PSA PEUGEOT CITROËN

Logistics costs and efficiency

Odette Sweden,
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PSA Peugeot Citroën assembly locations

Summary

- **PSA logistics principles : adjust to demand**
- **Improving processes in order to keep costs down : the lean logistics project**
- **Supply chain evolutions**
- **Further cost reductions : 3 possible actions can be taken**

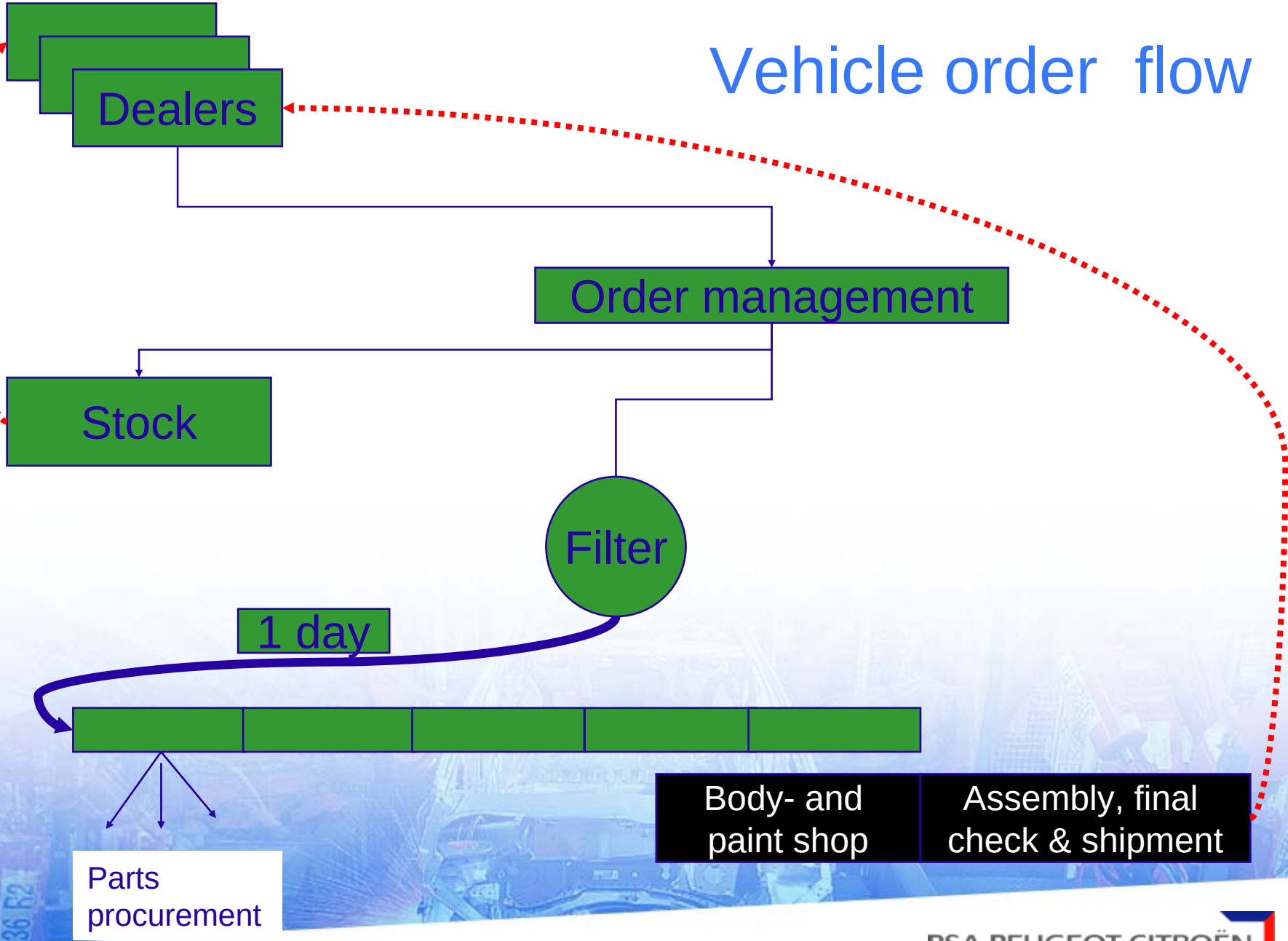
PSA logistics

- **Vehicles are ordered every day, and dispatched daily to assembly plants**

- **Suppliers ship daily (with hourly information) according to parts needed by vehicle order flow**
- **Planning information and flexibility margins are monthly**
- **Packages : plastic boxes or returnable containers**
- **Ex-works transport conditions**

- **Odette EDI and transport labels**

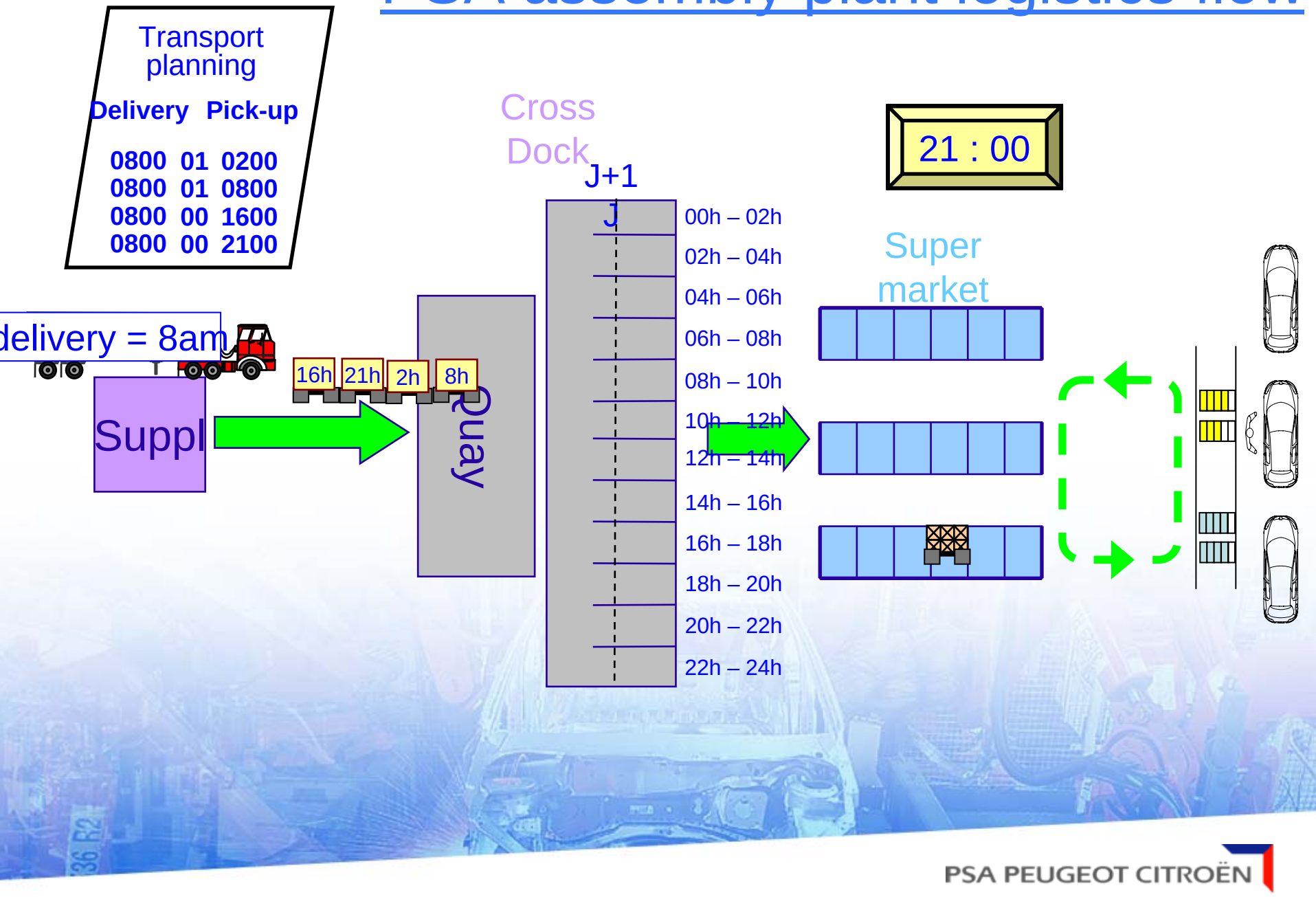
Vehicle order flow



Order management and flexibility

- **Two goals :**
  - Customer satisfaction by low delivery times and high diversity
  - Cost reduction (transport and inventory in the whole supply chain)
- **Logistics compromise :**
  - High percentage of « build to order »
  - Adjustable transports and production mix to keep acceptable lead-times
- **Operational result :**
  - Customer has to wait 5 to 7 weeks, more if there are shortages
  - Flexibility costs are high (inventories at suppliers, oversized transport and production capacities…)

PSA assembly plant logistics flow



In-house optimisation : reception and cross-dock

Transportation once a day

The cross-dock splits the pallets according to the transport label

Result : hourly deliveries to warehouse

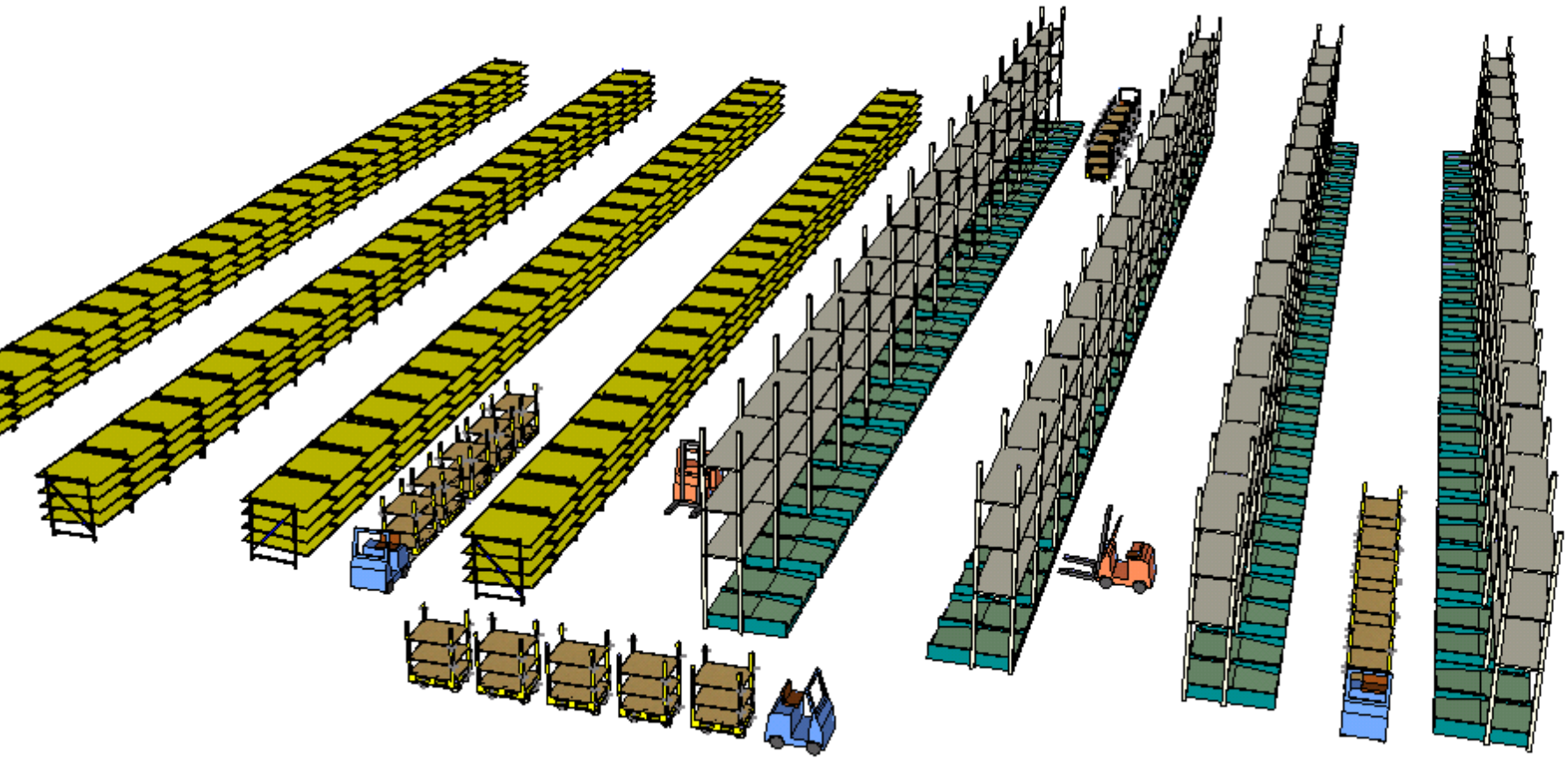
Supermarkets as warehouses

4 hours inventory

Efficient pick-up on dollies

Hourly tours to line side

Supermarket layout : boxes and containers



Line side distribution

Boxes, or specific parts presentation

The result

- **Small boxes up to 30 per car**
- **No increase of handling costs**
- **No increase of transportation costs**
- **More efficient line side distribution**
- **All assembly plants equipped by mid-2008**

→ But : is that enough?

New challenges

- **More diversity (sedan, hatchback, MPV, Station-wagon)**
- **Widening supplier base – opportunities in eastern Europe**
- **New vehicles are logistically richer – parts size increasing, ready modules policy**
- **Quality and environmental objectives call for “zero waste” packages**

CONSEQUENCES :

Logistics costs are soaring, even if reliability and lead-times are satisfactory

Increasing diversity : new vehicles 2006 and 2007

Citroën C6

Peugeot 207

Grand C4 Picasso

Peugeot Expert

Citroën Jumpy

207 RC

Peugeot 4007 Citroën C-Crosser

Peugeot Boxer

Citroën Jumper

207 CC

Citroën C4 Picasso 5

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Supplier base of Trnava plant for Peugeot 207 sedan

375 supplier locations are delivering to Trnava

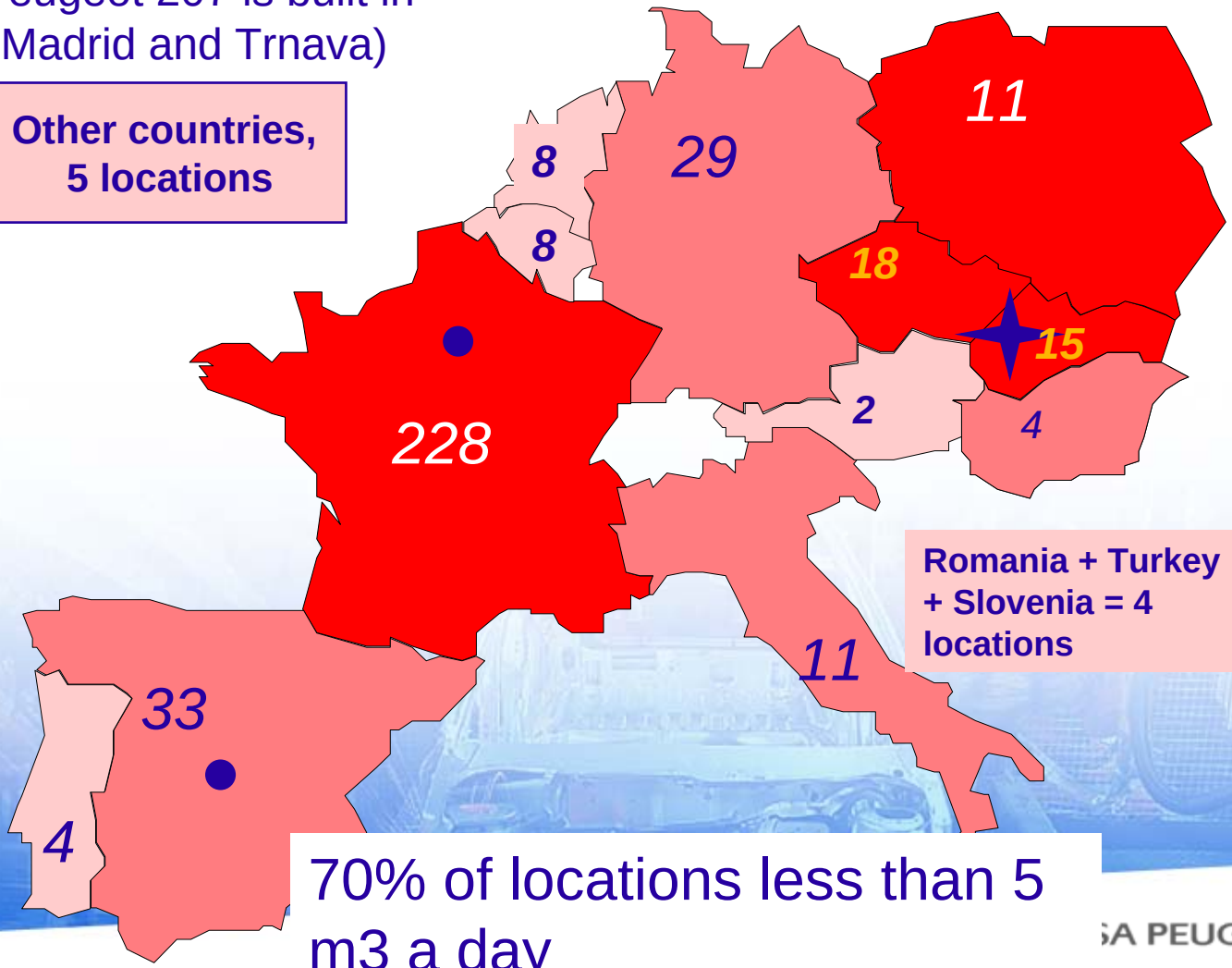
(The Peugeot 207 is built in Paris, Madrid and Trnava)

Other countries, 5 locations

Volume > 1000 m³ a day

Volume > 100 m3 a day

Les than 100 m3 a day



Romania + Turkey + Slovenia = 4 locations

70% of locations less than 5 m3 a day

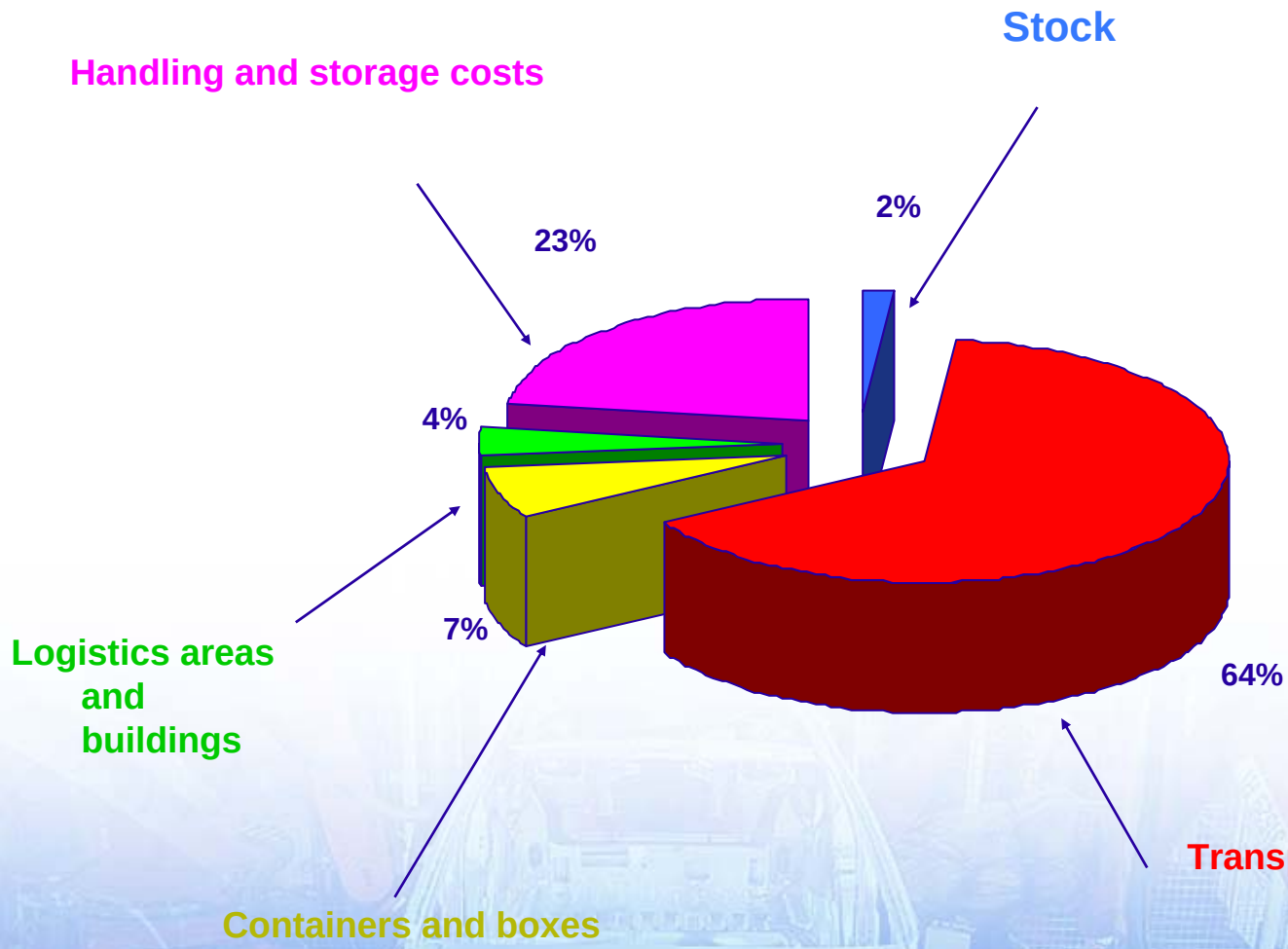
New transport needs

Parts size increases : Headlamps up 50 % on Peugeot 308

Fully returnable containers with returnable inserts : no more container pooling nor foldable solutions :

→ 70% of transportation volumes is for return of empties.

Logistics cost breakdown



How can transportation costs decrease ?

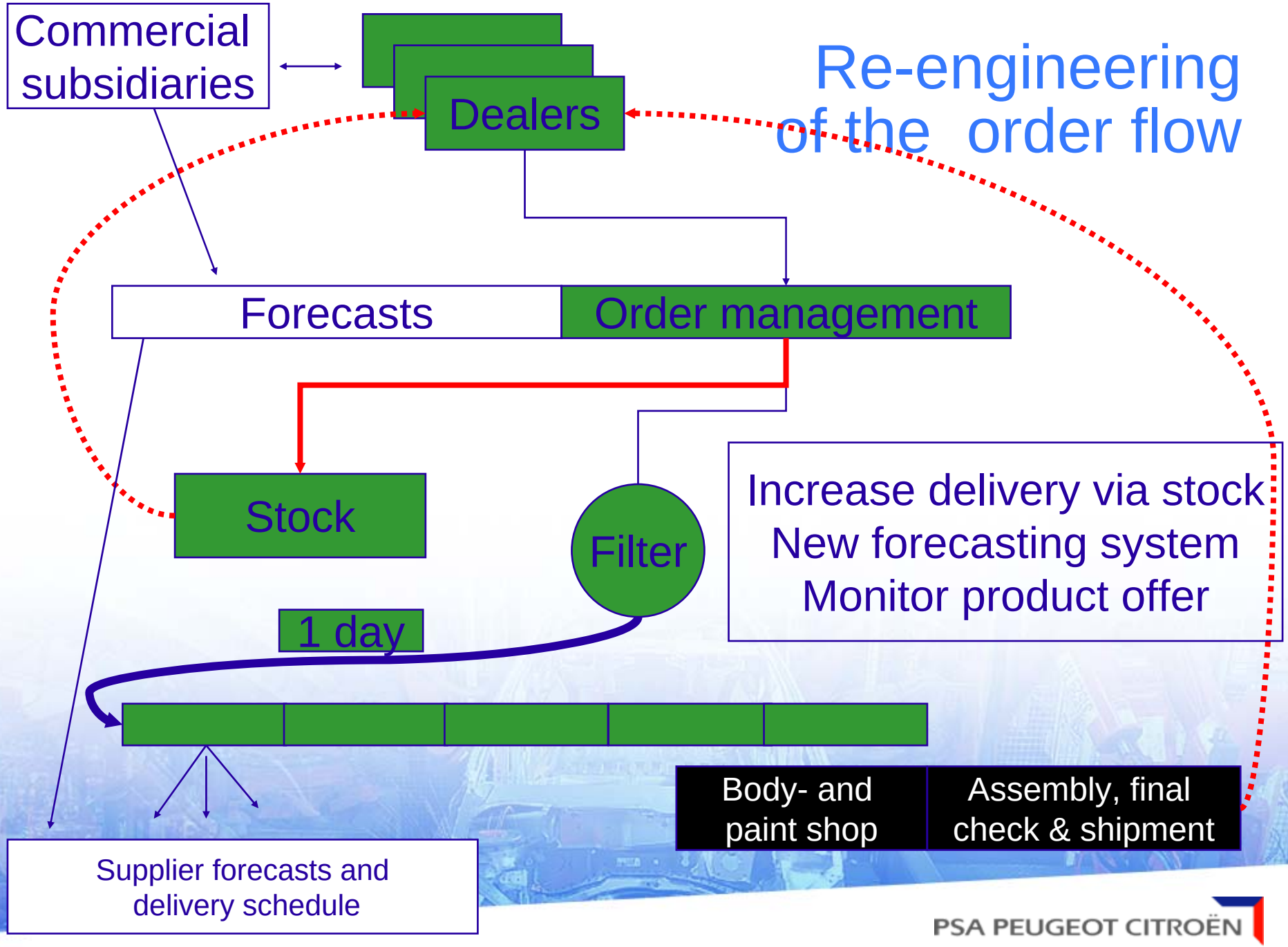
Transport costs = volume x distance x m².km price

- **Simply choose nearby suppliers ? (but is this in line with purchasing objectives ?)**
- **Lower the transport capacities to the minimum ? (what happens if parts are not delivered ?)**
- **Reduce parts size ? (only a few cases possible…)**

- **Three targets are possible**

- Reduce the change in demand (= lower flexibility)
- Together with suppliers, work on small flows
- Move to easier supplier communications

Re-engineering of the order flow



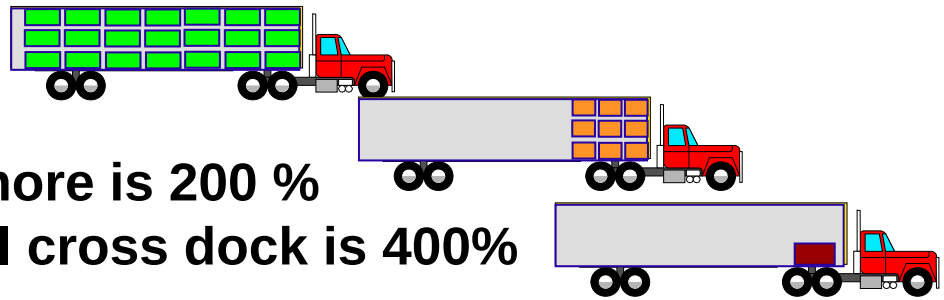
The expected results

- **Seamless forecasts and order system**
- **Up to 80% of production sold through stock :**
  - Planning fills easily the gaps of demand, and is able to streamline the order flow

- **Objective : assemble 95% of the cars the right hour as planned 5 days before**

- **Expected consequences :**
  - Daily flexibility less than 15% in transportation volumes for every supplier relation
  - Improvement of the monthly forecasts given to suppliers

Transport costs (average)



- **Full load return is 100 %**
- **Shared transport 10 m3 or more is 200 %**
- **Less than 10 m3 via regional cross dock is 400%**

The current supply chain has a large amount of small flows : less than 5% of volumes cost 30% and represent 70% of supplier locations

2 solutions are under study :

- **either agree with a re-location of parts within the same supplier,**
- **or, if impossible, organise weekly pick-ups and warehousing**

What about logistics quality ?

- **PSA has met problems with its logistics procedures**
  - Supplier communication is difficult to implement
  - Quantities and timetables not always satisfactory

  → The rate of unsatisfactory deliveries is still over 50%

- **Due to problems encountered by suppliers, a significant part of the logistics flows does not meet the demand :**
  - Wrong information on transport labels or in messages
  - Inaccurate shipments
  - Pallets that can't be stacked
  - Costly emergency transports

  … Misunderstandings and faults on both sides

Challenges for Odette ?

- **PSA logistics uses sophisticated procedures**
- **Other OEMs use a great variety of solutions**

Odette could certainly help PSA (and other volunteers) to offer simpler standards, closer to the physical flow, needing less sophisticated IT to improve logistics quality.

Our target : bring down logistics failures to less than 5%, as monitored by the LKPI follow-up.

Conclusion

- **PSA has implemented an optimised lean supply chain, but costs are increasing and quality is difficult to improve**

→ Three work items will better the situation

- **Master the unnecessary changes in demand by re-engineering the production flow and forecasts**
- **Study small logistics flows to cut transportation costs**
- **Work with Odette on next version of supplier communications using simpler business cases**

Thank you for your attention !

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