ECG Standard for vehicle logistics forecasting

A methodology

Version 1

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Submit your comments or requests for amendments by sending an email to

info@ecgassociation.eu

1. Introduction

In June 2013 ECG published the ECG Efficiency Survey which was carried out to obtain the view of ECG members vis-à-vis the areas of inefficiency in the industry. The greatest cause of inefficiency found was that of unbalanced flows/unequal mileage caused by poor planning, poor forecasting and lack of standardisation.

In October 2015 the Industry Meeting between OEMs (Original Equipment Manufacturer) and LSPs (Logistics Service Provider) represented by the ECG board was formed and proposed the creation, amongst others, of the ECG Capacity Working Group.

The ECG Capacity WG had its kick off meeting in February 2016 in Brussels in the presence of competition lawyers with the aim of analysing and addressing several issues including, but not limited to, road and rail issues, peaks, flow analysis, investment & forecasting.

The first full meeting of the ECG Capacity WG was held in Barcelona in July 2016 where the two co-chairs, one OEM and one LSP, respectively Manuel Medina SEAT representing VW Group and Christian Lang of DB Cargo Logistics GmbH, were appointed.

One of the first issues analysed by the ECG Capacity WG was the forecasting process of some OEMs where significant room for improvement was found. Some OEMs' forecasts are at times not satisfactory and lacking completeness causing misalignment of capacity to demand. This in turn creates inefficient fleet utilisation, capacity shortfalls and associated hidden costs for OEMs and LSPs alike.

In 2017, under the Capacity WG, the ECG Board approved **Project Caesar** with the aim of improving industry forecasts by introducing a toolbox of 'good practices'. Two consultancies specialised in the automotive industry were selected to carry out research and examine the efficacy and accuracy of forecasts with the aim of creating a guide to address the inefficiencies found and to help improve forecasts generally.

Established in 1997, ECG is the Association of European Vehicle Logistics and represents the interests of more than 100 member companies, from family owned SMEs to multi-nationals, and is the major champion of the European vehicle logistics sector. ECG Members provide transport, distribution, storage, preparation and post-production services to manufacturers, importers, car rental companies and vehicle leasing operators in the European Union, Norway, Switzerland, Serbia, the Russian Federation, Ukraine and Turkey and beyond.
Today ECG members have an aggregate direct turnover of around 23 billion euros. More than 145,000 Europeans are employed directly by the vehicle logistics industry and an additional 300,000 are indirectly employed in the sector. They own or operate 460 car-carrying ships, 13,600 purpose-built railway wagons, 19 river barges and around 26,000 specialist road transporters. (Source: ECG Survey of Vehicle Logistics in Europe 2018/19)

2. Objective

The document sets out a standard process for OEMs and LSPs to establish a forecasting cycle which assists with more accurate forecasting and provides guidelines on how to improve the accuracy of the process in the long term.

The standards and toolbox for improvement cover the range of supply chain forecasting challenges from factory to dealer.

3. Project methodology

The standards set out in this document are the result of a thorough study carried out on the current status of vehicle movement forecasting in Europe.

Research and consultancy company ICDP[1], supported by Stetter Consulting[2], were selected in March 2017 to develop a pragmatic solution that could be used throughout the industry, covering the whole delivery chain from short and deep-sea movements to rail and road.

In **Phase I** of **Project Caesar**, an interview-based survey was created to establish the current practice in delivery forecasting within the industry and to identify 'good practices'. Six OEMs and six LSPs were interviewed during 2017 and early 2018 to analyse the accuracy and quality of planning information and processes in the finished vehicle supply chain. A toolbox of 4 steps was developed based on the interviews.

From October 2018 until April 2019 in **Phase II** pilots were carried out on a one-to-one basis between LSPs and OEMs to test and validate the developed toolbox in order to create an ECG recommended standard for vehicle logistics forecasting based on validated good practice.

[1] The International Car Distribution Programme (ICDP) has since 1994 focused entirely on automotive distribution, providing insight and research to members that include carmakers, dealer groups, aftermarket parts suppliers, service providers and trade organisations. For more information please see here: www.icdp.net

[2] The company Stetter Consulting was founded in 1989 and offers solutions for Supply Chain Management such as outsourcing concepts or warehouse planning and process optimization. Stetter Consulting works also on multi-modal logistics concepts and maintenance for railway equipment. For more information please see here: http://stetter-consulting.com/

4. Standards

The outcome of Project Caesar is a toolbox that builds on identified good practices in the industry for standardisation of data flows and mutual alignment of processes that improve capacity issues related to poorly executed forecasts.

This toolbox is hereby presented as a standard process which envisages some fundamental principles which both OEMs and LSPs should incorporate into their forecasting methodology.

4.1 Principles

- **Delivery forecasts** should be differentiated from **sales forecasts** by the OEM
- The OEM should only provide the LSP with **delivery forecasts**
- OEM and LSP should dedicate **resources** and **expertise** to delivery forecasting
- OEM and LSP should agree on a **template** to use for forecasting data transmission
- The sales department of the OEM should take **responsibility** for finished vehicle movements and delivery forecasts made by the OEM logistics department, and **accountability** and **responsibility** for the sales forecasts that underpin it
- The OEM sales department should take responsibility for production planning forecasts made by the department responsible for **production programming**
- OEM and LSP should agree to forecast within a defined **target percentage of flexibility**
- OEM and LSP should agree to forecast volumes by **route**
- OEM and LSP should aim at **progressively** at improving the forecasting process
- OEM and LSP should agree to **share costs and risk** of forecasting in their contracts

4.2 Monthly Process Cycle

Pilots carried out during Phase II of Project Caesar highlighted the importance of the standardised process as outlined in Steps 1-4.

Step 1 - *Initial planning and sales review* involves an assessment of the current sales and production forecasts within the OEM by a dedicated finished vehicle logistics forecasting and planning function within the OEM, and follow up confirmation of these forward sales and production plans by sales and production departments.

Step 2 - *Building the forecasting plan* requires detailed planning and a specific set of input data, the exact mix of which is dependent on the the nature of the finished vehicle movement including closeness to market and routeing.

Step 3 - *Approving the forecasting plan* involves the sales function approving the finished vehicle movement plans issued by the finished vehicle logistics forecasting and planning function, and LSPs taking responsibility for fulfilment of the delivery plans and forecasts by confirming their ability to meet the requirement.

Step 4 - *Continual improvement* is the last step of the standard process in which the parties involved should aim at regularly reviewing the established process and the accuracy of the results achieved in order to further improve it.

Step 1 – Initial planning and review sales

A first step is a review of the accuracy and feasibility of current plans and a check of an initial high-level forecast.

This initial planning review within the OEM should follow an internal consultation cycle involving sales, production and a dedicated finished vehicle logistics forecasting and planning function (Figure 1) with specific resource and expertise allocated to delivery forecasting.

STEP 1
TAKE WHOLESALES AND REGISTRATIONS INTO ACCOUNT
BEGINNING OF THE MONTH, SALES PROVIDE INPUT DATA TO OEM LOGISTICS DEPT
UPDATE DATA AFTER PRODUCTION PROGRAMMING MEETING
UPDATE DATA WEEKLY WHERE NECESSARY
TAKE INITIAL SENSE CHECK OF DATA

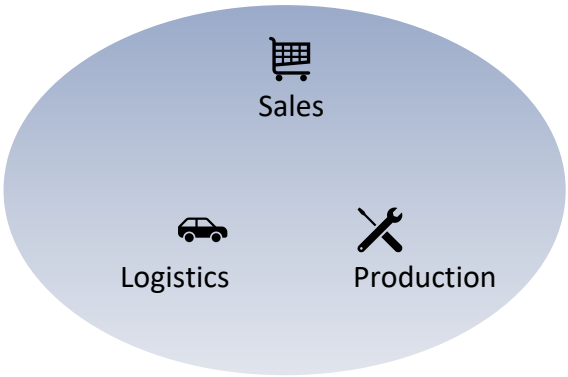

Figure 1 Initial review and capacity forecast partners. Some planning will be bi-directional between logistics and sales (e.g. market level actions), and some will be from production to logistics, preferably via sales, (e.g. market allocation and factory clearance to compound).

The aim of the initial review within the month is to critically evaluate sales and production plans, to understand any unusual activity and confirm the overall viability of the vehicle movements that would be required to meet the sales and production plans.

The factors taken into consideration will vary, depending on whether the movements are from factory to port for export, distant or European factory to market compound, or compound and/or factory to franchised dealer.

However, the viability of the timing and volume of vehicle allocation from plant to market, and from market to dealer, will require an initial 'sense-check' of the sales and production allocation to market plan.

This sense check involves comparing the existing forward plan with a selection of the range of input data (Table 1).

For the finished vehicle logistics forecasting and planning function to undertake this review and initial capacity forecast, sales (whether at market, regional or European level) should provide **sales forecasts** and/or **wholesale targets** for the relevant destination market areas based on production programming and sales targets.

Sales forecast
Wholesale target
Production programme
Stock balances
Order pipeline status
Past movement
Constraints
Past variance

Table 1 Input Data

Among input data which should be considered for the initial review and high-level capacity forecast, **production programming plays a crucial role.** Production programming typically follows a specific monthly cycle (Figure 2) in which market allocation is determined and a forecast for initial planning is provided.

The programming meeting between sales and production for the current month (M) should take place around 15th of the previous month (M-1) and determine supply for following periods. This and the subsequent stages in the programming cycle can be used by the finished vehicle logistics forecasting and planning function to determine their own vehicle movement forecast.

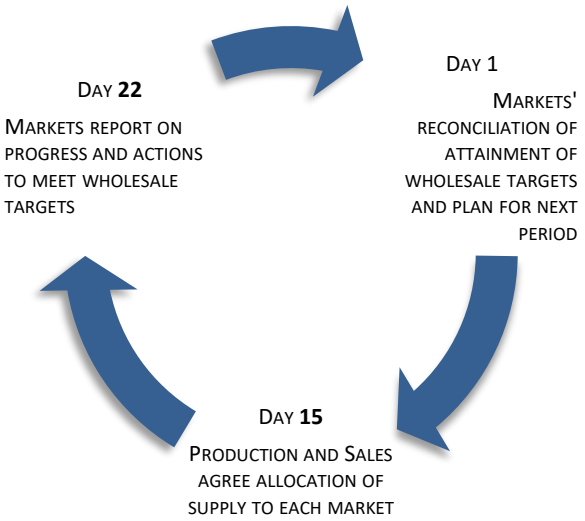

Figure 2 Typical production programme cycle

Plans should be checked against **historic sales, wholesales** and **sales forecasts for the same plants, vehicle models, routes and markets.** The likelihood to meet targets should be reviewed and the sales department should be challenged, and viability should be confirmed by reviewing order to delivery **pipeline** and finished vehicle **stock balances**. **Past vehicle movements** should be checked, and any previous peak activity should be compared. The contractual capacity of the key finished vehicle LSPs to deliver to the forward targets should also be taken into account. Some of the data inputs will be dynamic and changeable, and so should be updated regularly to improve accuracy:

- monthly updates of the forecast for production data
- weekly updates of the forecast for stock balances and order pipeline status

The sense check undertaken by the finished vehicle logistics forecasting and planning function will involve challenging the plans with a number of questions as outlined below, and the relevance of these questions will vary by delivery route (Table 2).

Elements of review	Sense-check
Financial and sales targets	• Compare how market sales forecast (volume and model mix) align to annual targets and past patterns • Check if it is building towards the annual market target and mirrors past activity • Check that sales and wholesales are on target to meet the annual financial budget
Market level explanations	Define unusual peaks and their root causes: • promotions, incentives • market specific impact (taxation change) • supply change as a result of a market allocation change
Production planning accuracy	Check the production forecast to see if there are changes in model mix or volume. If that is the case, check the cause (e.g. changes in order pipeline, or supply constraints) and amend forecast accordingly.
Delivery chain capacity	• Check the gap between market stock levels (compound and dealer) and throughput required to meet target. • Check the capacity of subcontracted in-flow processes (e.g. PDI), and intermediate delivery legs (prior delivery chain activity) of meeting the targets. • Check the impact of the calendar on the flows and of deadlines on meeting targets. • Check LSPs capacity to meet targets and their additional capacity.

Table 2 Elements of Review

Step 2 – Building the forecasting plan

STEP 2
ALLOCATE SALES SPLIT AND STOCK BALANCE IMPLICATIONS
ALLOCATE TO REGIONS AND ROUTES
ALLOCATE TO COMPOUNDS AND LSP SPLIT
TRANSFER MONTHLY TARGET TO CALENDAR
CHECK FOR WEEKENDS, NATIONAL DAYS, SHORT WEEKS
CHECK TO SEE FINAL CALL OFF DATES FOR DEALERS TO MEET TARGETS
BUILD DELIVERY FORECAST E.G. CREATE WEEKLY VOLUMES COMPARE TO PAST MOVEMENT
CHECK FOR CONSTRAINTS AND KNOWN ISSUES IN PIPELINE
FOCUS ON WHOLESALES TARGETS, WORK BACK ACROSS MONTH

The delivery plans for the current month (M) and following months will be established in Week 1 or Week 2 of the previous month (M-1)**.**

Week by week detail is determined by applying the targets and timing of achievement of targets for the month (M) over the calendar month and weeks.

The operational plan is for the initial following period, days or weeks as appropriate by mode (i.e. operational plans will cover a longer time frame for shipping than for compound to dealer movement by road).

The **forecast** is the changeable detail of the periods further ahead, which is used for capacity planning rather than detailed operational planning.

Plans and forecasts should include market allocation splits, including by region within a market, as well as implications of targets on the stock balances within the delivery chain, including at dealers. This allocation to regions and routes allows a better split of forecast and detailed planning by LSPs.

The detailed plan and **forward** forecast should take account of the impact of the pattern of days of each calendar month (so include consideration of the number of working days for each partner in the delivery chain i.e. weekends, national holidays and short weeks). **Final call off dates**[3] should be integrated in the plan.

The data listed in Table 1 (Input Data) will be required to build the detailed forecast and should be updated with any known new changes or constraints and flagged by sales and production.

[3] Final call off date is the last point at which a car can leave the current point in the supply chain if it is going to arrive in time to count a certain sales or wholesale target, which includes meeting lading and scheduled departure deadlines for rail and ship movements.

Step 3 – Approving the forecasting plan

The finished vehicle forecast and plan should be approved by sales at the appropriate points in the production programming cycle, so after the production programming meeting and subsequent finalisation of sales planning.

The finished vehicle logistics forecast and plan, should then be appropriately transmitted through an agreed template (Appendix 1) to the LSPs.

The forecast and plan should be reviewed by the LSPs, who then confirm their delivery capacity and ability to meet the demands of the forecast and plan.

LSPs should be regularly involved in the sense check and review cycle of the forecast plan as described in STEP 1.

STEP 3
Sales within NSC takes ownership of delivery plan
If the initial planning needs reviewing, sales should review it and return it to logistics
Sales confirms the delivery plan
When delivery plan is confirmed, review it with LSPs
LSPs to confirm they can deliver the plan
LSPs committed and informed via review cycle
Special actions should be flagged (e.g. fleet call off)
Contingency plans should be agreed if additional capacity is required for uncertain event (e.g. fleet call off)
Availability of subcontractors checked and reserved if possible

Once LSPs have received and confirmed the forecasting and plan for the immediate periods, LSPs should inform about special actions (e.g. fleet call offs) and propose contingency plans if additional capacity is required for unexpected events.

Step 4 – Continuous improvement

The monthly finished vehicle logistics forecasting cycle established between OEM and LSP should be continuously reviewed and improved.

The quality of the finished vehicle logistics forecast and plan should be monitored, alongside the agreed processes established within the forecasting cycle.

Review of LSP performance should take into consideration both what they committed to and the quality of the finished vehicle logistics forecast and plan.

STEP 4
Review KPIs (e.g. forecast variance and quality)
Monitor build to order rates and sold order content
LSP, sales and logistics departments review forecast quality within overall monthly and contractual review cycle
Internal departmental terms of engagement review
Adjust terms and targets as required, including risk share

Within the OEM, the finished vehicle logistics forecast and planning function should continually assess the engagement of production and sales planning, alongside the quality of the data provided by these functions.

Internal service level agreements within the sales, production and vehicle logistics planning functions within the OEM can be applied to help improve co-ordination and continuous improvement.

The quality of adherence to the forecasting and review cycle and implications of variance of the finished vehicle logistics forecasts and detailed plans can also be incorporated into contractual terms between OEM and LSPs. This could include some mechanisms for risk sharing between the parties, as deemed appropriate.

5. Conclusions

Poor forecasting has a negative impact on limited capacity within the sector, a fact acknowledged by OEMs and LSPs involved in this study. For example, the road-based car transporter sector in Europe has for some time suffered from an acute shortage of drivers, a problem undoubtably intensified by the inefficiencies produced by poor forecasting.

The **"ECG Standard for vehicle logistics"** forecasting lays out a methodology aimed at aligning the forecasting processes within OEMs and with LSPs, with the aim of improving capacity through more efficient use of resources within the finished vehicle logistics sector.

All partners in the vehicle delivery chain should see long-term improvements in efficiency and capacity if the standard processes and tools outlined in this document are incorporated into the operational activity of OEMs and LSPs. Whilst the detail within these processes will inevitably be developed, created and adapted for use by LSPs and OEMs as appropriate by delivery mode and region, the more widely this overall approach is applied, the more the whole sector will benefit. In particular, the detailed alignment and adherence to common data transmission standards and a broader and more general alignment to recognised good practice forecasting review and approval processes will enable further and deeper long-term continuous improvement. Improvement by all individual LSPs and OEMs will be better supported by a co-ordinated approach, as even the LSPs and OEMs with better forecasting processes will benefit from overall improvements in the approach taken by the sector as a whole.

ECG recommends the implementation of these standard processes and methodology for finished vehicle logistics forecasting and planning and, where appropriate, inclusion within both internal service level agreements within OEMs and the contractual arrangements between OEMs and LSPs.

Appendix I - ECG Caesar Template

An Example

Combined Weekly-Monthly Template

Update Frequency CW & M	*Every Thursday CW-1 & Every 15th M-1*

	Reference	Source	Destination	Customer or Supplier	Planning Source	Model	CW 01	CW 02	CW 03	CW 04	CW 05	Jan-YY	CW 06	CW 07	CW 08	CW 09	Feb-YY	…	Total-YY
Volume																			

Legend

Reference	Identification
Source	Place of origin
Destination	Region/dealer
Customer/Supplier	Name of OEM/LSP
Planning Source	Sales/Production
Model	Vehicle
CW	Calendar Week
CW	Current week
CW-1	Previous week
M	Current month
M-1	Previous month
YY	Year

Appendix II - Example of a monthly forecasting cycle

Activities relating to movements in Month M

Mid Month M-1
Forecasting plan sent to LSP for Month M by using Caesar template

LSP confirms the forecasting plan

MONTH M-1

M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
1	2	3	4	5	6	7	8	9	10	11	12	13	14	**15**	16	17	18	19	20	21	**22**	23	24	25	26	27	28

Step 1 - Initial Planning & Review of Input Data

Step 2 - Building the forecast plan

Step 3 – Approving the forecasting plan

DAY 1
Markets reconcile meeting wholesale targets and plan for Month M

DAY 15
Production agrees supply to market for Month M

DAY 22
Markets typically report on whether they expect to meet wholesale targets

MONTH M

M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
29	30	1	2	3	4	5	6	7	8	**9**	10	11	12	**13**	14	15	**16**	17	18	19	**20**	21	22	**23**	24	25	26

Step 4 – Continual Improvement

Thursdays
Weekly updates to the forecast plan
OEMs ← → LSPs
e.g. stock balances,
order pipeline status

Weekends
National holidays
Short weeks