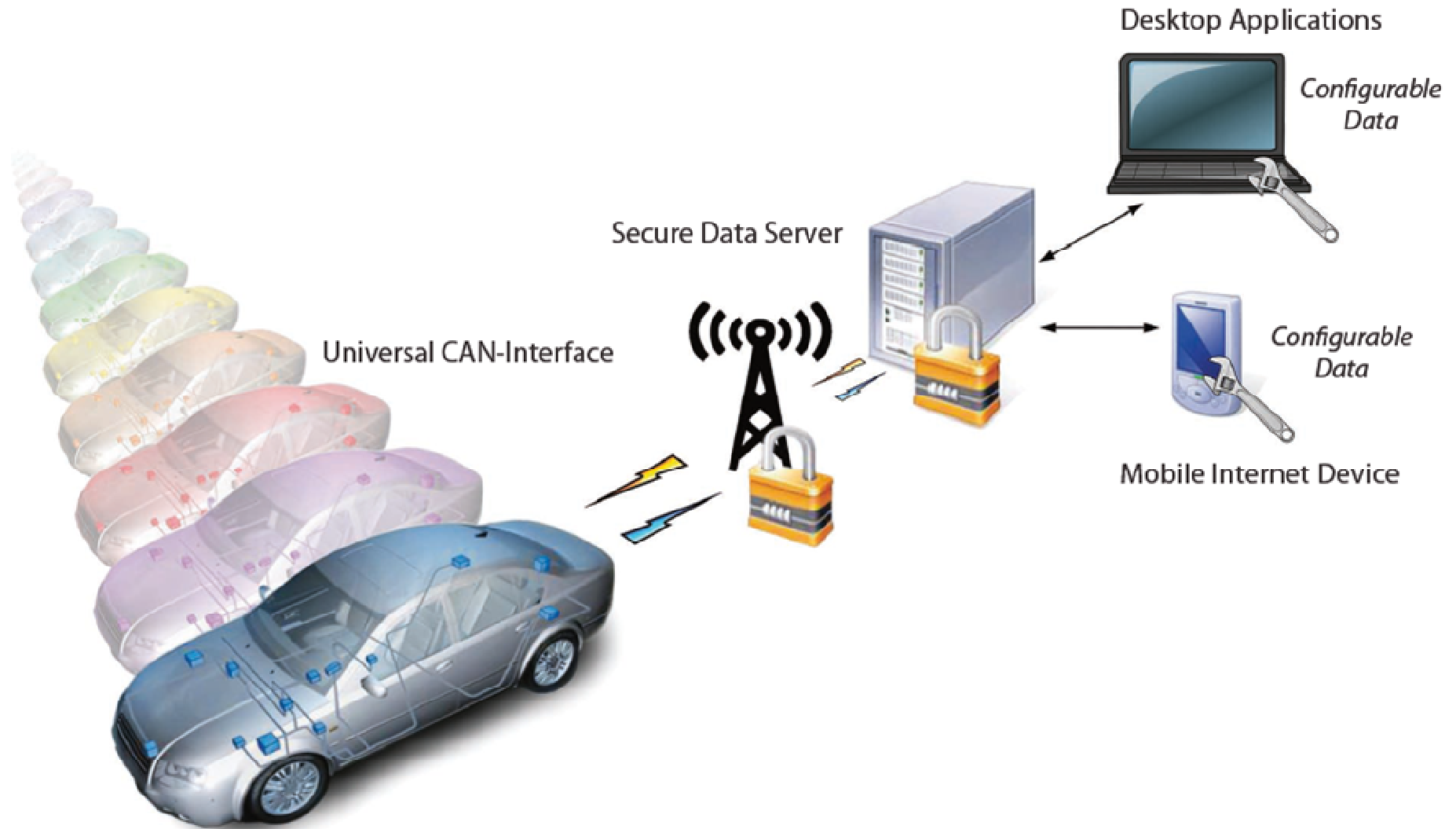




# Smarter Cities



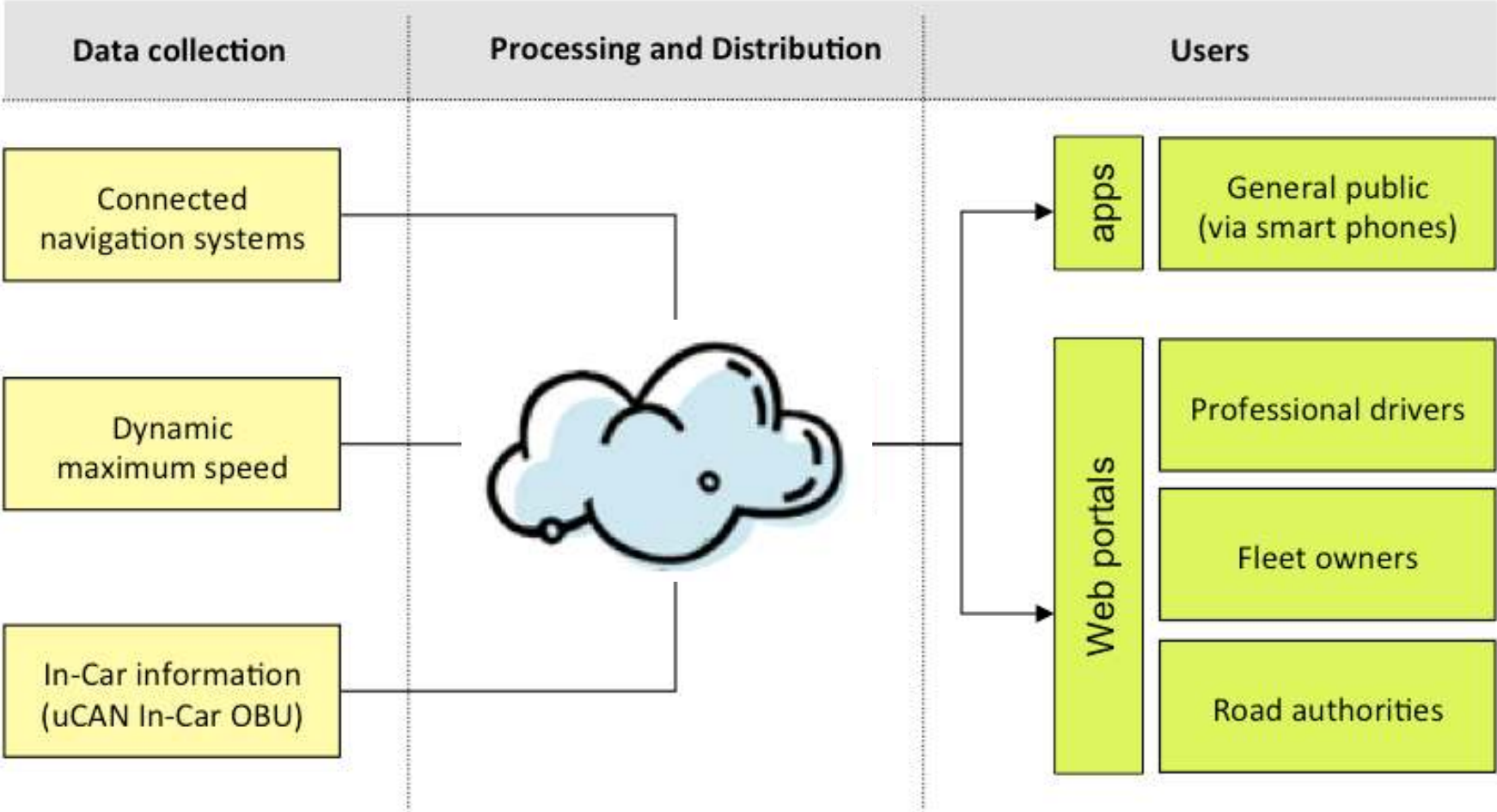
# We Connect the Car and bring CAN data to the Cloud



# Cloud dashboard available for 95% of existing car types






# How to use the data to deliver valuable information?



# Rijkswaterstaat benefits from road surface info

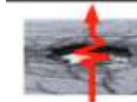
- ▶ Rijkswaterstaat and TU/E have concluded that in-car data can provide info on road surface

**Roughness**

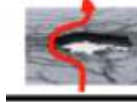
 1000	Smooth
 2000	Medium
 3000	Rough
 4000	Cobbled



## Potholes & Speedbumps



1xx Through a pothole



2xx Around a pothole



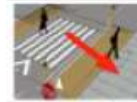
3xx Narrow speed bump



4xx Wider speed bump



5xx Raised surface UP



6xx Raised surface DOWN



7xx Speed hump



8xx Expansion joint

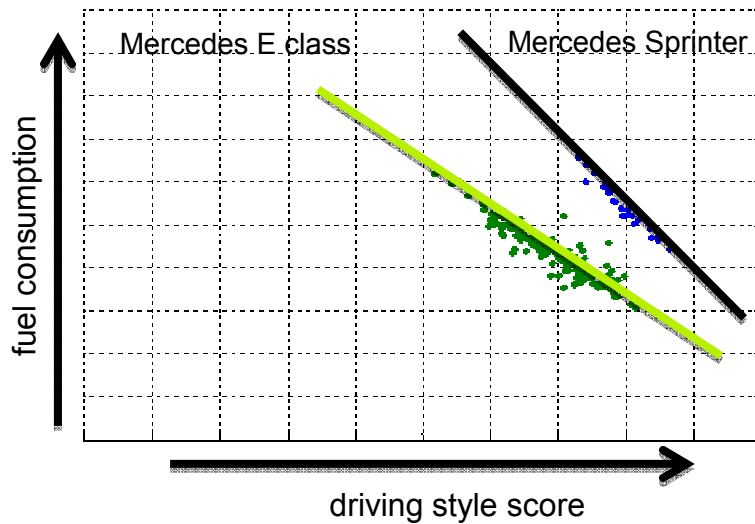
# Smart phone app display *relevant* events

- ▶ Nokia's real time traffic
- ▶ Rijkswaterstaat dynamic max speed
- ▶ Events generated from CAN data, e.g.:
  - Fog, heavy rain
  - Road assistance car on rescue lane
  - Harsh braking – more accurate traffic jam info





# Cibatax drivers have really improved driving style and fuel consumption



	Urban Rel Improve	Overall Rel Improve	Urban Absolute
1265	0.82	9.27	9.87
1512	0.81	0	8.14
1821	0.80	0	7.95
1788	0.77	9.4	9.86
1330	0.76	0	7.57
1096	0.75	0	7.51
1462	0.75	9.13	9.78
1145	0.73	8.59	9.62
1964	0.73	0	7.26
1855	0.71	0	7.14
1534	0.69	9.52	9.85
1219	0.66	7.54	9.17
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
1883	10.00	9.72	10.00
1129	10.00	9.36	10.00
1013	9.99	9.29	9.99
1088	10.00	9.20	10.00
1219	10.00	9.16	10.00
1733	10.00	9.12	10.00
1506	9.99	9.12	9.99
1265	10.00	9.11	10.00
1693	10.00	9.01	10.00
1314	9.92	8.99	9.92
1471	10.00	8.98	10.00
1788	9.98	8.83	9.98
1765	-	8.80	-
1235	9.95	8.78	9.95
1219	7.25	9.16	1.91
1114	6.49	8.36	1.87
1235	7.29	8.78	1.49
1339	6.81	8.00	1.19
1707	5.63	6.78	1.15
1729	6.32	7.40	1.08
1887	6.92	7.99	1.07
1534	6.69	7.59	0.90
1217	5.67	6.36	0.69
1004	6.95	7.63	0.68
1104	5.98	6.62	0.64
1264	6.21	6.83	0.62
1063	6.07	6.68	0.61

# Cibatax drivers have really improved driving style

- ▶ In our zero measurement the most seen urban driving style score was 6.9 (on 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%
- ▶ On Mercedes E Class car we monitored fuel consumption from the CAN bus
  - Almost 75% of these cars showed reduced fuel consumption in urban areas
  - The average of these reductions in fuel consumption was close to 5%
- ▶ Extrapolating to all passenger cars in The Netherlands this would save yearly 730 Million tons CO2 emission and 800 Million Euro fuel costs
- ▶ Effective driving style improvement for taxi drivers:
  - Shows better results in urban environments than on high ways
  - Can be best achieved with direct driver feedback
  - Really pays of in emissions and fuel savings

# Successful SMART-In-Car World Tour





# In-Car II has really stimulated innovation

- ▶ The innovation demonstrated is world wide well recognized and is expected to be deployed large scale in the coming years
- ▶ 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



## SMART-IN-CAR

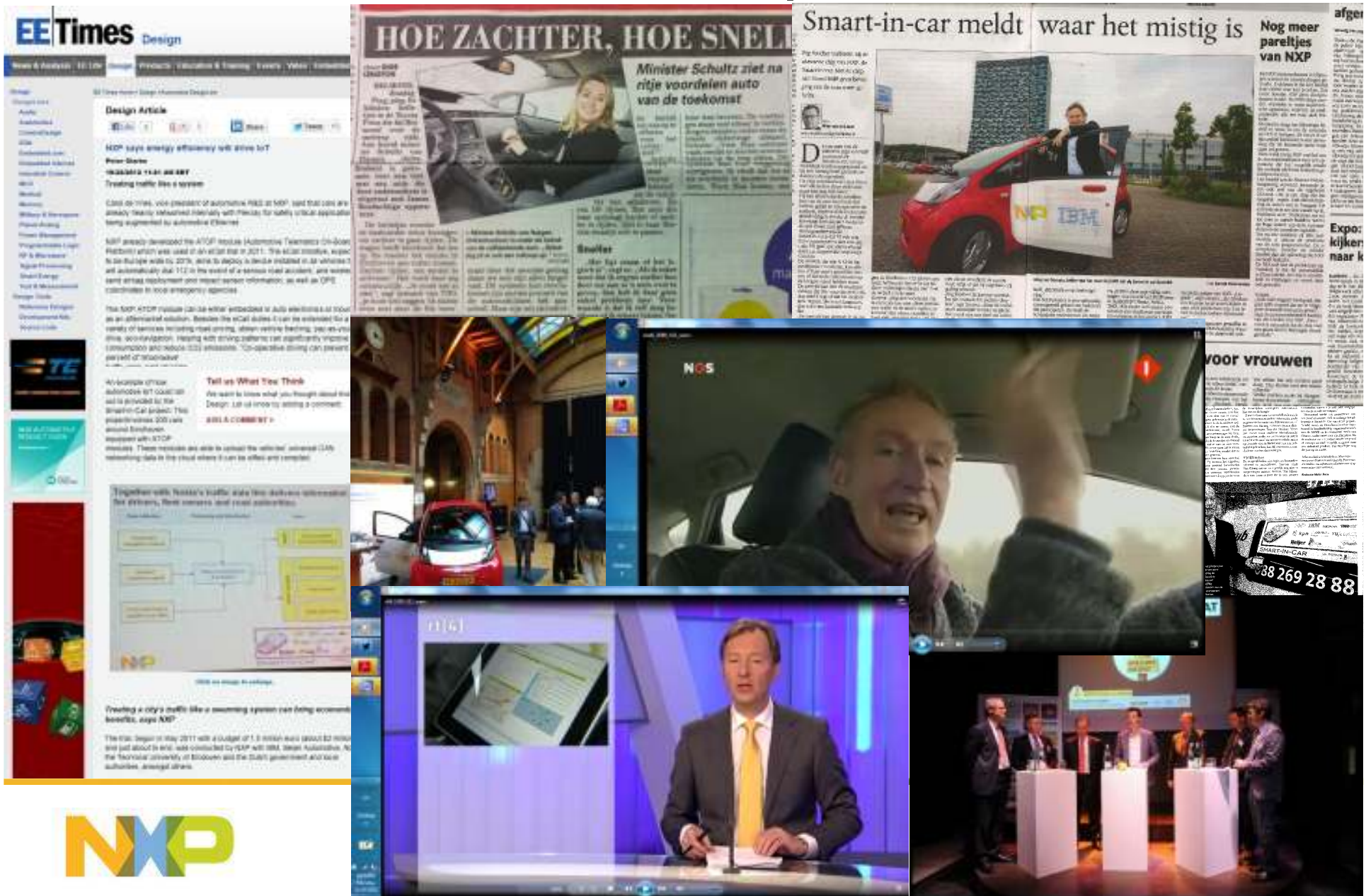


Provincie Noord-Brabant



Ministerie van Infrastructuur en Milieu

# Nationale en Internationale profilering van (ZO) Noord-Brabant als ontwikkelcentrum en proeftuin in-car



Thank You

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