

creating next generation mobility

ITS Europe, Strasbourg, 19 June 2017

Joris Cornelissen, Ministry of Infrastructure and Environment, Rijkswaterstaat



Content

- Lessons Learned from the European Truck Platooning Challenge, 2016
- The Real Life Cases Programme TP, The Netherlands
- Implementation perspectives

The Challenge

- Landing April 6, 2016
- 6 mono-brand truck platoons
- 3 x 2-truck platoon
- 3 x 3-truck platoon
- 5 different countries
- In normal daily traffic

First cross border truck platooning initiative in the world



Showcase, not a research project



But we learned a lot!

- Benchmark of exemptions
- Monitoring truck platoons
 - aerial footages
 - interviews drivers
- Stakeholders consultation

5 countries, 29 exemptions



Exemption needed for the shorter headway + the use of C-ACC

Every OEM had to apply for an exemption in each country / federal state passing through

3 different approaches:

- **Self-reporting** (Sweden and Denmark)
- **Prescriptive** (Germany and Belgium)
- **Prescriptive and Code of Practice** (The Netherlands)

Interview with 18 truck platoon drivers



The driving task changes:

- Strong awareness of being part of one entity
- Manoeuvres: take into account the full length of the platoon (e.g. lane change)
- Lead truck driver feels responsible for the drivers of the following trucks

Key issue: the truck drivers

Expectations:

- Afraid of losing jobs (part of the broader discussion on the impact of robotics)
- Impoverishment of the truck driver task
- Alertness of the driver (2nd/ driver)

But:

- Automation will be a gradual process (already going on for decades)
- Lead truck driver large responsibility
- Automation not on all roads, not for all freight tasks



Platoon – cutting in

Provisional finding –

the bigger the gap the more (dangerous) cutting in actions.

Therefor: following distance not more than 1.0 sec.!



Vision Truck Platooning 2025



2025

SAE Level 4 multi-brand
commercially available

50% adoption rate

SAE L5 full autonomy technology development
SAE L4 technology development
Pilot SAE L3/A2 programme (cross-border multi-brand)
SAE L3 technology development
3+ Trucks platooning
Cross-border TEN-T (Trans-europe) platooning
Platooning communication protocol standardized

2020

SAE Level 3 & 4
in development

SAE Level 2
commercially available

1% adoption rate

At the moment

Multi-brand platooning
Driving and resting times legislation amendment proposals
Pilot L1/A2 programme (cross-border, mono-brand)
Vehicle admission legislation harmonized
2-trucks and 3-trucks platooning

2016

European Truck Platooning Challenge
SAE Level 3 engagements for cross-border platooning

EU 2016

National highway legislation revision
European research and technology development - first tests and demos



From Challenge to Real Life Cases NL: why?

Real Life testing: **why?**

Only (cross-border) **Real Life piloting** will bring truck platooning closer to a **next phase of the innovation cycle** and its **final deployment**.

Real drivers, real vehicles, real cargo, real integration in logistics operation, real mixed-traffic interaction.

In progress –> value-case truck platooning (TNO)

- “The Value Case is about identifying and estimating **all potential benefits** that truck platooning can deliver, at various adoption rates towards **a macro-economic analysis**. Benefits will be quantified based on existing knowledge and modelling, and based on **the situation around the Port of Rotterdam**, the Netherlands. The Value Case **will help to ground decision-making** on truck platooning deployment in future projects”
- To be expected: October '17



Case AholdDelhaize

AholdDelhaize Transport & Peter Appel Transport drive many kilometers

Average working (Jan. '15)

Amount of continuous operational trucks:

- Day time: on average 475
- Nighttime: on average 250

Number of transport kilometers per day:

- 285.000 km in total
- 200.000 km on motorways

Today's planning schedule indicates:

- ~20% of all motorway kilometres can be driven by "3 truck" platooning combinations

Opportunities:

- Combine Ahold transport flows with other flows to increase volume

source: TNO, Robbert Janssen

The Real Life Cases NL: what?

will be:



1. mainly **demand-driven** (logistics companies, shippers)
2. **in co-creation** by OEMs, shippers/freight forwarders, countries and insurance companies (*the big 4*)
3. A **European** program (2018-2019) initiated by The Netherlands
4. leading principle of ***learning-by-doing***
5. an extensive **monitoring/research program** -> TNO co-ordination
6. **Topsektor Logistiek NL** as co-financing partner (research and deployment costs).

The Real Life Cases – all aspects covered !



infrastructure



vehicle technique



driver's and other
road user's perception



traffic management
and safety

Real life cases



legal issues



vehicle approval
and road exemptions



logistics use

Who decides on the success of the Real Life Cases?

1. to determine: **does it work in daily practise?**
 - A. **logistics sector**: benefits logistics performance?
 - B. **road authority**: meets/benefits standards on safety, infrastructure, traffic flow, sustainability?
 - C. **broader society**: do we have a positive attitude?
(perception by truck drivers, other road users, environm.org.)
2. **OEMs**: (commercially) attractive in the long run?

Needed: to **calculate** the foreseen benefits of the business-case in real life conditions)?

Truck Platooning - Real life cases

Intended, to be elaborated in 2016 - 2018

(First inventarisatie, 31 mei 2016)

CLUSTER: NIGHT DISTRIBUTION

Corridor	Shipper	Carrier	OEM
Eindhoven – Zwolle A50 Zwolle – Utrecht A28	Varies/ Groupage	Sanders Fritom Oegema	DAF / Scania Mercedes-Benz / Volvo / DAF
Hergelo – Den Haag/Rotterdam A1, A28, A2, A20	rekcontainers DHL	DHL Parcel	Mercedes-Benz/ MAN

CLUSTER: RETAIL

Corridor	Shipper	Carrier	OEM
Geldernalsen – Zaandam A2	Ahold	Peter Appel, Simon Loos	DAF, Mercedes-Benz
Tilburg – Gent A58, E19, E17	Ahold	Peter Appel, Simon Loos	DAF, Mercedes-Benz
Tilburg – Heerlen A58, A2	Ahold	Peter Appel, Simon Loos	X
Veghel – Heerlen A50, A2	Jumbo	Jumbo transport	Scania
Heteren – Assen – Groningen A50, A28	Kruisvat	Tielbeke	Scania
Heteren – Gent A50, A58, E19, E17	Kruisvat	Tielbeke	Scania

CLUSTER: LVC (Long Vehicle Combination)

Corridor	Shipper	Carrier	OEM
Roermond – Breda A58, A2	Rockwool	Kuyper's Neer	DAF

CLUSTER: GREENPORT (flowers)

Corridor	Shipper	Carrier	OEM
Bleiswijk, Aalsmeer, Naaldwijk – Rijnbrug, Eelde – Venlo A4, A15, A2, A75	Royal Flora Holland	Van Duyvenbode Van Zaal Wemstrans Geranco Getru	Volvo/ DAF/Scania
Bleiswijk – Madrid A20, A4, A15, A16 -> richting Madrid		Van Zaal	

CLUSTER: FOOD

Corridor	Shipper	Carrier	OEM
Rotterdam – Duisburg A16, A58, A57	Unilever	TBC	Iveco
Rotterdam – Veghel A15, A73		Kuehne + Nagel	

CLUSTER: BULK/PIECE GOODS

Corridor	Shipper	Carrier	OEM
Rotterdam – Luxemburg A15, A16	Nasen	De Rijke Group	
Amsterdam – Drachten, A5, A10, A7	BVB Logistics	BVB Logistics	
Schiedam – Gubblerwist, A20, A16, A15, A50, A73	BVB Logistics	BVB Logistics	
Amsterdam – Hardenberg A1, A28, B540, M48, N56, N54	BVB Logistics	BVB Logistics	
Rotterdam – Bergen op Zoom A15, A16, A17	Grief	Van der Wal Transport	
Rotterdam – Utrecht, A15, A4, A20, A2, A2	Grief	Van der Wal Transport	
Roermond – Utrecht, A73, A2	Rockwool	Van der Wal Transport	
Roermond – Steenwijk, A73, A50, A32	Rockwool	Van der Wal Transport	
Hoogezand – Heyen A28, A50 etc	SCA	Reining	MAN/Mercedes
Hoogeveen – Steenwoorde/luig (Fr)	Ardagh	Reining	MAN/Mercedes
's Heerenberg – Gent A2, A55, A50, A57	Varies	Raben	Mercedes-Benz
Oss – Gent A50, A57			
Essen (Dtsld) – Den Bosch/Zoeterwoude N11, A2	Heineken	Reining	MAN / DAF
Wijges (Dtsld) – Zoeterwoude/Den Bosch	Heineken	Reining	
Stembert (B) – Zwolle, A2, A73, A50, A28	SCA	Reining	MAN/ DAF/
Stembert (B) – Tilburg, A2, A58	SCA	Reining	Mercedes-Benz

Characteristics of the cases

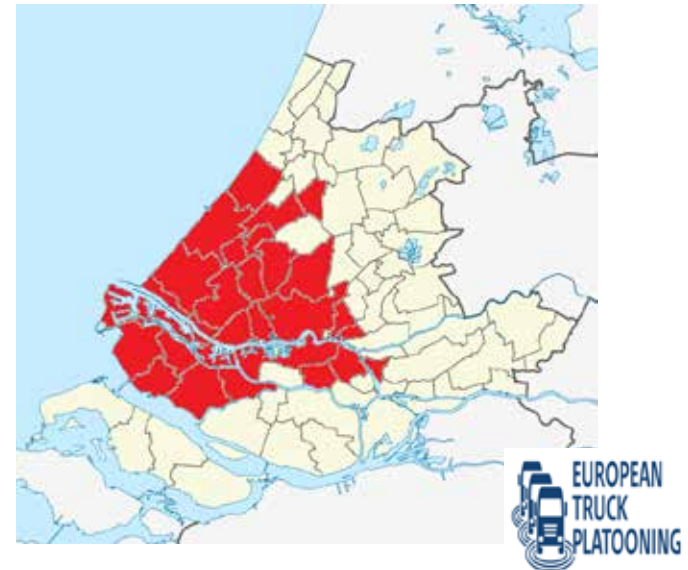
- following distance/ headway **0,5 tot 1,0 sec.**
- **SAE level 1/2**
- **monobrand**, and **cross-border**
- **40t** and, under discussion for NL: allow also **50t** trucks
- **loaded** platoon trucks (part of daily logistics business)
- **2-truck** and **3-truck** platoons
- A connecting research program.

- incl.**combi-container** platoons (case Port of Rotterdam – European hinterland)
- incl. **Unilever LNG gas**
- incl.platoons for **night distribution** (DHL)

Implementation perspectives

Real Life Cases Programme will be **experimental**, however

Metropolitan area Rotterdam (incl. Port of Rotterdam) – The Hague already indicated to focus on having between 100 to 500 truck platoons driving in **2020** (deployment)!!



Thank you for your attention!

joris.cornelissen@rws.nl

