



# Key Performance Indicators for Finished Vehicle Logistics

Recommendation

Ref FV25

Version 1.0

Published May 2022



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## 1. INTRODUCTION

All vehicle manufacturers (OEMs) monitor the performance of the suppliers who provide them with the services involved in moving finished vehicles from the factory compound to their final destination and ensuring that they arrive at the final destination in the correct condition.

A variety of services can be provided during the distribution process, e.g. maintenance of vehicles (tyre pressures, battery charge) or addition of accessories (handbooks, floor mats), etc., but the core services involve the transport of the finished vehicles and their interim storage during the transport process.

All OEMs measure the performance of their suppliers using Key Performance Indicators (KPIs) but although the KPIs used by the different OEMs are quite similar, there has been no attempt, up to now, to standardise their definition or the way they are measured.

ECG believes that its members could benefit from such a standardisation and have worked together with Odette, who have experience of developing standard KPIs for use in the supply chain upstream from the OEM, to develop some standard core KPIs for Finished Vehicle Logistics.

## 2. BENEFITS OF USING STANDARDISED KPIS

- Avoid the need for each OEM to further develop their own KPIs
- Avoid the need for FV LSPs to manage KPIs from different customers which measure their performance on the same process in a different way, allowing the LSPs to more easily assess their performance across their whole customer base
- Provide a standard benchmark against which all actors in the FVL process can attempt to improve their performance.

## 3. METHODOLOGY USED TO IDENTIFY COMMON KPIS

All OEMs with headquarters in Europe were invited to take part in the project. All invited OEMs indicated support for such an initiative, but some were finally not able to participate in the project due to other priorities or company policy.

It was fortunate, however, that the five OEMs who were able to participate and contribute to the project represented four of the main automotive producing countries in Europe: France, Germany, Sweden and UK.

Each OEM was asked to list the indicators that they used currently to assess the performance of their LSPs according to the following criteria:

- Indicator
- Sub indicators
- Objective
- Scope and Field of application
- Definition of the indicator
- Calculation method of the indicator

They were also asked the following supplementary questions:

- Do you have a performance evaluation process based on KPI?
- What is your performance evaluation process, how do you calculate overall score?
- Do you communicate performance evaluation results with LSPs?
- What is the frequency to communicate the performance evaluation results to LSPs?
- Which methods you use to communicate the performance evaluation results to LSPs?
- What is your process to improve the performance of low rating LSPs?

#### 4. LIST OF ALL PERFORMANCE INDICATORS IDENTIFIED

This is the 'raw' list of indicators before any attempt was made to analyse the meaning and application of the indicator.

Performance Indicator	Transport Mode
Plant evacuation	Truck
Transit time to port of exit	Truck
Dwell at port of exit	Maritime
Shipping transit/lead time	Maritime
Delivery to dealer/Market	Truck
Overall lead time	
Vessel frequency	Maritime
Vessel number of departures	Maritime
Customer satisfaction	
Shipping sequence (oldest first)	Truck
Number of vehicles unable to be loaded on ship	Maritime
Over-shipment	Truck
Vehicle ageing on compound	
LTSM (long-term stock maintenance)	
Month end in transit	
Damage ratio	
Damage costs	
Damage claims rate	
Supplier debt	

Performance Indicator	Transport Mode
CO <sub>2</sub> emissions	
Logistics costs	
Data quality	
Real-time traceability	
Accuracy of traceability	

## 5. IDENTIFICATION OF CORE KPIS

A detailed analysis of the above indicators was carried out and from this analysis we were able to identify 9 core KPIs which are used by the vehicle manufacturers who participated in the project. It should be noted that not all the participating vehicle manufacturers currently use all of these indicators, but all agreed with the principle of each indicator, and several expressed their intention to move, in the near future, towards using one or more of the indicators that they are not currently using.

The 9 core KPIs identified are listed below and are explained in Chapter 7.

- Plant evacuation
- Time to port of exit/compound
- Lead time achievement ratio
- Dwell at port of exit
- Shipping lead time
- Dealer/market delivery time
- Damage ratio
- Event reporting – Completeness
- Event reporting - Timeliness

The first six KPIs in the above list cover the overall time from the OEM ordering the transport to the delivery of the vehicle to its final destination. This overall time is obviously the most important aspect in the transport of finished vehicles but, as each element within it may be the responsibility of different service providers, it is necessary to measure each element separately and almost all OEMs have KPIs for each of these elements.

The definition and calculation method for each KPI was sometimes slightly different for each vehicle manufacturer but all were able to accept a commonly agreed definition and calculation method. It is important to mention here that these KPIs are always measured in comparison with the performance levels set out in the contract that has been previously established between the vehicle manufacturer and the LSP. Respect of the contract is the major factor in measuring performance.

## 6. INVOLVEMENT OF FV LSPS

After reaching agreement on the core KPIs amongst the vehicle manufacturers, a number of Finished Vehicle Logistics Service Providers (FV LSPs) representing different sectors of the FV distribution chain were invited to join the project group to give their views on these indicators.

The subsequent discussions confirmed that the LSPs generally recognised and accepted the indicators that had been identified by the vehicle manufacturers, but their involvement was invaluable, not only in ratifying the view of the vehicle manufacturers but also in helping to adjust and refine the explanations of several of the KPIs.

## 7. CORE KPIS EXPLANATION

### 7.1 PLANT EVACUATION

This indicator measures the performance of the LSP in collecting cars from the OEM compound in accordance with the time scale previously agreed between the vehicle manufacturer and the LSP. Some vehicle manufacturers in the project measure any differences in number of days whereas others measure in hours, but the principle is the same. For this indicator the Ready For Transport (RFT) date is considered as Day 0.

#### Definition

Average number of days vehicles spend in the factory compound following RFT. The indicator is calculated for a specific timeframe (week/month) and it can be split per various plants/markets/dealer zones.

#### Measure

Number of days or hours.

### 7.2 TRANSPORT TO PORT OF EXIT/COMPOUND

This indicator measures the time taken to transport vehicles from the vehicle manufacturer's compound to the port of exit or to the next compound. The indicator is applied for each individual vehicle.

#### Definition

Time taken between RFT at the OEM's compound and the arrival at the next destination (port of exit or a compound). The RFT date is considered to be Day 0.

#### Measure

Number of days or hours.

**Comment**

For one vehicle manufacturer this also includes the 'plant evacuation' time.

**7.3 LEAD TIME ACHIEVEMENT RATIO**

This indicator measures the proportion of vehicles delivered on time at the next/final destination, compared to the committed lead time in the contract. This indicator can take into account any leg(s) of the logistics flow, which span from the factory compound, counted from RFT, through any location, until the final destination.

**Definition**

Proportion of vehicles delivered on time at the dealer or importer compound.

**Measure**

Percentage

**7.4 DWELL AT PORT OF EXIT**

This indicator measures the time that the vehicle spends at the port before the vessel departs. This indicator is applied for each individual vehicle and is used to measure the performance of the shipping line, not the operator of the port compound.

**Definition**

The amount of time the vehicle waits in port before the vessel on which it is loaded departs.

**Measure**

Number of days.

**7.5 SHIPPING LEAD TIME**

This indicator measures the time from departure of vessel to offloading of vehicle at port of entry.

**Definition**

Time from vessel departure to vehicles being offloaded at port of entry (First Point of Rest).

**Measure**

Number of days

### 7.6 DEALER/MARKET DELIVERY TIME

This indicator measures the elapsed time from the vehicle being identified as RFT at port of entry/inland compound until its arrival at the dealer's compound (or importers compound). It is clear that, in many cases, the delivery to the dealer will depend on the times that the dealer's premises are open and can be accessed. It is expected that consideration of this fact will be made in the contract between the OEM and the service provider. The RFT date is considered to be Day 0.

#### Definition

Time from 'ready for transport' to arrival at dealer's/importers compound.

#### Measure

Number of days.

### 7.7 DAMAGE RATIO

This indicator measures the number of vehicles found to be damaged during transit. Any warranty damage attributable to the OEM will be excluded from the indicator but all damage that is attributable to the service provider will be included. If there is damage in more than one area on the car, this is still counted as a single vehicle damaged.

#### Definition

Number of vehicles with transport damage which can be attributed to the LSP in comparison with the total number of vehicles transported by the LSP over a certain period.

#### Measure

Percentage or per 1000

### 7.8 EVENT REPORTING - COMPLETENESS

This indicator measures that every notifiable event in the distribution process has been reported to the vehicle manufacturer by the LSP (e.g. 2,000 vehicles loaded on a specific vessel with all vehicles identified individually by VIN)

#### Definition

The number of events notified compared with the total number of notifiable events.

#### Measure

Percentage



## 7.9 EVENT REPORTING - TIMELINESS

This indicator measures how quickly the LSP communicates the achievement of specific events in the distribution process to the vehicle manufacturer.

### Definition

Elapsed time between event occurrence and event reporting in comparison with contractually agreed maximum time.

### Measure

Number of days or hours beyond contractually agreed time.

## 8. CONCLUSION

This project confirmed that vehicle manufacturers with headquarters in different European countries are already using very similar indicators to measure the performance of their Finished Vehicle Logistics Service Providers, but all recognised the benefit to be gained from amending their current practice, where necessary, to come into line with a standard definition of an indicator and way of measuring it.

Several vehicle manufacturers also expressed an intention to start using one or more of the core KPIs that they were not currently using.

Odette and ECG hope that the definition of these standard core KPIs will bring further efficiencies to Finished Vehicle Logistics business processes but we will continue to monitor the implementation and use of them to ensure that they remain relevant in an automotive market that is increasingly volatile.