DOITS

Working Group Meeting
Workshop
Hilton Amsterdam Airport
2019.10.14-15

Attendees:

Aleksandre Opacic	Microlise
Alexander Klaus	Daimler
Anna Stoldt	Vehco
Arie van der Jagt	Wabco Auto
Find Bengtsson	Maersk
Fredrik Callenryd	Scania
Giovanni Cacciola	Trimble
Harry Butcher	Verizon Connect
Jim Crawley	Haldex
Kurt Kunz	Krone
Peter Ebsen Petersen	Vehco
Peter Sande´n	Volvo
Robin Fellows	TomTom
Sara Udvari	IKEA
Thomas Agaard Pejter	PNO
Yvan Giroud	TIP Europe
Birger Queckenstedt	Schmitz Cargobull
Jan Unander	UNIC AB/DOITS

INTRODUCTION

DOITS role as forum is to support the transport industry and the actors in the transport ECO-system to become more efficient through harmonization of selected key data and the way this data is generated and made useful.

The method used in DOITS to accomplish this is based on the belief that it is effective to let strong commercial actors on the market come to an agreement on how to best harmonize or standardize to support the whole industry. This method does also minimize the time from decision to implementation compared to e.g. in politically initiated projects.

Therefore, DOITS carry this out by building co-operation between key stakeholders in the industries involved in the delivery of a specific function.

DOITS FOLLOW THE EU "FAIR COMPETITION LAWS" AND NO COMMERCIAL DISCUSSIONS ARE ALLOWED DURING THE DOITS MEETINGS.

Objective with this workshop meeting

Delivery of trailer VIN over CAN to truck

The previous DOITS meeting on April 16:th 2019 gave as a result the proposal to keep a workshop with the ambition to identify viable use cases for enabling the truck to capture the VIN of the trailer over CAN.

To this meeting three representatives from different user groups were invited to give input to the discussion. These were:
- *Maersk (Sea freight, ports)*
- *PNO (Trailer rental/ leasing)*
- *IKEA (Shipper with high requirements on transport services)*

1) DOITS have discussed if to address trailers from 2006-2014 as the trailer VIN number is already in the EBS system. A technical challenge is that a data request for this has to be implemented in the truck's electronic system for the truck to capture these trailer VINs.

2) Another possible approach discussed is focus on trailers manufactured from 2015 up to today as they are already enabled with the function that broadcasts the trailer VIN via the Trailer CAN standard.

For the truck OEMs it is harder to motivate the development and implementation of a function to ask for the trailer VIN (1) than just to listen to the broadcasted signal (2) and make it visible.

Alternative 1 has been tried by one truck OEM that have used the diagnostic channel in the electronic system to capture the trailer VIN but this have proved more complicated than expected.

Therefore, DOITS recommendation to the truck OEMs is to implement the second alternative.

The main objective with this meeting was to communicate to the truck OEMs the value of implementing the functionality as to case 2, to meet their customers and customers-customers needs.

PRESENTATIONS

<u>Maersk</u>
The issue of digitalisation has been addressed by the major container shipping companies.

" After gaining regulatory approval from the Federal Maritime Commission (FMC) last month, four container shipping companies – MSC, A.P. Moller – Maersk, Hapag-Lloyd and

Ocean Network Express – officially established the Digital Container Shipping Association (DCSA) on 10 April 2019 in Amsterdam, the Netherlands. The aim is to create common information technology standards to make the industry more efficient for both customers and shipping lines."

" To create value quickly and to overcome some of the biggest pain-points in the industry, one of the first projects is focusing on standards to overcome the lack of a common foundation for technical interfaces and data."

To find more information go to https://www.dcsa.org.

The focus for Maersk is to track the containers. Today they have installed tracking solutions on approx. 400 reefer containers.

A challenge with controlling container positions is that there are domestic differences that makes it hard to decide one standardised solution. A pragmatic approach has been taken BY DCSA and the focus is on: WHAT IS THE MINIMUM STANDARDISATION WE CAN ACHIEVE – to start up the process.

One project started is to find a low-cost solution that can be fitted on the containers that will wirelessly send information to a receiver that passes by the container. Today the focus is on using active RFID tags to create that communication but there are other known technologies e.g. Bluetooth based.

As a platform for the process the members of DCSA have agreed on a common view on how to see the logistics processes as that is the platform for a common view on how to address the challenges see: https://www.dcsa.org/media/1052/industry-blueprint-container-shipping-10.pdf

Some harbours have systems to track containers but mostly based on "gate in/ gate out" information. However, there are basic problems with finding containers that means:
- the vessel has a slot time and has sometimes to leave without some containers
- there are lost containers in the harbours

Maersk would like to, based on the unique container ID get the information:
- ***What carrier is transporting the container?***
- ***On what truck?***
- ***What is the Estimated Time of Arrival?***

The carrier identity is probably captured via connecting the Container to the transport documents but the truck has to be identified another way either:
- The trailer capture the container ID and transfer it to the truck that wirelessly sends the truck VIN and GPS position as input to ETA together with the Container ID.
- The trailer capture the container ID and as this trailer has installed a wireless tracking solution it transfers data to the back-end system calculating the ETA. The trailer tracking solution captures the truck VIN and sends that also.

- The truck capture the container ID and transfer this together with the truck VIN and GPS position as input to calculate ETA.

Decision
Jan U will contact Maersk to:
- Refine the definition of the use case
- Discuss the value of a cooperation between DOITS and DCSA.

IKEA

In total IKEA has 313 stores around the world of which 276 are owned by the group. The number of stores will expand and a strategic market now is South America where the presence of IKEA is small.

IKEA is a very large shipper on a world basis
- 2,000,000 shipments per year
- 990 suppliers
- 250 service providers (carriers)

Within the core values is sustainability and IKEA invest a lot in moving towards intermodal transports where train will be used more and more. The five-year goal is change from that 40% of the transports are done by train to reach 70%.

The logistics flow is very complicated with a number of distributions centers and e.g. intermediate storage warehouses to secure the stores availability to products.

A key factor is that the stores will get all the transports in the morning before the shop opens and that time slot is extremely important to keep which means ON TIME DELIVERY by the carriers is a key measure to have a smooth supply chain.

To control that the trucks will be on time the Estimated Time of Arrival information from the carriers is needed to optimize the work at the stores.

Of course, visibility of where the goods is "nice to know" but the amount of data that is generated in the logistic chain makes it difficult to consolidate and use in a practical way. Therefore, IKEA has based their processes on identification of the deviations from what is the expected ETA.

Ikea has appointed an external company offering an aggregation platform to collect data from IKEA's contracted carriers that use various solutions to deliver the position and they provide IKEA with an ETA for each transport.

Carriers are everything from small companies to large corporations and they have different capabilities to deliver the ETA for a transport. Some have computerized solutions and some carriers use the best guess method and call the driver to get an answer.

IKEA has organised an internal "manual" process when the data from the aggregation platform is received and here the final information is summarized and communicated to those in the IKEA internal logistic chain that waits for ETA information.

Required accuracy of the data is "real time" that within IKEA counts in minutes.

As the variety in how the ETA is calculated (from manual guessing to advanced route guidance based) there is room for an improvement in the precision of provided ETA. Sometimes IKEA even have to ask the driver what the problem is.

One challenge is the use of subcontractors as IKEA do not control the carriers way of organising their transports from the supplier's production facilities to the final IKEA destination. It is very hard to know what truck that tows the goods as it can change on its way to the delivery point.

There is a "fixed "number of trucks that has to managed to keep the service level.

The trailer is normally a constant in the logistics chain but the towing truck can change and the truck ID is a problem to capture.

Use case

To be able to improve the efficiency in the logistics chain it is very important for IKEA to understand why changes in ETA occur.

This use case has the goal to improve the precision of the ETA's through a deeper understanding of what causes the problems and how to minimize the deviations.

If IKEA manually transferred the ID of the goods to the trailer's electronic system and used a connection to the truck via the trailer, the truck could send to IKEA or its ETA supplier, the truck's VIN number as well as the timestamp and position of the trailer (goods). All couplings and de-couplings between the trailer and the truck in case of truck changes would be registered and the carriers activities are understood.

A discussion was around if the trailer should send the data itself or the truck should. One prerequisite is that most trucks already today have installed the necessary equipment to send its VIN, GPS position and timestamp whilst trailers have to have an installed wireless solution to

Also is the ETA deviations to be pushed to IKEA or pulled is a relevant question?

There are technical issues for the trailer/ truck to communicate the ID of the goods that have to be addressed.

Decision
Jan U will have a follow up discussion with IKEA to:
- Refine the definition of the use case

- Discuss if IKEA wants DOITS to support in the process.

PNO

PNO offer trailer rental and trailer leasing. The market is moving more and more from rental towards leasing business. Daily rental is expected to disappear.

To complement the traditional haulage services PNO also look into how to address Last Mile services and electrical vehicles.

Today PNO has approximately 10,000 trailers in its fleet of which 65% has some kind of wireless tracking solution installed. 50% of these are solution fitted by their customers. PNO also offer external trailers to meet customers requirements.

There is a decision taken in PNO that from now on, all trailers will be fitted with a wireless telematics solution.

There is an issue in the overlap when installing wireless trailer tracking solutions with 2 x hardware as also if the EBS system has capacity to send data to the truck and can use the truck's telematics unit with GPS and communication in place.

Stand-alone trailer tracking solution require replacement and is dependent on battery lifetime.

Data can be used to develop services to customers to:
- Increase pay load
- Increase up-time
- Minimize mileage
- Monitor if the driver follows the legislations.

Standardization would be favourable as there are multiple hardware solutions as well as connectivity solutions.

The perception was that all trailers owned by PNO have their correct 17-digit VIN number inserted in the trailer EBS system.

PNO has outsourced the aggregation of data from the trailers.

As a trailer owner, PNO is more interested in getting the truck VIN to the trailer to improve their operations than sending trailer VIN to the truck.

There are areas today handled manually by PNO that could be improved like:
- Trailer customers need to approve access to haulers/ drivers
- Direct haulers/ drivers where to pick up, drop off trailers
- Answer customers on:
  o where is my goods?
  o what is the condition of my goods?

- Optimize customers fleet of trailers
- Advise on how they best use the trailer

Besides customer-oriented usage also PNO sees an internal value in:
- Improve ability to develop proactive maintenance
- Deliver Up-time for customers
- Understand customers driving behaviour
- Identify combination of:
    o Truck VIN 1
    o Picked up trailer in this condition (EBS data)
    o Changes of Truck VIN towing the trailer
    o Changes of trailer condition (EBS data)

Decision
Jan U will have a follow up discussion with PNO to:
- Define a suitable use case based on the that the Trailer gets the Truck VIN.

Unstructured comments from general discussion after the presentations.

- The accuracy of the position that is delivered can be a problem. Maersk has experienced considerable variations using parallel GPS system to define a specific position.

- Latency is another factor that can cause problems if real time functions are necessary. It can cause that a driver picks up the wrong trailer and leave without being aware of the mistake.

- Low granulation of the data can give too rough information to be useful.

- The definition of a specific data/ information can differ between suppliers that causes problems when consolidating specific data from multiple sources.

- GDPR – Today there is only one country in Europe that actually blocks the usage of Trailer VIN.

Implementing the 17-digit VIN number into trailers

An essential part of implementing the solution so the truck can capture the trailer VIN is that each trailer has a unique ID and the number known that would meet this requirement is the 17-digit standardised VIN number.

We know that there is no European legal requirement saying that all trailers must have the full VIN number inserted in their electronic system. The fact is that the majority of the trailers of various reasons do not have that.

The correct VIN number could be inserted already at the manufacturers of the trailers and today the major trailer manufacturers add the 6 or 7 last digits in the VIN number in the EBS system. This had been considered enough to make each trailer unique. However, the experience from the truck manufacturers is that after some time they realized that trucks from two manufacturers had exactly the same ID number even if the number of digits tapped in were perceived to be enough.

Daimler is so far the only European truck manufacturer that have built the functionality to capture the trailer VIN number. Their experience is that only 10-15% of the trailers had the correct VIN number and therefore the value of offering that functionality was limited.

Daimler use the diagnostic channel to pick up trailer VIN but would prefer to use the broadcasted Trailer VIN instead as that functionality is less complicated to implement.

So how can we ensure that the process starts to implement the correct VIN number in the trailer EBS system?

For the manufacturers, owners and users of trailers there is no pressure to tap in the correct VIN number as today it is voluntary to do so.

Trailer manufacturers also use the 6-7 digit ID number in their processes to identify the specific trailer that is then used throughout their operations.

A proposal to start this change would be:

New trailers
1) Trailer manufacturers start to tap in the full 17-digit VIN number by default. The last 6-7 digit can still be used for their internal processes as before. We appreciate that there is a challenge to integrate this functionality in the internal systems as so much of the trailer manufacturers operations is based on the ID numbers used today.

2) Buyers of new trailers require the 17-digit VIN number to be implemented in the right data field in the EBS system. Some trailer owners simplify the ID in the system to easier recognize their trailers but this can be done with a conversion functionality where the 17-digit VIN still is registered.

Existing fleet of trailers
1) Since 2015 all trailers in Europe broadcast their VIN number. We assume that truck manufacturers can see the value and will create the functionality to capture this in new trucks. To gradually upgrade the existing fleet of trucks and ask for the trailer VIN is of course more complicated but could still be possible to organise.

2) Owners of trailers require at the next service occasion that the 17-digit number is implemented in the EBS system. There is a cost for doing this but this cost will pay off via improved services that can be offered to the logistics industry. This cost is only taken once in a trailers lifetime. There might be administrative consequences for

trailer manufacturers when collecting the trailer 17-digit VIN's from the EBS system.

3) Large users of transport services could promote the usage of the full trailer VIN as well as truck VIN to simplify tomorrows solutions to improve their efficiency.

Making the 17-digit trailer VIN in the EBS system into a European legal requirement
The proposal under the meeting was made to get in contact with DG Move from the European Union to discuss if and how a regulation can be implemented that require all trailers, new and existing fleet, to be able to deliver its unique identity through the 17-digit VIN number.

Decision

Jan U will approach DG Move to understand the prerequisites for making the implementation of the 17-digit trailer VIN mandatory in all European trailers that do broadcast this data.

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