

ECG Telematics WG

Conclusions from the first meetings

DEFINITION OF TELEMATICS: Telematics is a method of monitoring cars, trucks, equipment and other assets by using GPS technology and on-board diagnostics (OBD) to plot the asset's movements on a computerized map. To do this a connectivity device must be present on the asset to collect and transmit the data using 2G, 3G, 4G, etc. technology.

1) PROGRESS STATUS OF TELEMATICS IN FVL

TRUCKS

- **Well developed** by LSPs, with in-between companies already operational between OEMs and LSPs (SHIPPEO...)

RAIL

- **Nonexistent for FVL** : Open field for progress with several opportunities :
 - o Recently (5 years) developed for Inbound Logistics : tracking devices and processes already exist.
 - o Specialized companies ready to start working on it (Everysens...)

MARITIME

- **Nonexistent on ports.**
- **Well developed for vessels** with publicly available data. These data often still need to be integrated in LSPs and OEM tracking systems.
- **Big gap between vessel tracking and reality of vehicles unloading on ports** because of port congestion.
- A private company ([Dirkzwager](#)) has started to create a database with information coming from vessels, shipping agents, ports...
- International Maritime Organization created an International Task Force : "[Port Call Optimization](#)". Its aim is to improve data quality and standardize port information. Working on which data should be shared and on which format.

VEHICLES

- **Operational for several OEMS** : TESLA, BMW, RENAULT GROUP, VW, VOLVO TRUCKS, (VOLVO CARS ?). Progressive extension to other OEMS.
- OEMS cooperating on it within the AIAG Connected Vehicles WG : News ?
- Cooperation with LSPs to be initiated by RENAULT GROUP and VW. Others ?

COMPOUNDS

- Compound operations have a specificity when it comes to Telematics: The main data come from the vehicles handled by the Compound, therefore the CUSTOMER (OEM) has the data and the SUPPLIER (LSP) runs the operations.

CONCLUSION :

- Thanks to Telematics, FVL in Europe now has the opportunity to build a complete end to end system offering visibility on the whole supply chain from factory to customer.
- Telematics can provide much more than location data : Technical and usage data can be uploaded to enhance productivity, quality and efficiency.

- Adding some external data (from port or railway operators, public authorities, weather reports...) is also an opportunity to enrich the rough telematics uploads as telematics is not a solution in itself.
- The maturity level of each step is still very diverse with some steps very advanced for most operators (trucks, vessels), some advanced only for certain companies (vehicles) and some entirely missing (trains).
- Especially in these times of logistics turmoil, both LSPs and OEMs would benefit from getting a complete vision of the flows they operate to be able to anticipate and correct potential problems (e.g. vessels waiting in ports, trucks idling, etc.).
- Building these systems will require coordination between OEMs and LSPs. Data sharing will be mandatory, its conditions (blockchain, IT standards, benefits sharing...) must be agreed between parties.
- The [ECG/VDA/ODETTE FVL message standards](#) will support in this process.

2) MOST PROMISING USE CASES AND TOPICS TO WORK ON

Use cases in bold print below are those considered as the most promising among those listed (to be confirmed by the group)

General issues to work on :

Pooling data to have a global and general view of a flow (Control Tower)

Established data sharing platform / data lake with push and pull synchronization between OEMs and LSPs

NB: Telematics can't solve the issue of close range vehicle identification. Bluetooth Low Energy (BLE) or RFID can still be studied next to the barcode currently in use or the QR code which is stipulated in the [ECG-Odette recommendation on VIN labels](#).

Status, health and identity could be broadcasted in a non-proprietary format like BLE while in transport mode.

Do the ECG/Odette/VDA Digital Messages cover the whole picture of telematics exchanges ?
Integration of data from various sources : weather reports, transport news (strikes, accidents...), rental companies; rail operators (on incidents, works, etc.); freight forwarder; connection with visibility platforms (e.g. Shippeo) and Enterprise resource planning (SAP or Oracle)

Data sharing from all parties will be essential to improve the whole system.

TRUCKS

- **Truck telematics is already well developed but interactions of these data with vehicle telematics and diver messages are an interesting new field for progress.**
- Data exchange with the trucks : reception and emission
 - o **Using vehicle telematics : Booking and advance preparation of a load, change of a vehicle in the load... Guide truck driver/jockey to the vehicle on arrival**
 - o **Other notifications from and to the driver influencing ETA**
 - o The objective is to get a reliable ETA as early as possible
 - o Also to know which vehicles must be loaded and facilitate this loading
 - o To know which vehicles are transported and where they are.
 - o ETA calculation and notification by the truck
 - o *ETA must take into account the drivers' rest hours and driving hours.*
- Standardization of data exchange for truck telematics
- Interaction with damage reporting

RAIL

- **Shipment tracking, with ETA and fleet optimization**
- Centralising all stakeholders in the planning phase (train set/weight optimisation, etc.)
- Dispatch execution and document digitalisation
- Performance monitoring (real mileage of train transport, identify empty wagons and their position...)
- Possible to have alerts on the wagons (immobilization for instance, wagon stayed too long in the client's zone)
- Inventory threshold alerts (number of wagons of each type that must be present in one place)
- Entry and exit types of alerts connected to the ERP –
- ETA and ETD per route –

- KPIs on any feature
- CO₂ indicators
- Be proactive in case wagon is stopped (now they depend on the information from the railway companies on the wagon stops)
- Preventive maintenance - Anticipate the defects of some components
- Description of itinerary in case of high slopes and curves and anticipate any problems in the traffic
- *It might be also possible to document a number of vehicles to be transported from one site to another, then the IA system would calculate feasibility and profitability of the rail solution*

MARITIME

- **Location of the vehicles on the port :**
 - Find vehicles wrongly positioned by transport companies
 - Wrongly loaded vehicle on a truck
 - Use of vehicle location by the truck drivers to load them more easily.
- **Recharge 14V battery if needed before loading on vessel or on arrival.**
- **Check EV battery state of charge and correct (how ?) if < or > to authorized values before loading on vessels.**
- **Recharge Traction battery for EV vehicles on arrival if needed.**
- **Ports can measure CO₂ emissions thanks to vehicle/truck/vessel/train (with diesel engines) data.**
- **NOT TELEMATICS : List of vehicles to be communicated in advance.** Safe and compliant loading and stow plan with an earlier and more accurate list of Alternative Fuel vehicles to be loaded on a particular ship.
- Automated on demand service orders for Long Term Stock Maintenance instead of periodical service.
- Faster turnaround during drop-off and pick-up of units
- Reduced direct & indirect CO₂ emissions by process streamlining and sharing

VEHICLES

- **Vehicle location**, especially during this period of storage facilities and port congestion which cause vehicles to be stored in unusual locations and shipped according to commercial priorities.
- **Battery SOC** : Identify vehicles at risk outside regular maintenance + EV with an excessive SOC (>50%) before loading on a vessel.
- **Lead time reduction through real time knowledge of vehicles having completed a logistics step.**
- **Identification of vehicles idle for a long time.**
- Conditions and tools of data exchange between LSPs and OEMs : Access restrictions, technical conditions (use of FVL standards). Commercial issues (value sharing) must be discussed bilaterally and can't be part of this WG.
- Integration of results in a global vehicle tracking system integrating all transport means + vehicles ("Outbound order book" or "Control Tower Outbound").

3) DATA NEEDED

TRUCKS

- GPS
- Time stamp
- Mileage
- Speed
- Real time update if the truck is replaced by another
- Real time update in case of vehicle changes in a transport lot
- License plate
- Carbon calculations, for which the following data is needed: • Vehicle type • Vehicle Euro class • Fuel type • Capacity • Instantaneous / average fuel consumption
- Transport conditions
- Order confirmation: whether the order can be fulfilled or not and having initial and updated ETA data.
- Status events of transport orders: beginning and end of the transport
- Compound movements: arrival and departure

RAIL

- URVIS Nr of the wagon (Unique Rail Vehicle Identification System)
- Start message
- Stop message
- Move message (+ frequency, benchmark = 30 mn for a device duration of 6 years)
- Life message (every 24h)
- Latitude and longitude matched to rail tracks
- Device charge level (to avoid power failure) ?
- Which vehicles are in which wagon
- Upper or lower position for each car
- Wagon weight measuring if it's empty/loaded/overloaded
- Loading status
- Occurrence of shocks

MARITIME

- Vessel position
- Vessel speed
- Vessel course
- CO₂ emissions
- ETA of vessel taking into account the real availability of vehicles for shipment from the port :
 - Berthing (port authorization to berth)
 - Unloading date and lead time
- ETA at each step known from the start if several stops are scheduled.

VEHICLES

Position data :

- GPS coordinates
- Timestamp
- Which vehicles are moved to the shipment area (with geofencing)
- Alert + hold if a vehicle is loaded instead of another (with geofencing)

- Which vehicles enter the compound/port (with geofencing)

Technical data :

- Engine type (ICE, Hybrid, EV, hydrogen...)
- Traction battery state of charge for EV vehicles before loading.
- 14V battery state of charge for all vehicles before loading.
- Traction battery state of charge for EV vehicles on arrival.
- 14V battery state of charge for all vehicles on arrival.
- Battery health
- Fuel level
- Delivery mode
- Dashboard alerts...

Usage data :

- Speed
- Doors, windows, trunk left open
- ...