



PROD'AGILE
ACCELERATING CUSTOMER SERVICE

Fapics – DD World Michelin Lyon- 5 July 2017



- Introduction to Michelin Supply Chain
- DDMRP pilots
- Learnings
- Next steps

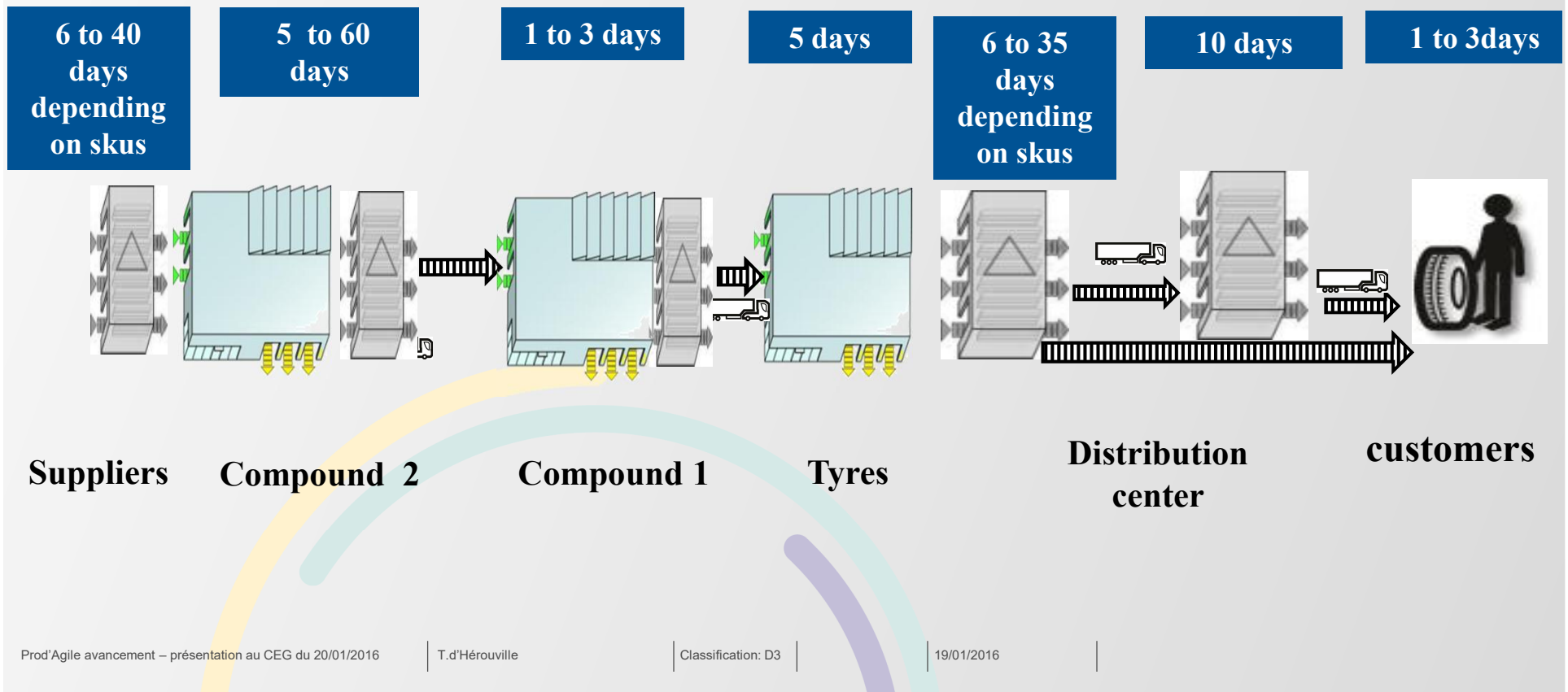
Make to Stock Supply Chain

160 SPECIALIZED INDUSTRIAL ACTIVITIES (CAPITAL INTENSIVE , VERY DIFFERENT IN TERMS OF REACTIVITY & FLEXIBILITY)

150 + SALES COUNTRIES

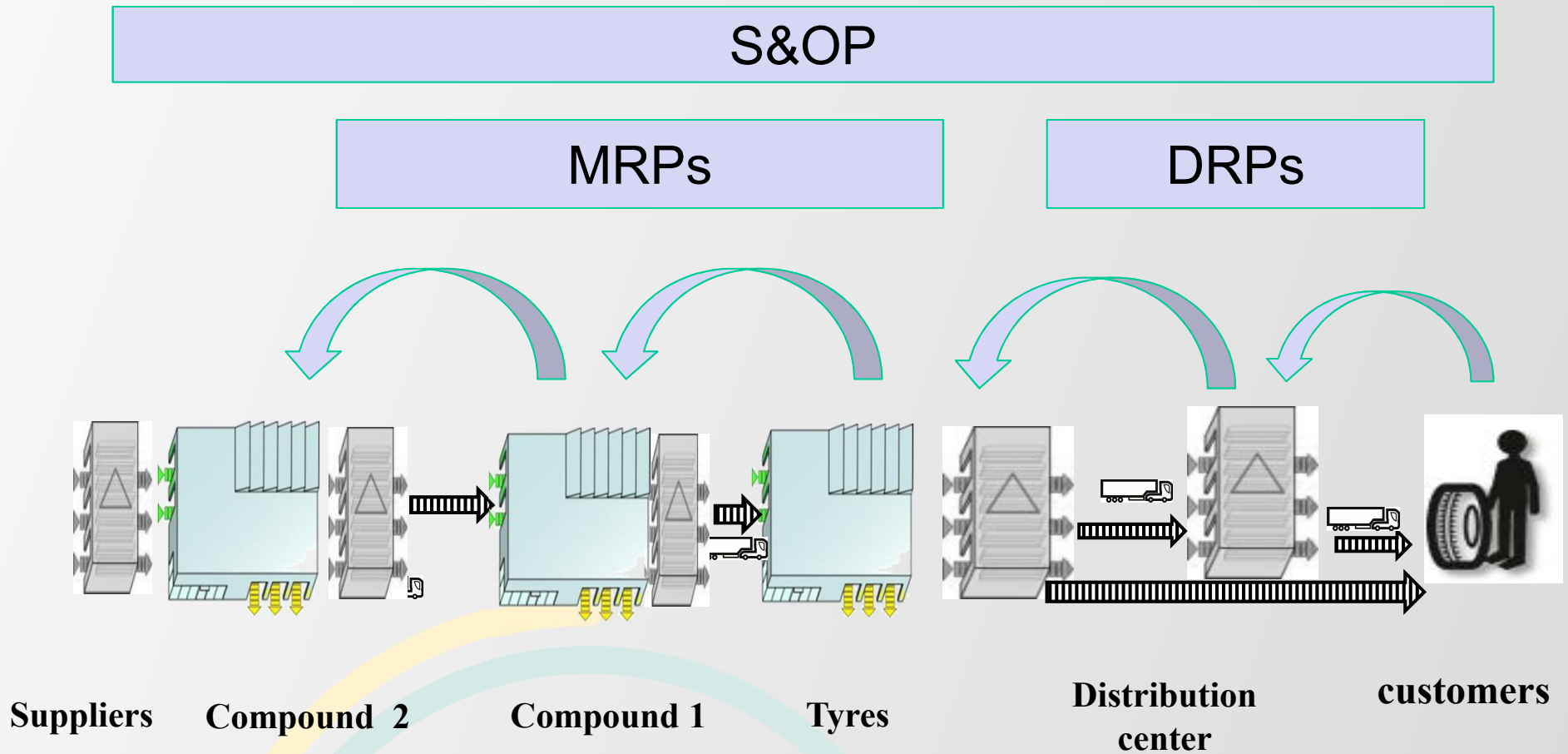
COMPLEX INTERNATIONAL FLOWS

DIVERSE DISTRIBUTION CHANELS



Process & systems

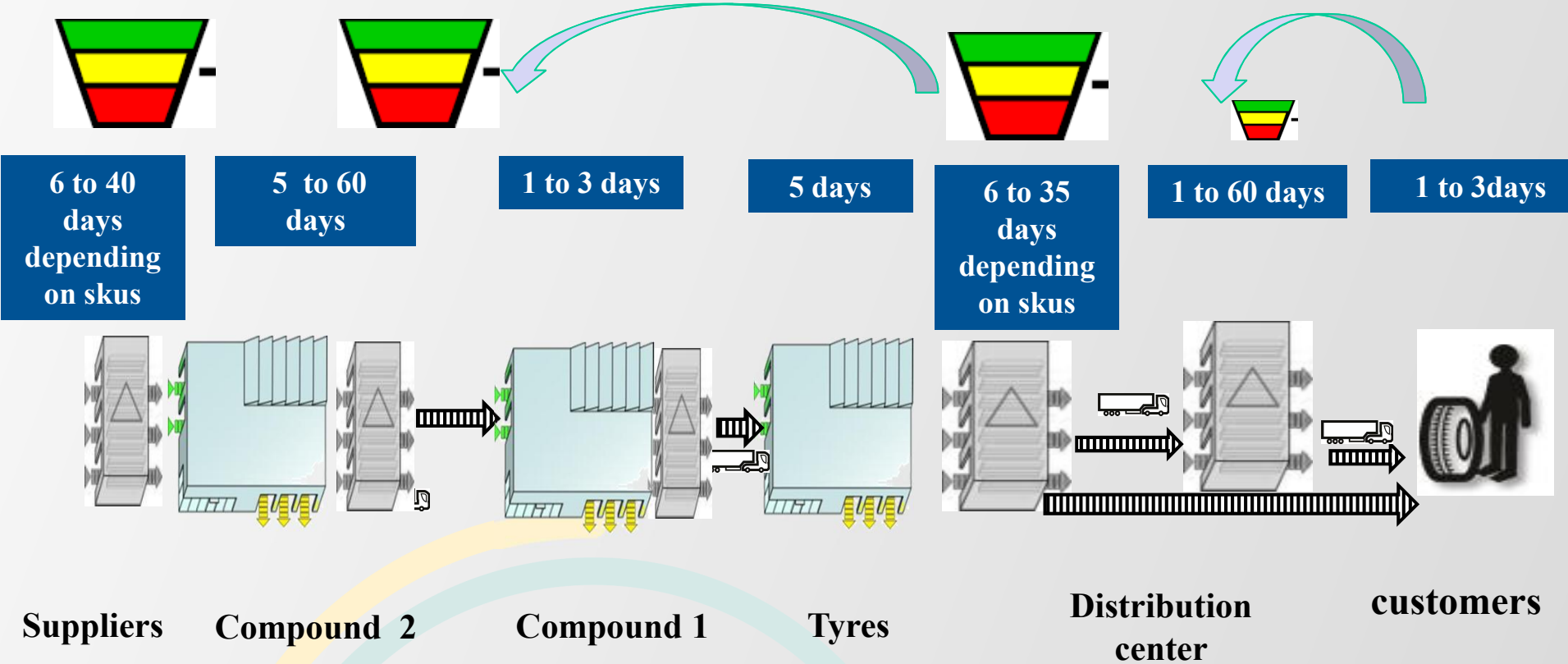
On going projects



At Stakes

HIGH AND POOR QUALITY (CURRENTLY MEASURED WITH MIN/MAX NORMS) OF INVENTORY (BIMODAL)

SIGNIFICANT VARIANCE OF PRODUCTION SIGNAL





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Pilots: learn & test different configurations

Site	Buffer	Key learning
SPAIN tyres	Factory Warehouse	<ul style="list-style-type: none">- 1st pilot = « Pionnier »: learn during one year- Direct link to customer service- Stabilize drastically signal with same level of inventory : cost saving- No more crisis for Original Equipment customers
USA tyres	Factory Warehouse plus local distribution centers	<ul style="list-style-type: none">- Lower inventory (-15% to 20%) for OE- Same level of service
ITALY tyres	Factory Warehouse exporting to Middle East/Africa and NA (2 intercontinental connected buffers)	<ul style="list-style-type: none">- Decrease inventory,- Increase bimodal quality for big weekly orders
France tyres	Factory Warehouse making very small volume Skus in capacity limited factory	<ul style="list-style-type: none">- Lower inventory; better bimodal- Increase service
France & USA Metallic wires	2 intercontinental connected buffers	<ul style="list-style-type: none">- Smooth interco orders- Reduce safety inventory



Key Savings observed from Pilots

- Bimodal improvement (quality of inventory)
- Lower inventory (so far for Original Equipment customers)
- Much more stable production signal
- Direct link factory<>customer service helps to better manage & anticipate tension/crisis.

SPAIN

The planning and manufacturing are now linked to the firm needs and priorities of customers and campaigns are launched with the certainty that the production meets customer requirements. In other words ***"It is the customer who establishes the production plan"***

ITALY

By working on the actual orders, the demand signal has become more stable. We had noticed in certain cases that the signal coming from the traditional systems was amplified by inaccurate parameters such as safety stock or forecasts. Eliminating these effects has helped to reduce the physical stock present in the Factory Warehouse and to free up production capacity for other dimensions, while improving the level of service

USA

*"When I found out I would be managing another planning system, DDMRP, I was frankly not too enthusiastic about the whole thing. [...] I made a comparison with the traditional systems and found that DDMRP was the only system that gave an accurate demand signal. During January, with DDMRP, I could directly see the demand of OE customers, whereas the forecast accuracy of the other systems continued to fluctuate sharply, **Today, I really trust the DDMRP demand signal and I am looking forward to deploying the approach for the RT market.**"*



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Pilots : Key points of attention

- **Start quickly** but initial DDMRP learning curve requires time (1year in Spain) ; consultants help
 - Production mode (continuous, min/max, campaign, seasonality, phase in/out, multi sourcing) driving buffer types & sizing
 - **Link with S&OP** (mid term horizon) to maintain consistency (inventory)
- **Change management in the factory (management & supply chain) :**
 - Trust (new) data
 - DDMRP does not replace detailed planning (but we don't use control point & capacity buffer)
 - Adjust capacity up and down based on buffer signal ; input to S&OP

- **Target solution**

- A stand-alone DDMRP tool above our APS in-house module
 - Market software (buffer storage & calculation, flow equation, alerts, BI)
 - Integration layer (ADU/FDU, firm demand & production orders)
- Maintain our existing APS (incl. Inventory norms and own BI)
- DDMRP production orders suggested to planners who confirm their decisions in APS.

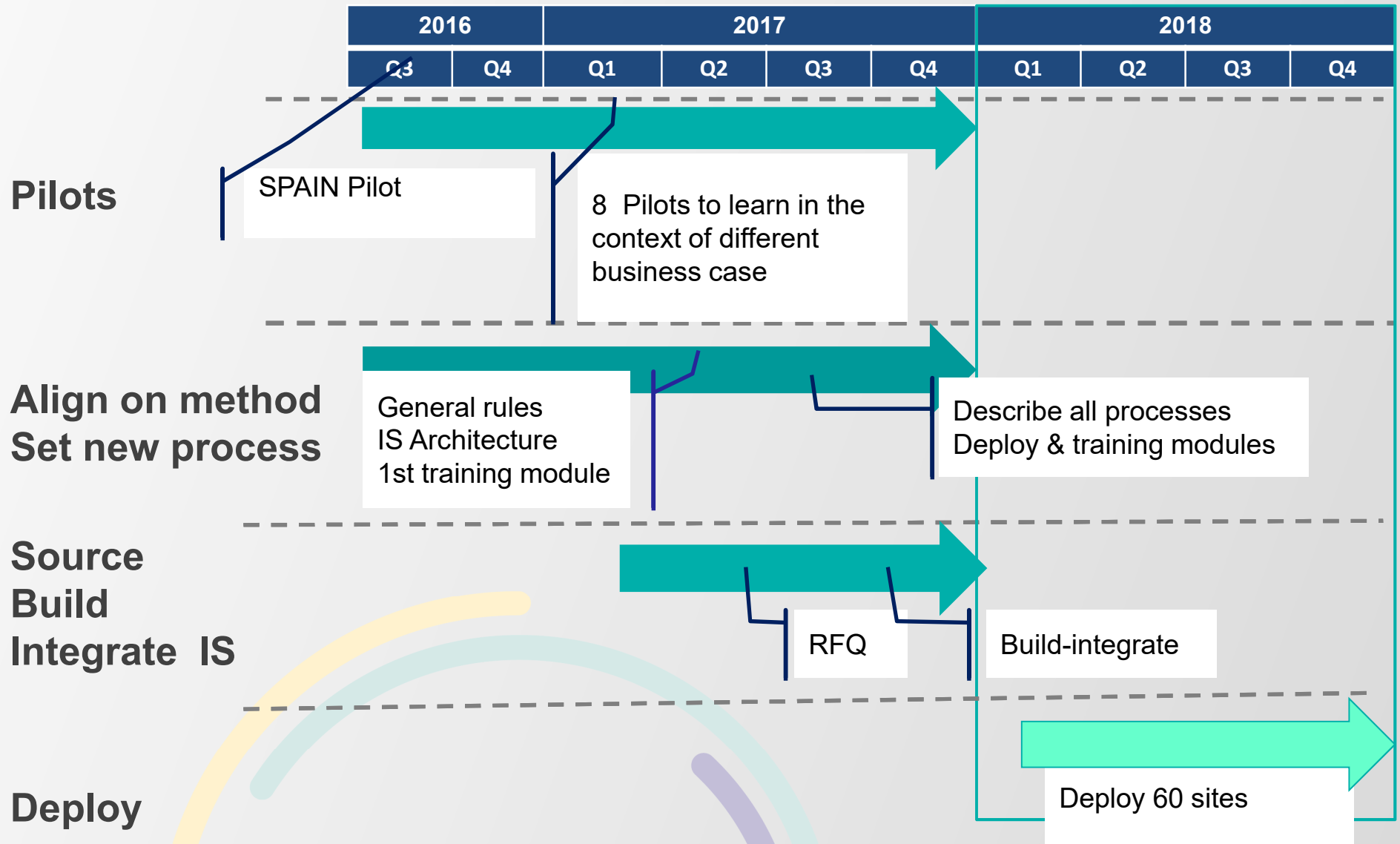
- **Deploy method & ressources:**

- 6 months estimated to ramp-up a plant (3 phases) with a full time dedicated person
- Buffer calculation & sku>buffer shared: central & factories
- Consultants used during pilots; gradual autonomy gained by Michelin.



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DDMRP Roadmap



Conclusion : we just started and we don't want to stop

- **DDMRP best values in:**
 - ADU planning (mix of past/future) instead of forecast : stability and inventory reduction
 - Connect factories to the short-term real-needs of customers : service and empowerment, best use of flexibility & capacity
 - Systematic priorities between SKUs : focus on what's critical
 - Quick results
- **DO NOT under-estimate:**
 - Time & effort to adapt theory to your own processes included where to put DDMRP buffers (not anywhere , not nowhere)
 - Change management in factory, but mainly in central supply chain for the value of decoupling and management to promote a global flow approach (kill silos)
 - IS strategy (role of APS, ERP, DDMRP tool) & integration et al.