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Technical perfection, automotive passion.

Lean en France IX

ENST Presentation

2008

June, 27th

Eric Moreau

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Technical perfection, automotive passion.

Logistics Optimization and Leveled supplies

Eric Moreau

2008

June, 27th

Our customers need to level their production too, based on their constraints

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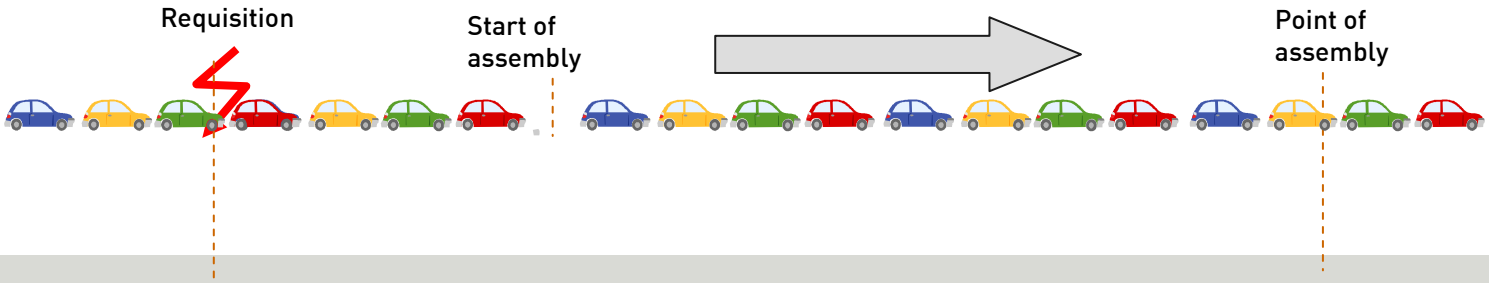

- Their activity is globaly stable
- They need to level their work content
- But the mix is unleveled or we have mix variation
- And each shift may be working different with some batches and packaging effects

*variations poumon séq
ou tôlerie

** éventuellement accentué par des variations de work content

Accumulation and disruption

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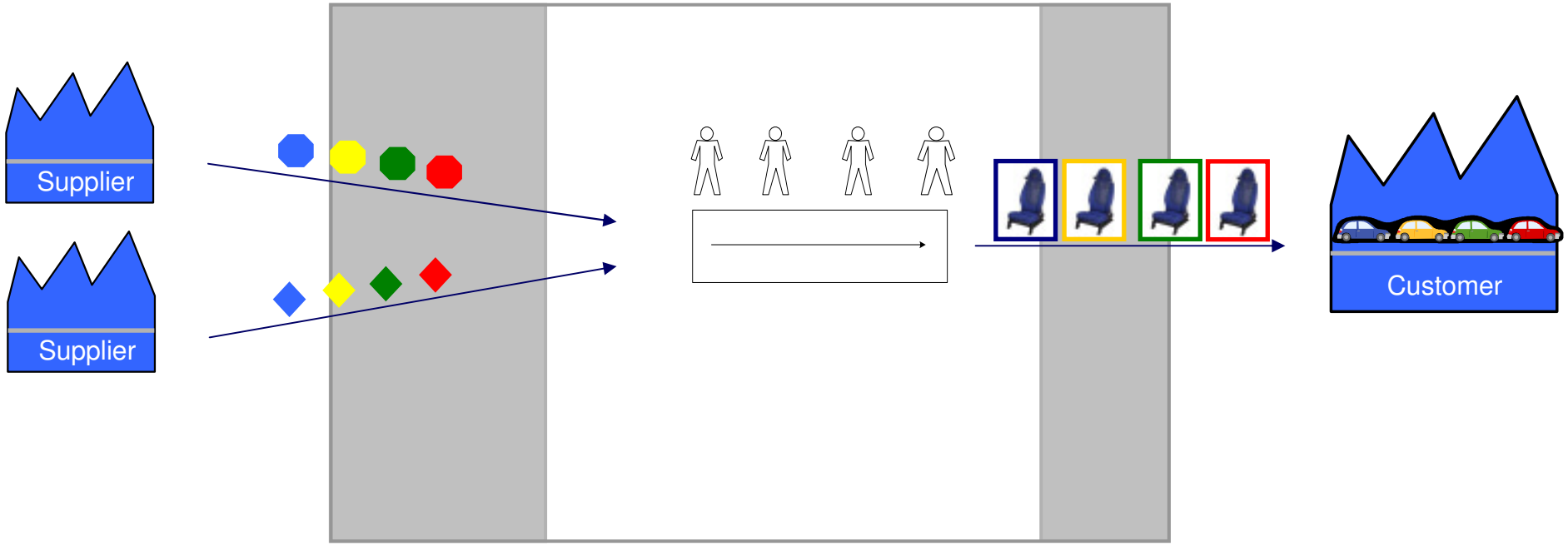

Ideally we want to work at the same speed with the same mix than our customer

Accumulation and disruption

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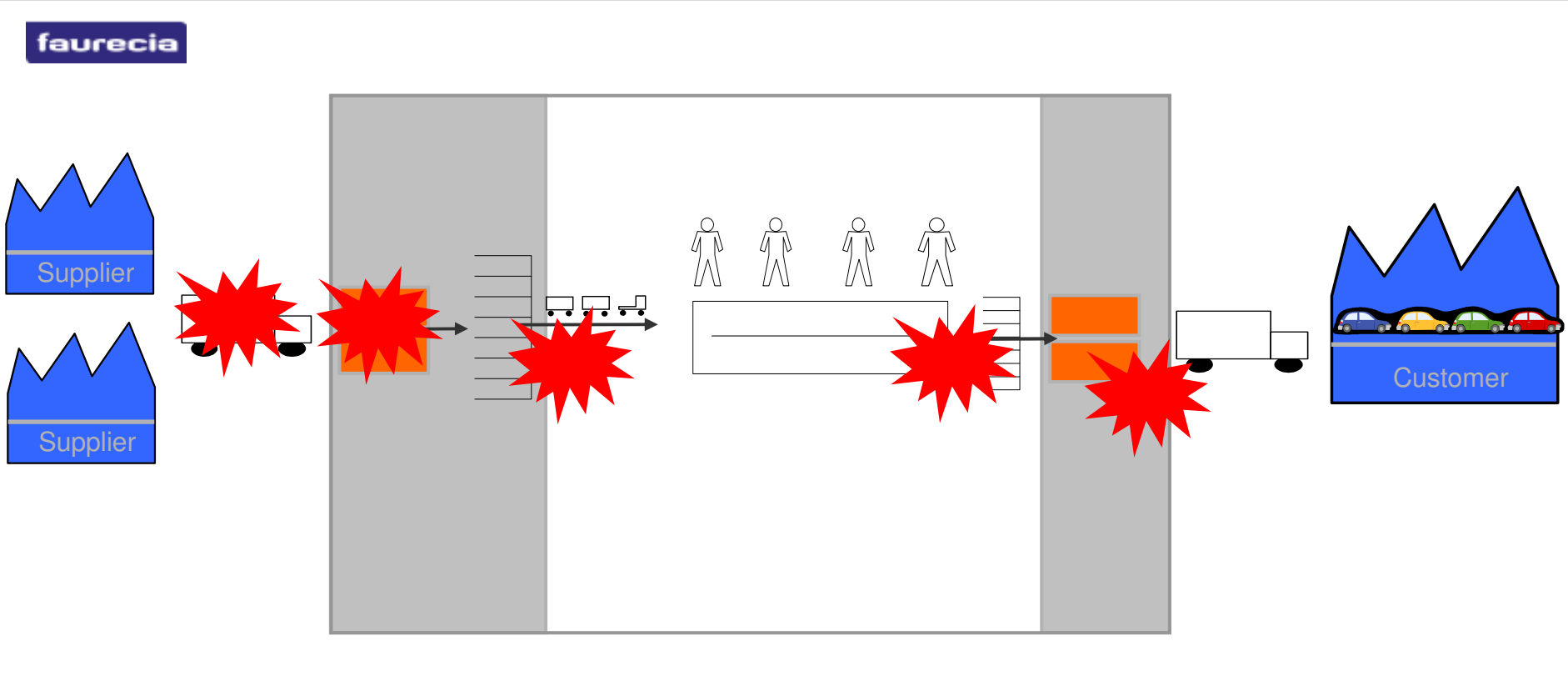

Each stock is related to a waste or to a risk, with a cause that enables us to work like our customers

Causes of accumulation that create unleveled conditions

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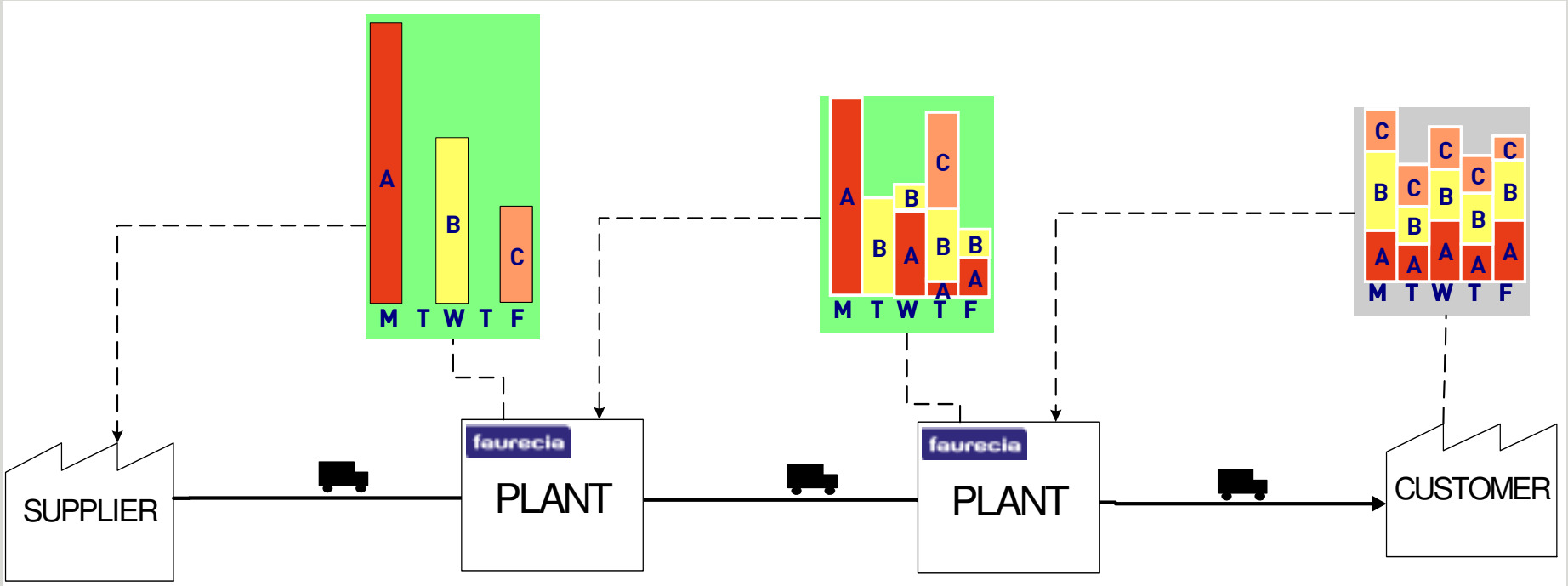
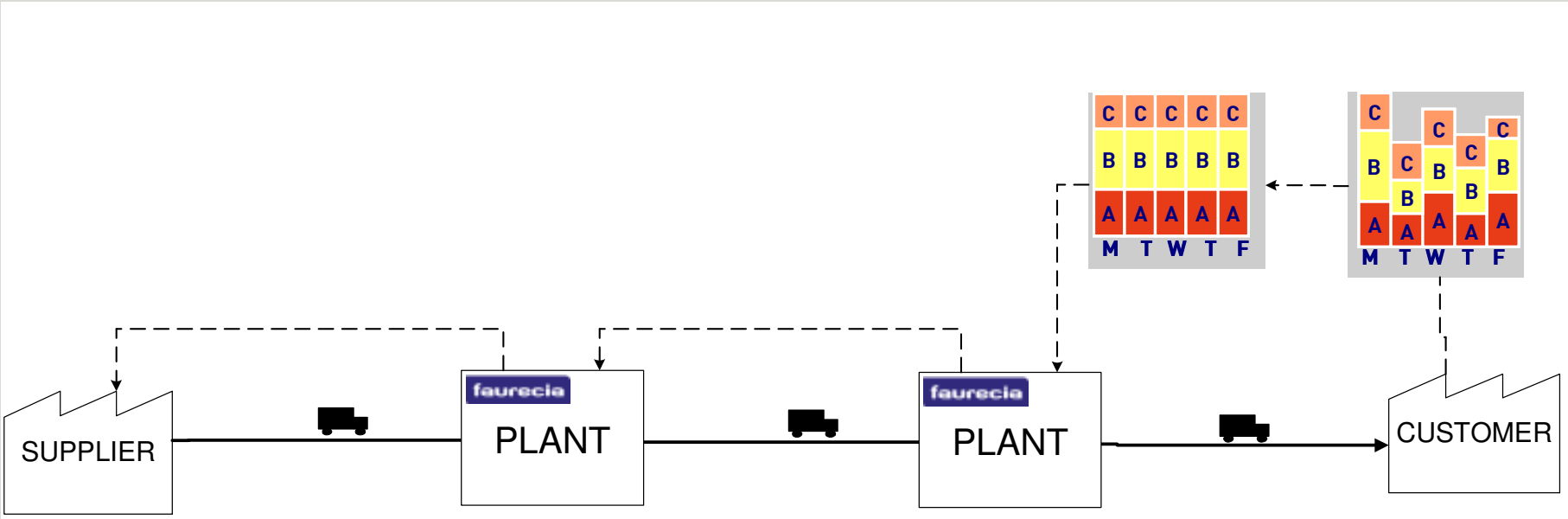
- Truck consolidation
- Production batches
- Tool Changes
- Production Disruption
- Packaging sizes

A classical chain of supply…



The further you are from your customer, the bigger is the demand amplification

A targeted chain of supply is a leveled chain



Our main objective is to protect our plants and to decide of a volume to produce.
We fix the takt time.

The Leveling Process

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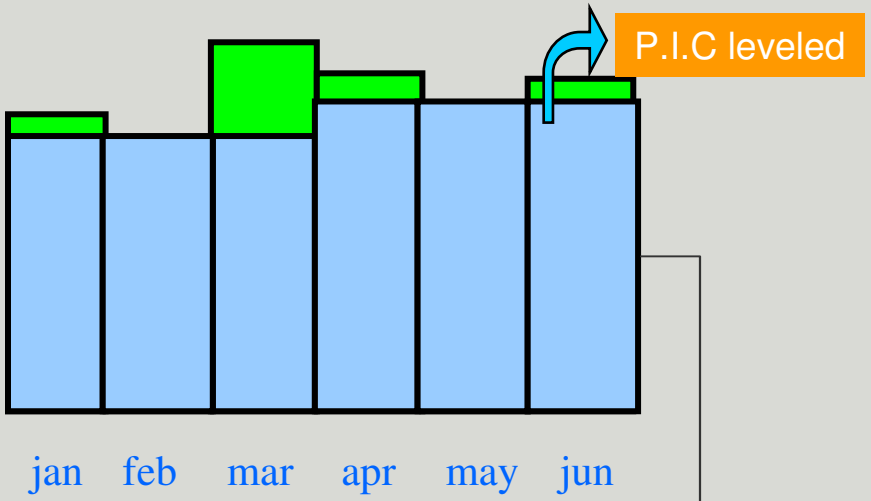
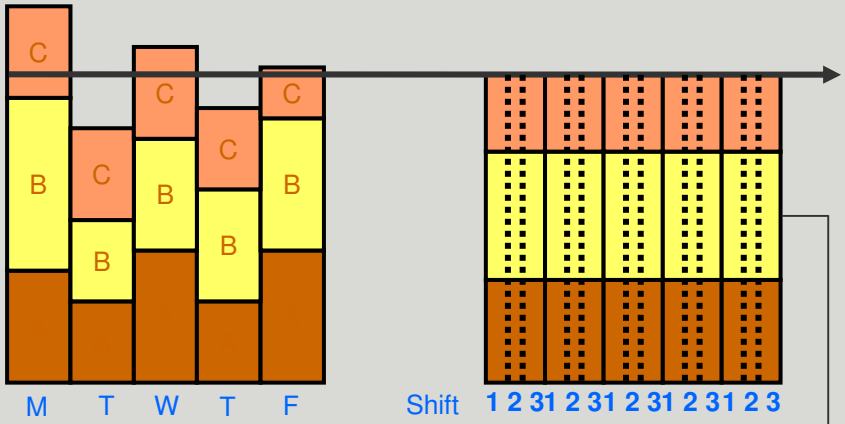
EVERY MONTH: PIC



+ communication to Suppliers
+ Transport Planning for supplies

EVERY WEEK: PDP



EVERY SHIFT: LEVELING BOARD

Programme Directeur de Production (P.D.P.)

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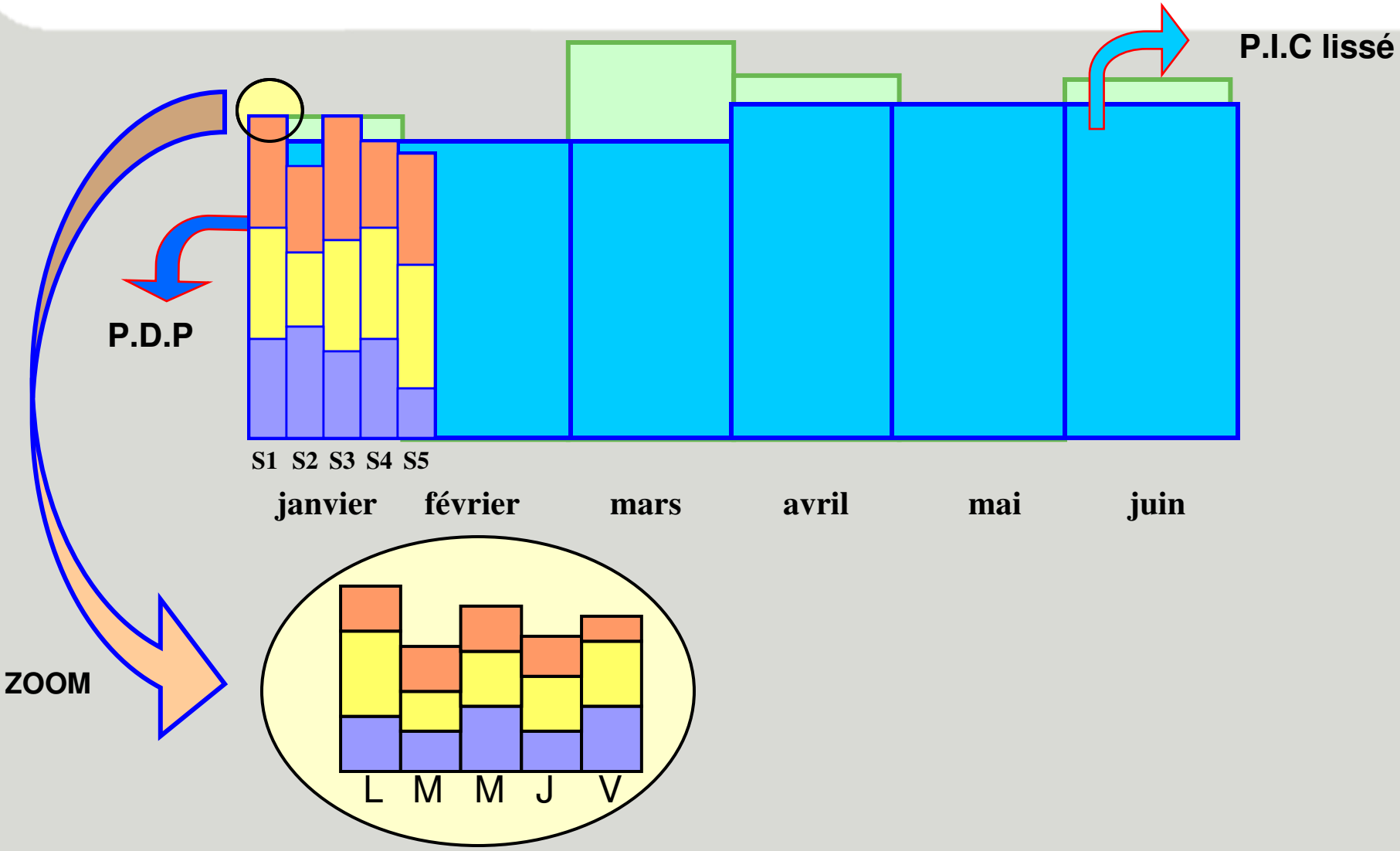

Programme Directeur de Production (P.D.P)

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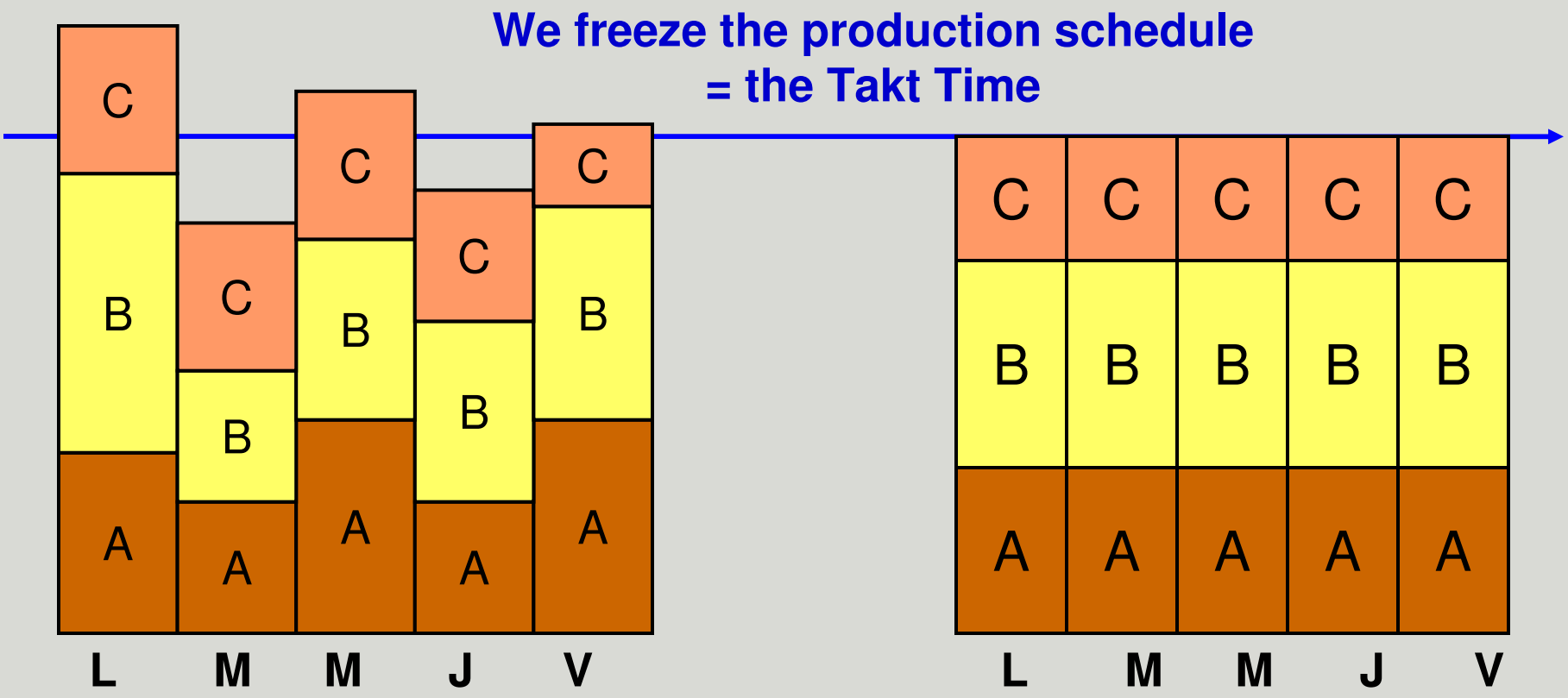

Programme Directeur de Production (P.D.P)

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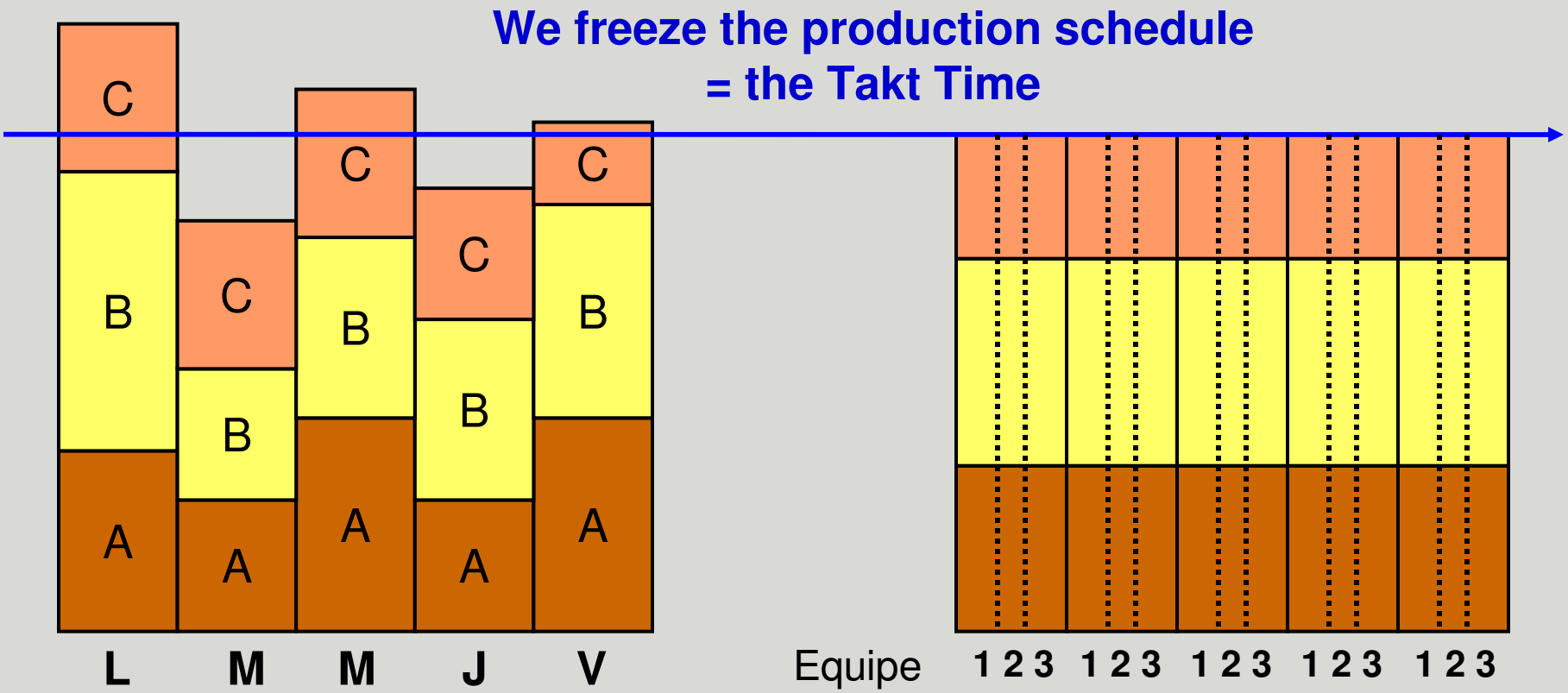

Leveling Board

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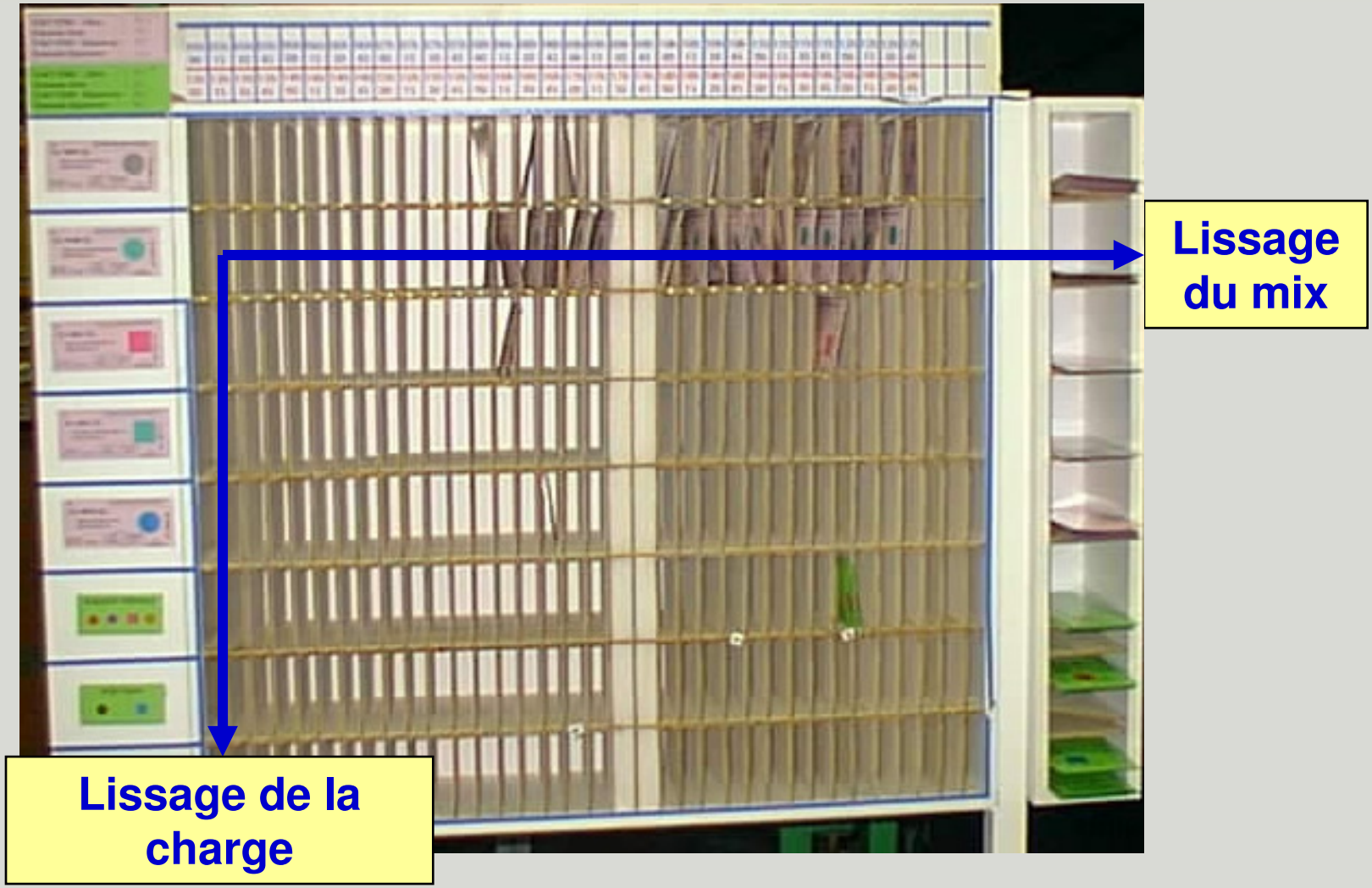
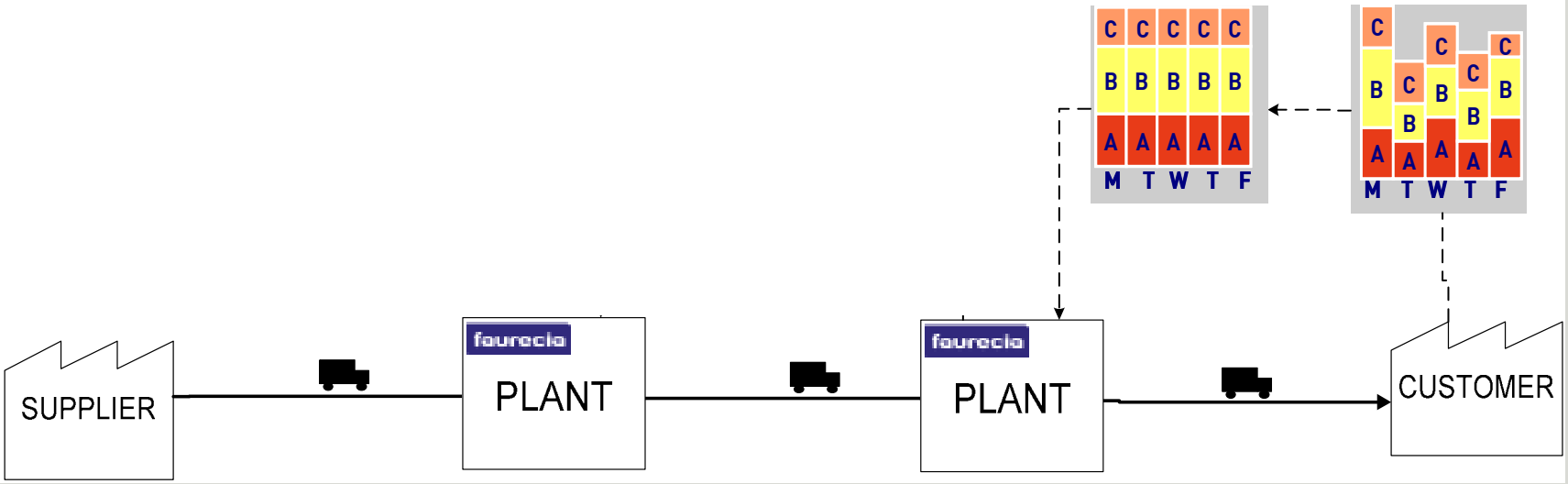


Unfortunately our lead times generate instability



A leveled signal ends up with various fluctuations

Causes of “no leveling”

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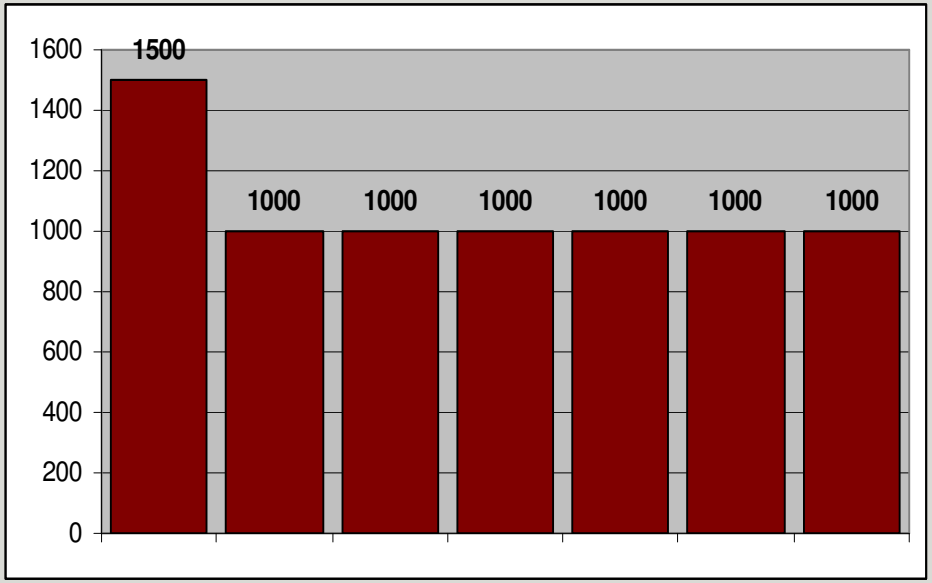
MRP

Most of MRP systems create distortion because they all try to catch inventory gaps using formula :
Net Need = Customer Demand – (Targeted Inventory – Real Inventory)



Causes of “no leveling”

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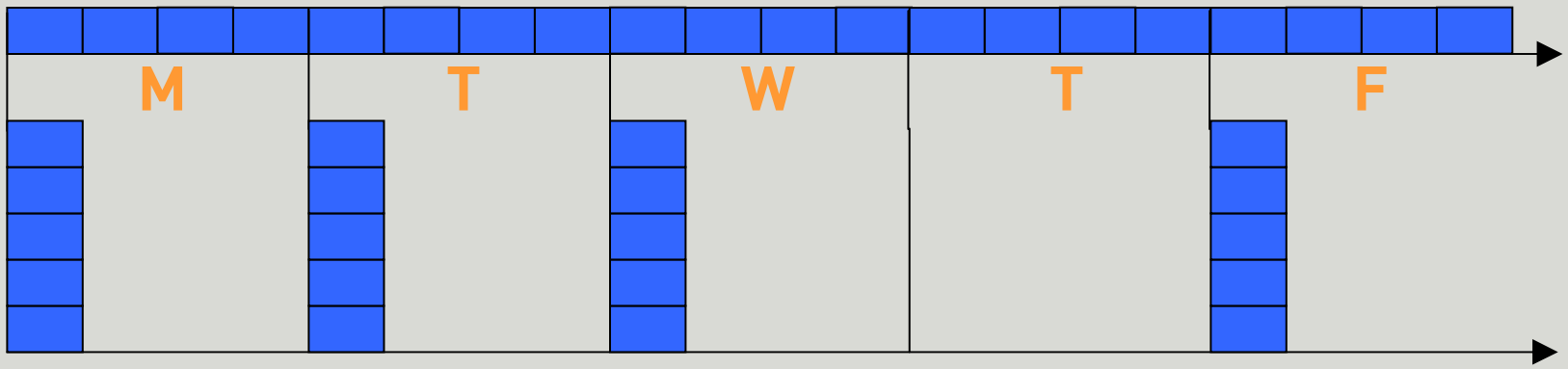
- MRP
- Packaging size



Causes of “no leveling”

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- MRP
- Packaging size
- Production disruption
- Lead Time

Typical consumption of a component

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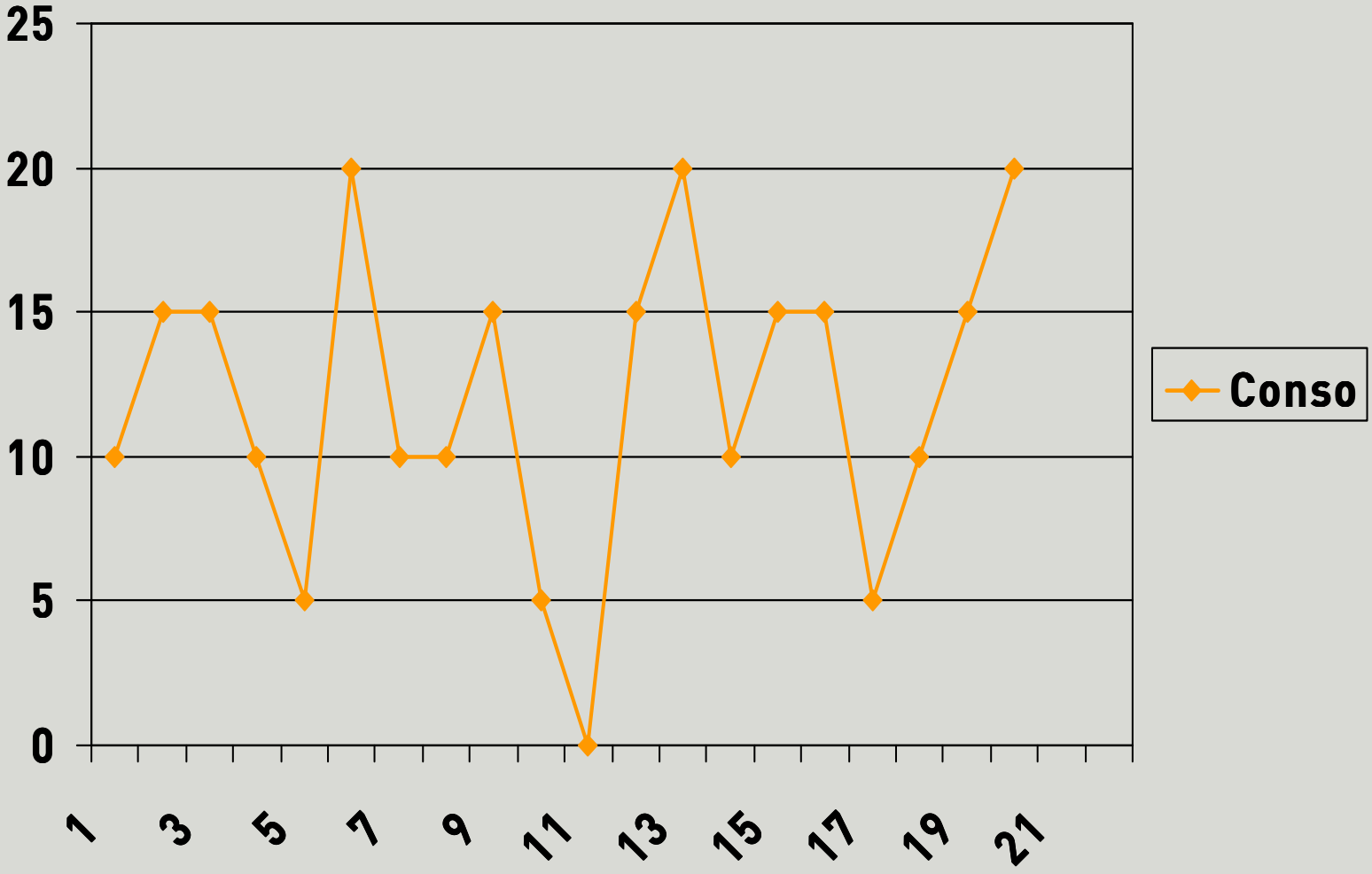

… Kanban is THE tool to forward fluctuation

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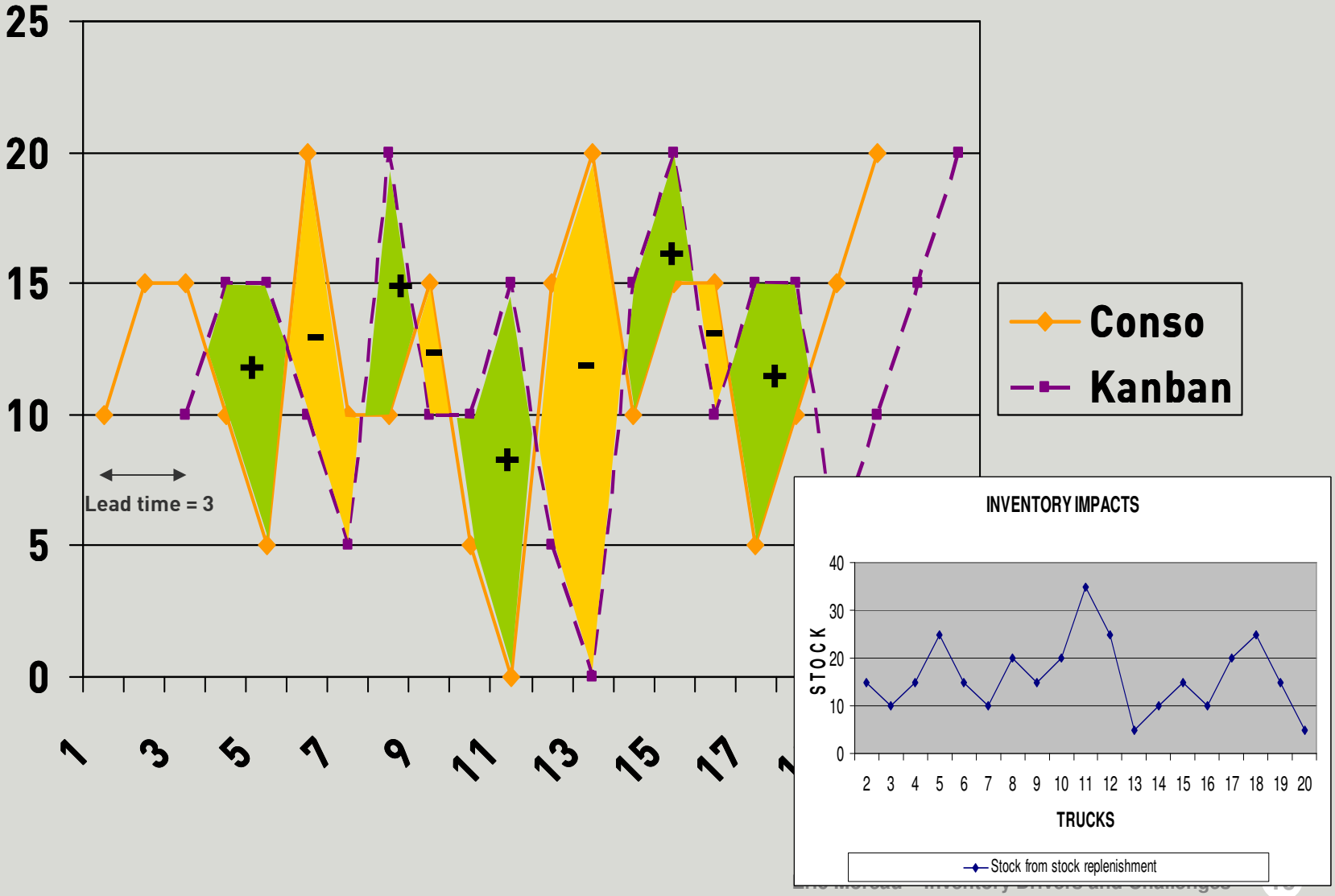

And leveled orders create pace and lower stocks.

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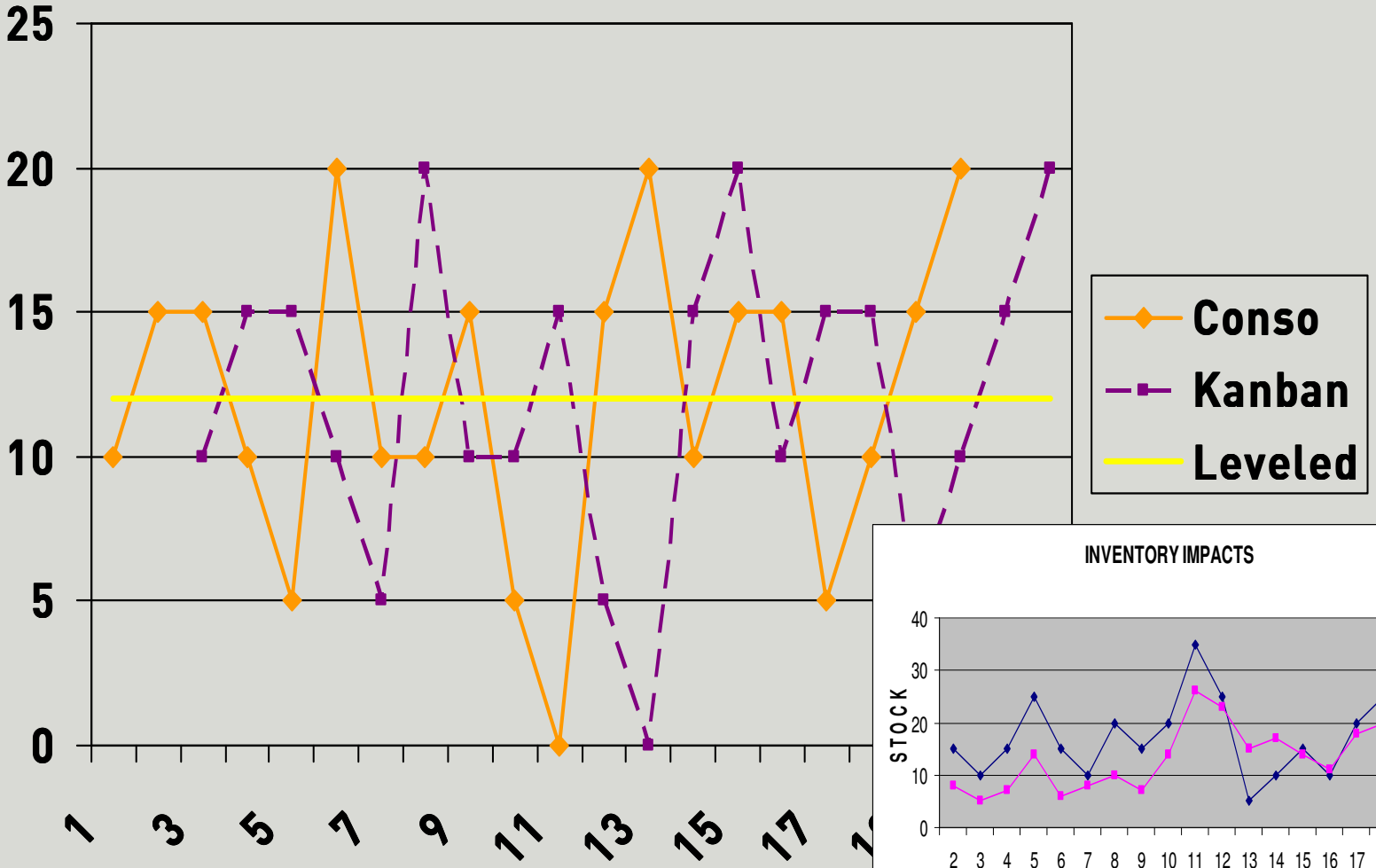
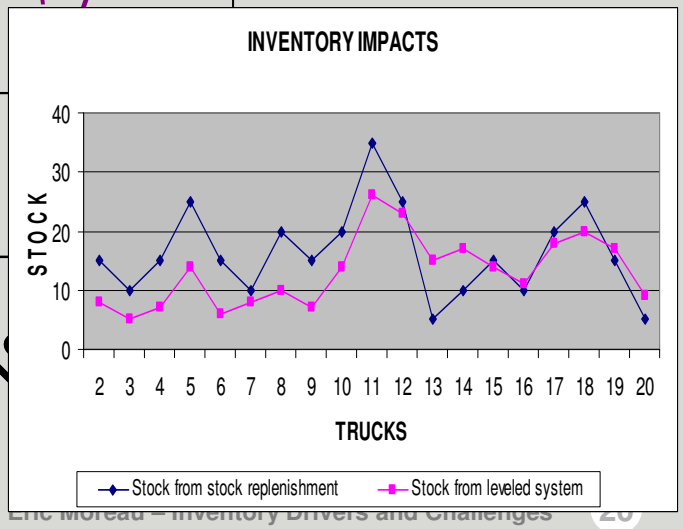
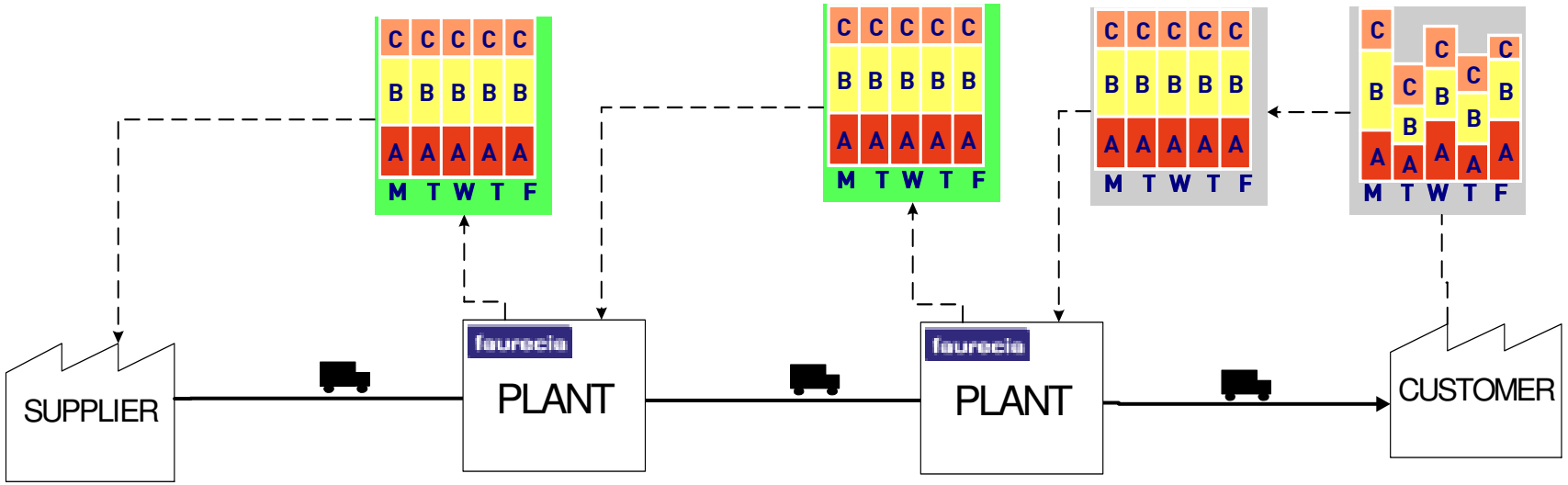




Our target is to level both production and supplies



Impacts of a leveled chain…

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- Production efficiency (produce at takt time),
- Supply Chain efficiency:
  - Supplier Leveling is THE minimum requirement for high frequent deliveries in a smooth mix.
  - Supplier Leveling is necessary to implement Milk Runs, Cross Docks,
  - Supplier Leveling is necessary to standardize logistics processes.

LISA Project

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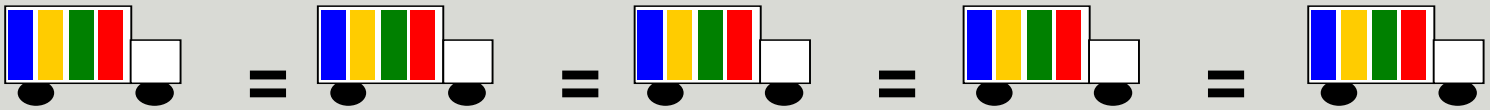
- ✓ LISA = “Lean Information System Application”
  - ✓ New Lean expertise tool with LISA
  - ✓ Used today with more than 900 suppliers
- ✓ Based on algorithms to level both quantities and volumes received
  - ✓ Use weekly net MRP
  - ✓ Level and send the demand by truck
- ✓ Each truck is identical during the week
  - ✓ Elimination of waste, control of lead time
  - ✓ New vision of transportation



“Lisa” usage in 2007

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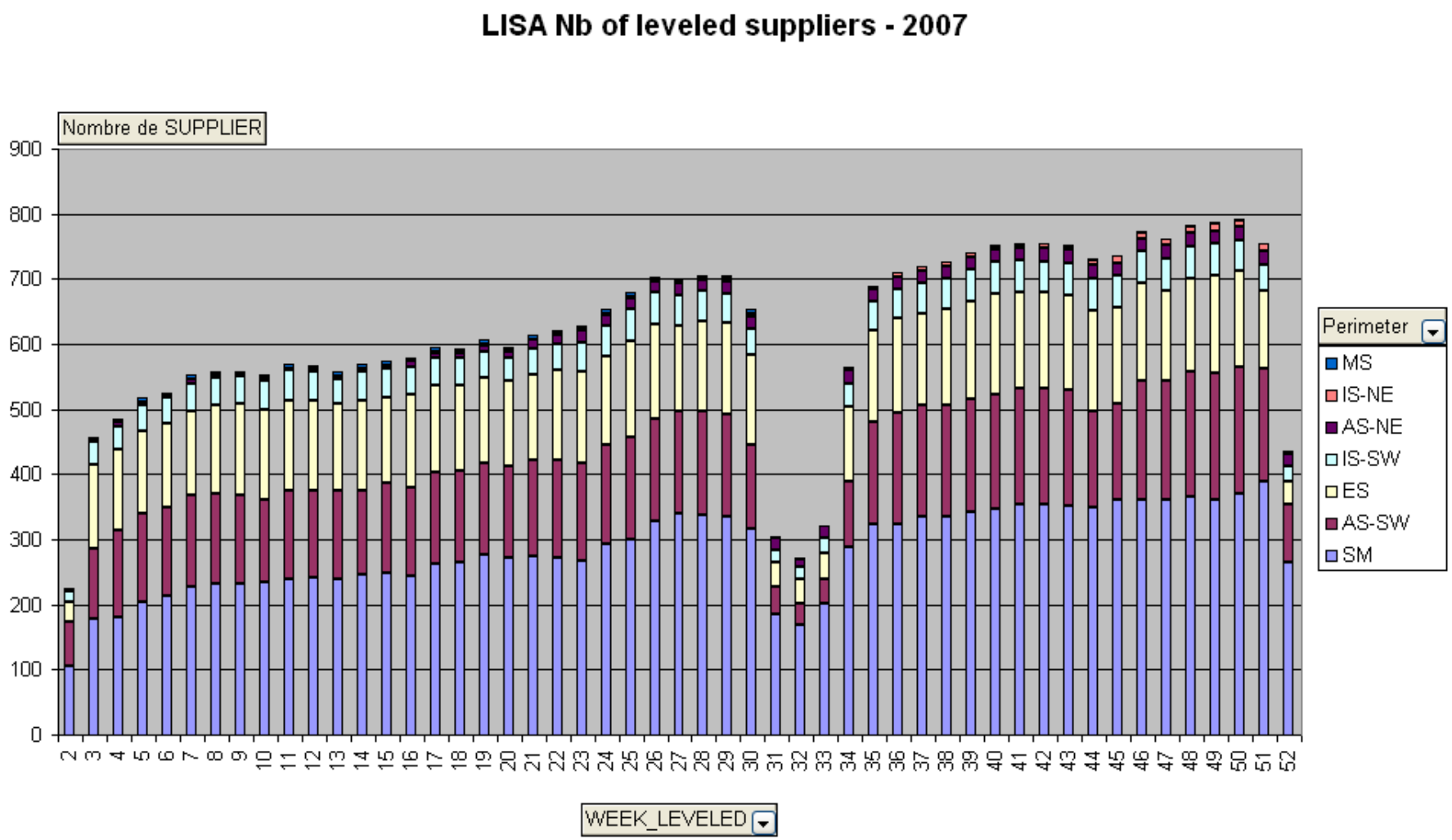
Leveling of our supplier needs partly explains this inventory decrease.



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SUPPLIER MANIFEST

Site de St Nicolas

200712**0301**-0

M002C968

Supplier Name	POLIMOON VENDEE PLASTIQUE COMPONENTS	Supplier Code	00061297

Supplier Contact	V.BROSSET	Supplier Fax	02 51 64 82 10	Faurecia contact	AMIOT	Faurecia Fax	

SUPPLIER					FAURECIA			Route	MainRoute	Invoice n°
Dock n°	Arrival Date	Arrival Time	Pick-up Date	Pick-up Hour	Dock n°	Receiving Date	Arrival Time			
1	30/11/2007	10:00	30/11/2007	10:30	1	03/12/2007	07:00	8	STN1-01-004	

			Designation	Order lot	Pos/PU	Nb of PU	Total quantity	SUPPLIER		LOGISTICS PARTNER		FAURECIA	
								X	IF MODIFIED QUANTITY (UC)	X	IF MODIFIED QUANTITY (UC)	X	IF MODIFIED QUANTITY (UC)
1	517334400	0	CAME ESCAMOTAGE PIED SAR LAT G RS4	1500	150	10	1500						
2	926490400	0	NAPPE ASSISE D 3,4	600	600	5	3000						
3	926712700	0	DOUILLE ACCOUDOIR	500	500	1	500						
4	928400200	0	NAPPE SURMOULEE DOSSIER TS/A6	540	540	5	2700						
5	928430200	0	BIELLE EQUIPEE NON CDE X74	540	540	1	540						
6	942737200	0	EMBOUT DE GLISSIERE FEMELLE	32000	32	1	32000						
						23							

SUPPLIER	Driver	REAL DEPARTURE TIME	DELIVERY PERFORMANCE MPM
X_____	X_____	X_____	

Manifest Date and Time	26/11/2007 16:29	1 / 1	Manifest version 2.6

Pick up time

Delivery Information (routes, time, dock)

Invoice Number

Leveled Demand in MIX and VOLUME

Delivery Performance (MPM)

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Develop PC&L Principles

How to level suppliers

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IDEAL:

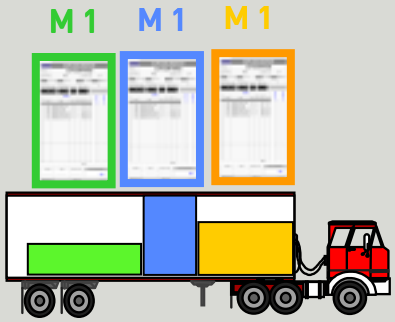
- All the articles are present in each delivery to the plant

- There is the same quantity of each article in every delivery to the plant

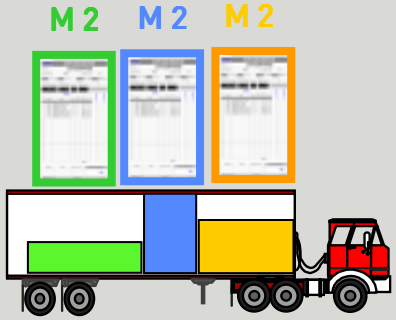
Truck 1

...AND FOR N SUPPLIERS:

- There is one place assigned to each supplier in every delivery



Delivery 1



Delivery 2

Develop PC&L Principles

How to level suppliers

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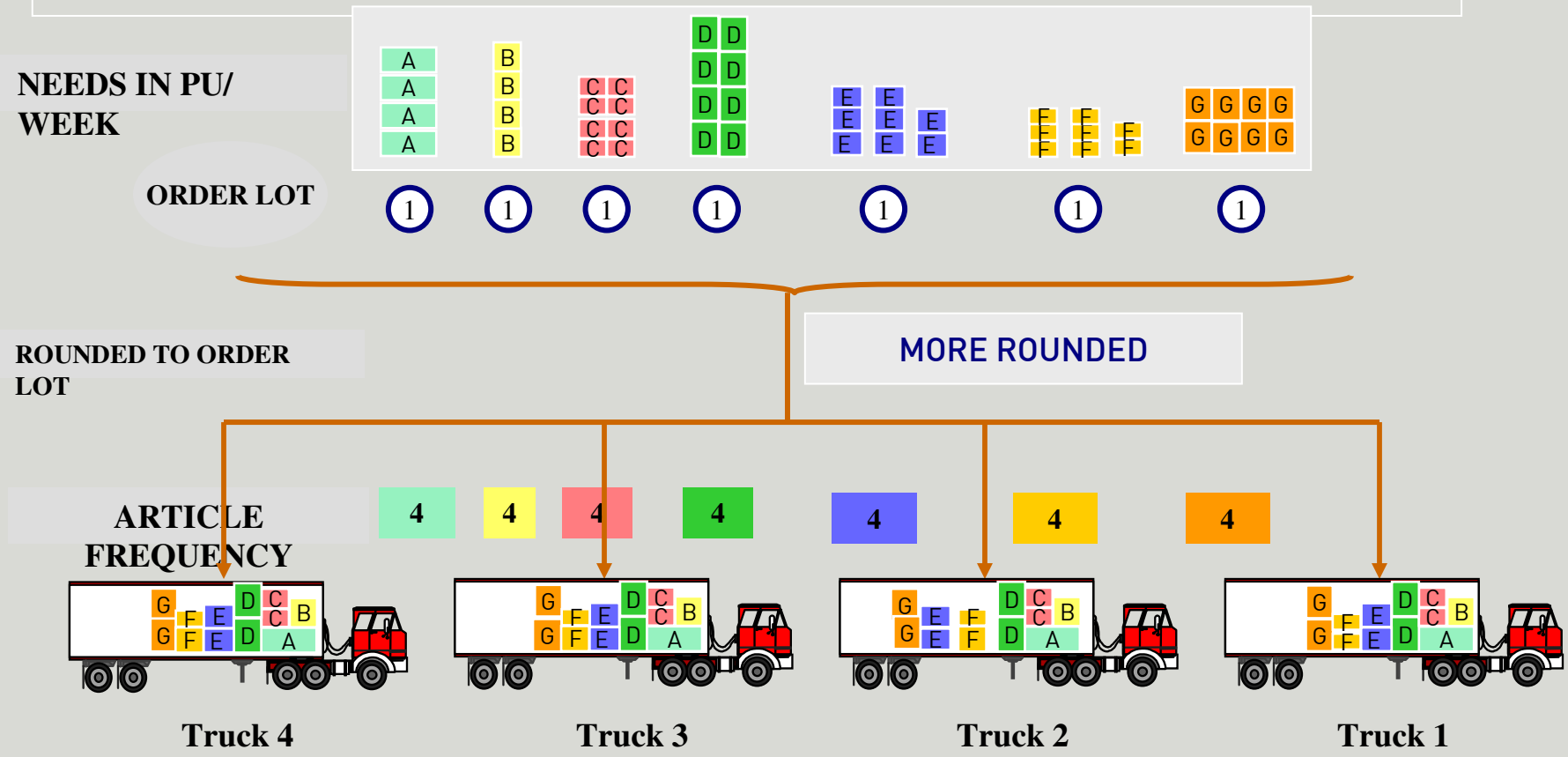
REDUCING SUPPLY ORDER LOT TO 1 PU



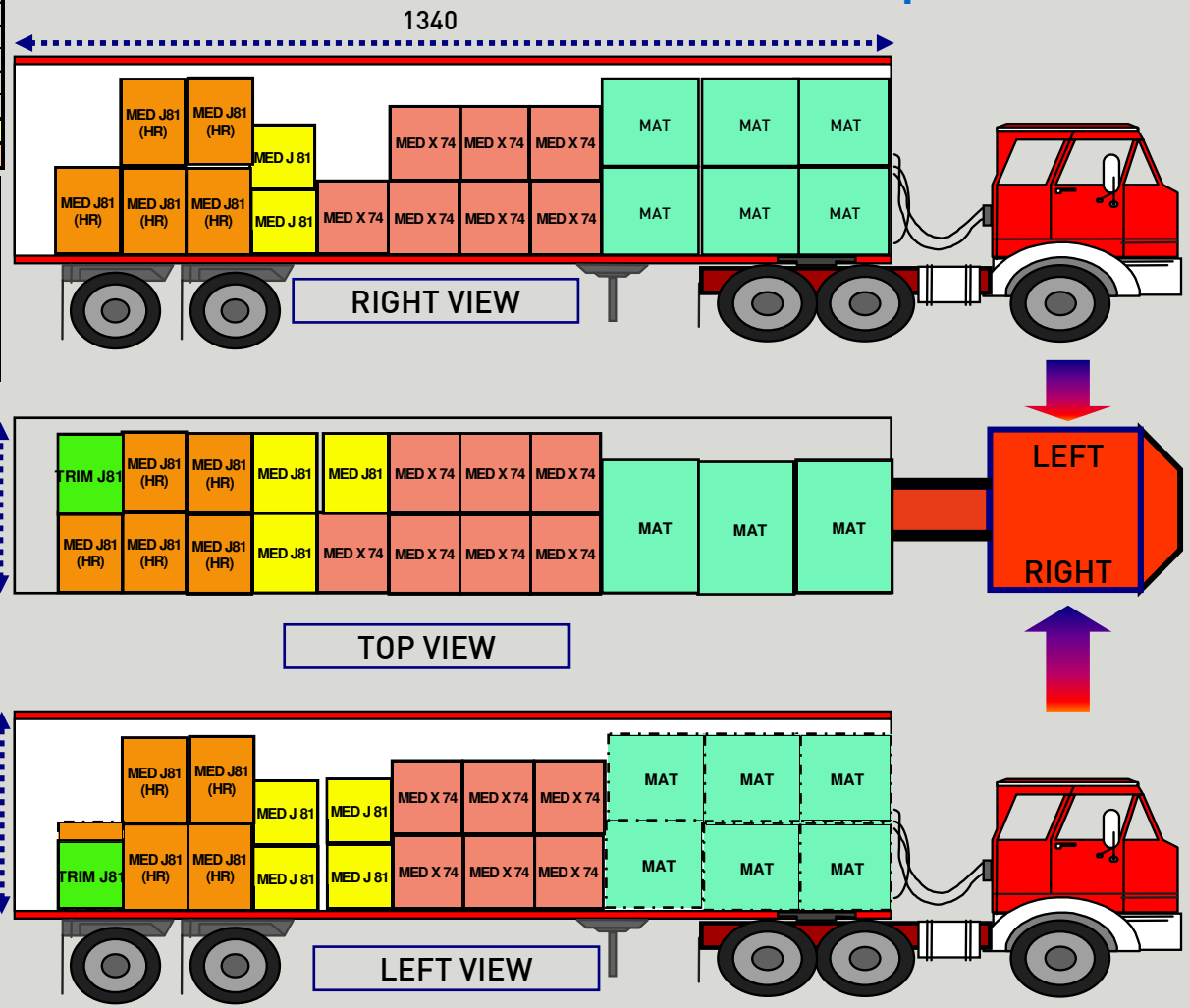
How to level ?

TP- Level traffic load by supplier
And sequence leveling families in typical truck

HU Type	PARTS FAMILY	VEHICLE FAMILY	
HU1	MATS	X 73 / J 81 / X 74	
HU2	MEDAILLONS	X 74	6
HU3	MEDAILLONS	J 81	13
HU4	MEDAILLONS	J 81 (HR)	6
HU5	TRIM	J 81	9
HU6	SOMPRO	X 74	1
VOLUME LOADING RATE			69%
LINEAR LOADING RATE			93%

		L (cm)	W (cm)	H (cm)
	TRUCK	252	1340	268
PARTS FAMILY	MATS	200	150	130
	MEDAILLONS X 74	120	100	110
	MEDAILLONS J 81	120	100	95
	MEDAILLONS J 81 (HR)	120	100	130
	TRIM J 81	120	100	100
	SOMPRO X 74	120	100	135

(example of truck 5)



Priority rules in the example

1-Group HUs by leveling family.

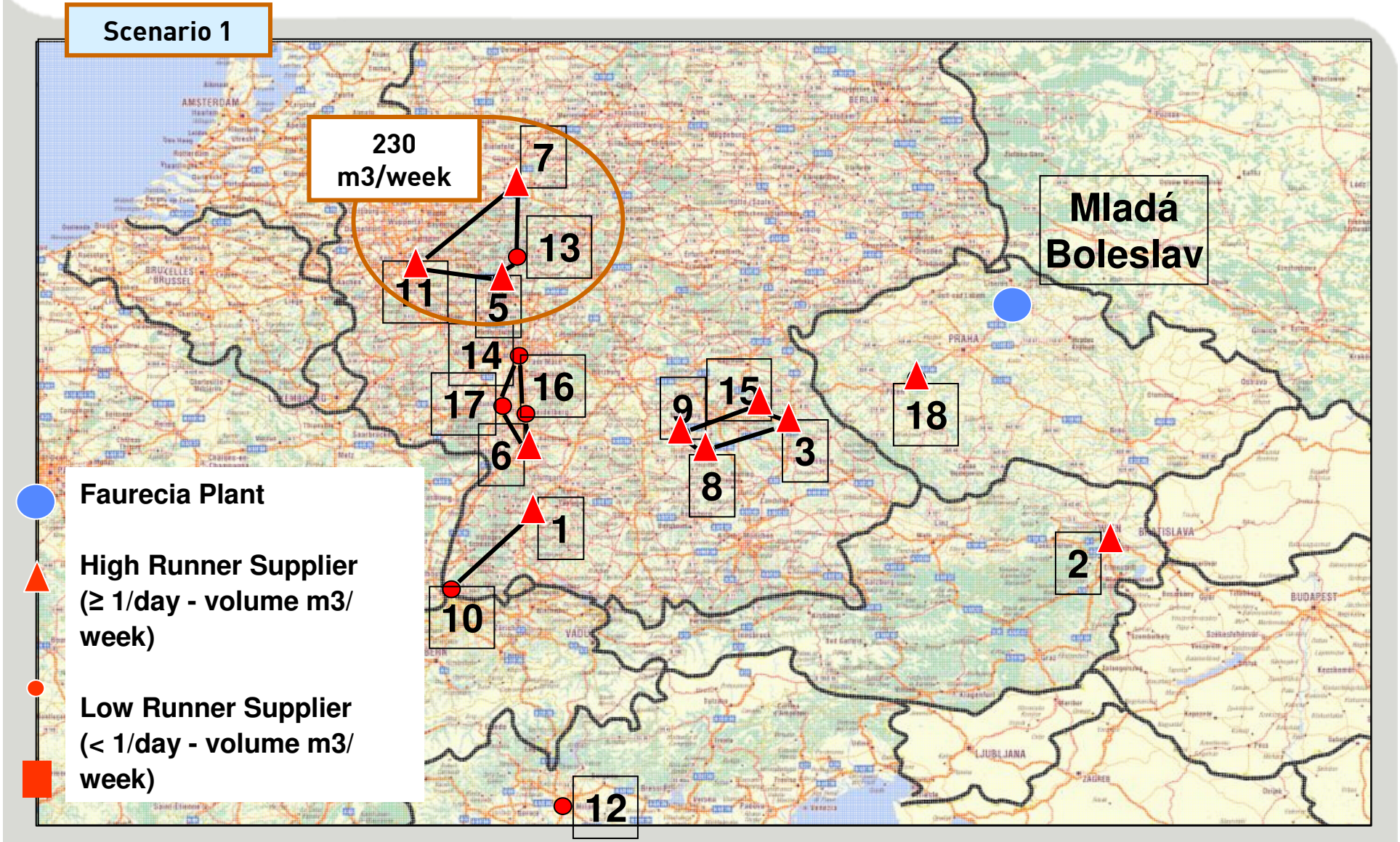
2- Heaviest leveling families in front

3- Load right side before left

4-Stack before changing side

Define transportation plan

Suppliers Mapping & Transportation Scheme



Define transportation plan

TRANSPORTATION SCHEME

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Challenge correctly your supply chain

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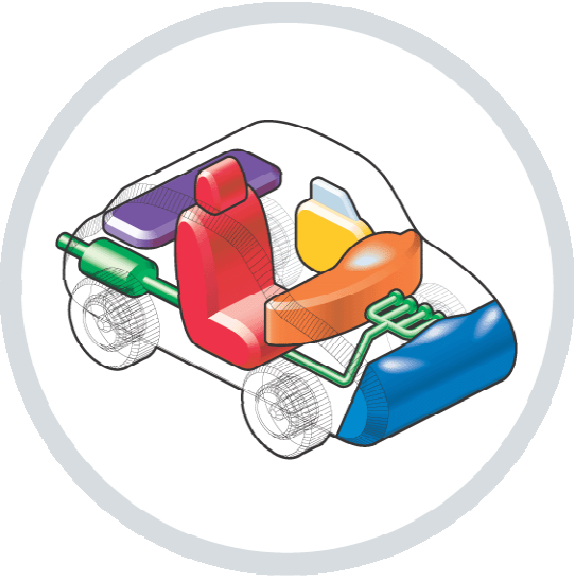
Leveled supplies makes your activity stable,

allows better anticipations and transportation optimization

makes inefficiency visible and leads to Excellence

NEW CHALLENGES, NEW DRIVERS and NEW ATTITUDE



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