

*Putting the forecast in its place –
Using a mix of planning techniques to
optimise inventory and service levels*

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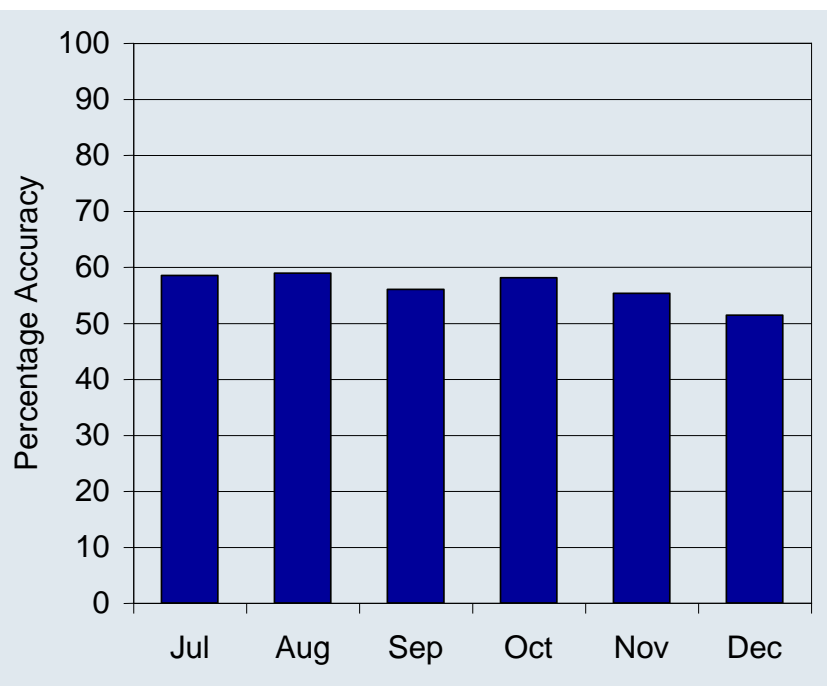
Exactly your chemistry.

Clariant is a global leader in the specialty chemicals market

- The group operates as 4 divisions with more than 100 companies on five continents
- Pigments and Additives Division (PA) represents 24% of revenue
 - No. 1 in colorants, key player in additives market niches and waxes
 - 17 manufacturing sites across all continents and global distribution network with 50% sales outside EU
- Over recent years the market has increasingly become commoditised and the power shifted to the buyers:
 - The market has become more price competitive
 - Customer lead time requirements have forced us to supply from stock
- To remain cost competitive we have had to place a strong focus on manufacturing and supply chain planning improvement
- WCI were selected as our partner to review our approach to planning:
 - Established in 1986 with a strong focus on Chemical and Life Science sectors
 - Experts in supply chain performance improvement with offices in Europe and USA

The requirement to supply from stock has increased the pressure on planning accuracy

Forecast Accuracy



*Note: Forecast accuracy calculated as weighted average of forecast deviation for all products with demand plan

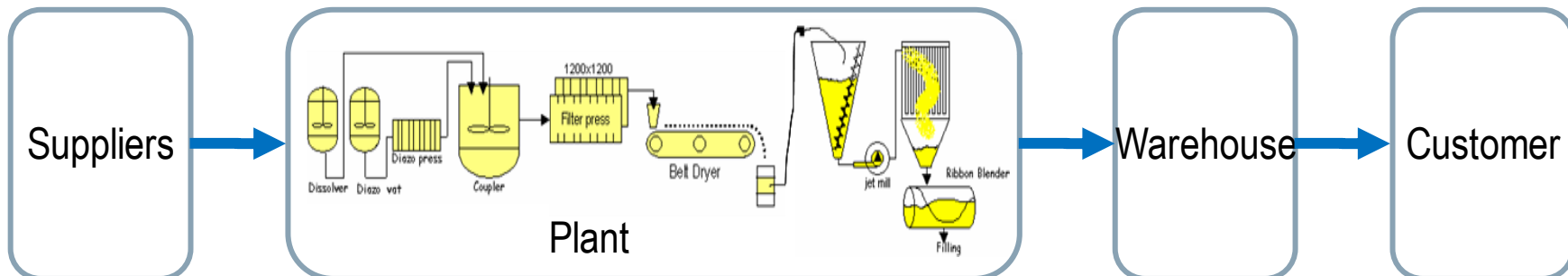
- Forecast inaccuracies had a direct impact on our business performance:
 - Over-forecasting increased over-stocking and dead stocks, tying up working capital
 - Under-forecasting resulted in stock outs and poor customer service
- Despite substantial investment in process and technology improvements we struggled to maintain forecast accuracy above 60%
 - Implemented a sophisticated Make to Forecast approach in APO
 - Improved the Sales & Operations planning process
- Long replenishment lead-times further deteriorated our forecast accuracy
- We acknowledged that our forecasts were insufficient as a basis for triggering production

*How did we overcome our forecast
inaccuracy to optimise inventory and
customer service?*

We didn't; but we reduced the dependency on the accuracy of the forecast

1. Demand forecast is used in S&OP to 'condition' the supply chain but not to directly trigger production

2. Controlled inventory is held at decoupling points within the global supply chain

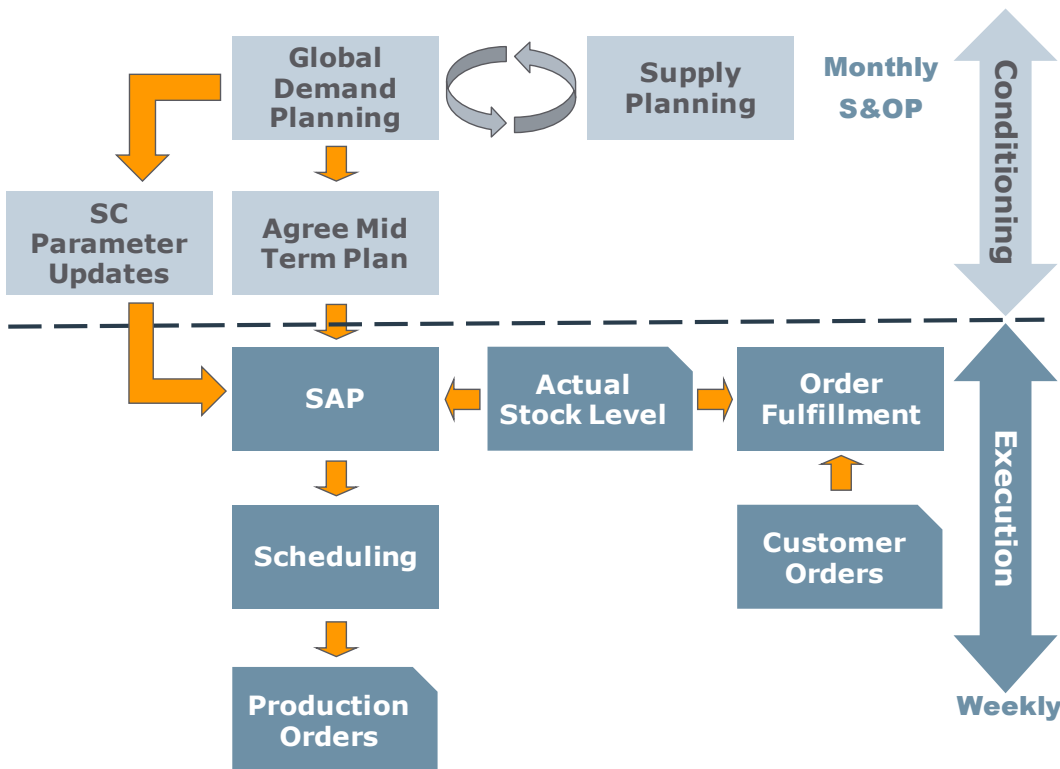


3. Appropriate planning techniques are used to replenish inventory in line with consumption

4. The new operating practices have been built into our core processes and systems

Demand forecast is used in S&OP to 'condition' the supply chain but not to directly trigger production

Planning and Control Framework



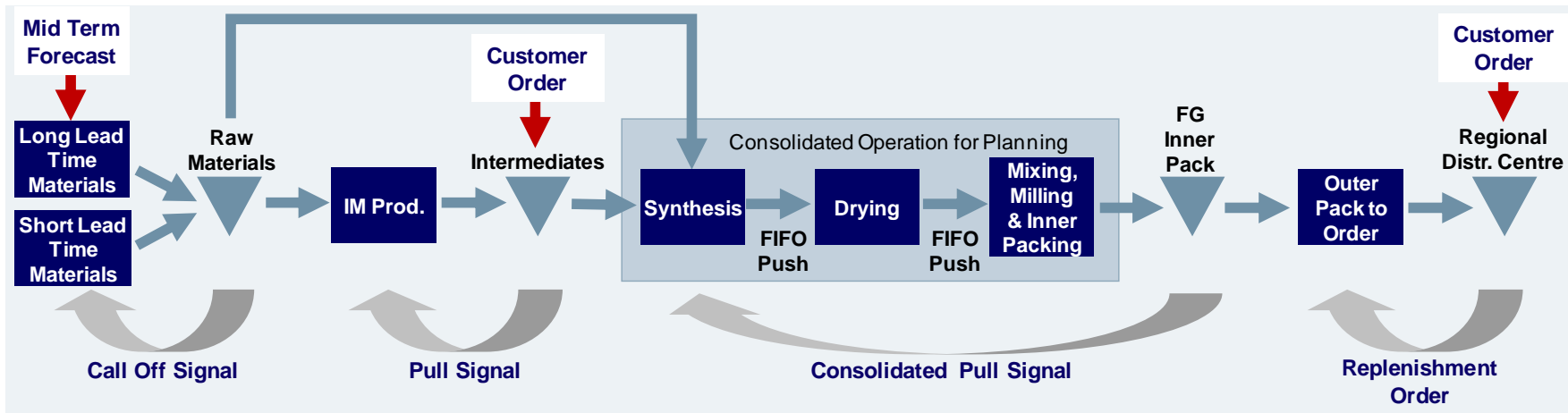
“Supply Chain Conditioning”

- The Sales and Operations Planning process sets the overall demand level trend at product group level.
 - Identifies production resource requirements
 - Sets parameters for replenishment execution i.e. pull and push strategies

“Supply Chain Execution”

- Actual product consumption triggers the replenishment of products in line with the replenishment parameters

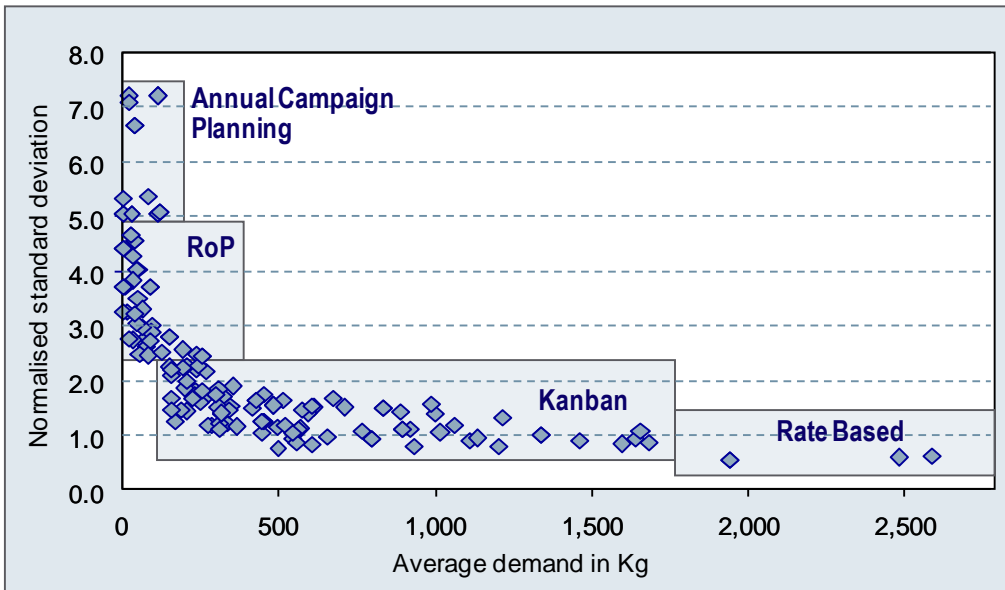
Controlled inventory is held at decoupling points within the global supply chain



- Inventory in the regional distribution centres is replenished in line with actual consumption
- Late customisation at the plant has enabled fast response times to the distribution centres and direct customers, with minimal levels of inventory being held
- Decoupling the internal supply chain at the intermediate stage has improved supply chain agility and reduced the planning complexity
- To minimise the “bull-whip effect” between decoupling points, the actual customer demand is communicated throughout the chain using demand pull replenishment techniques

Appropriate planning techniques are used to replenish inventory in line with consumption

Example Volume-Variability analysis from Clariant Plant



- Where possible Make To Order was used when the customer lead time allowed
- When supply from stock is required planning techniques were identified based on the volume and statistical variability of each product
- Inventory levels were set as a function of demand, lead time and required customer service levels
- Products with predictable volumes became 'self managed'
- Planning effort focuses on products which need more attention

The new operating practices have been built into our core processes and systems

- To gain organisational buy in and prove the approach we ran an extensive training program with all stakeholders sponsored by the Divisional Head and started with a pilot site
- Supply Chain Conditioning has been integrated into the S&OP process
 - Planning parameters and the calculated inventory levels are reviewed quarterly and replenishment technique selection is reviewed annually
- A 'Planning Cockpit' has been developed in SAP which visually displays replenishment requirements for Kanban and RoP products that enables production priorities to be easily seen
- KPI's have been established to measure inventory, customer service and operational compliance for each implementation

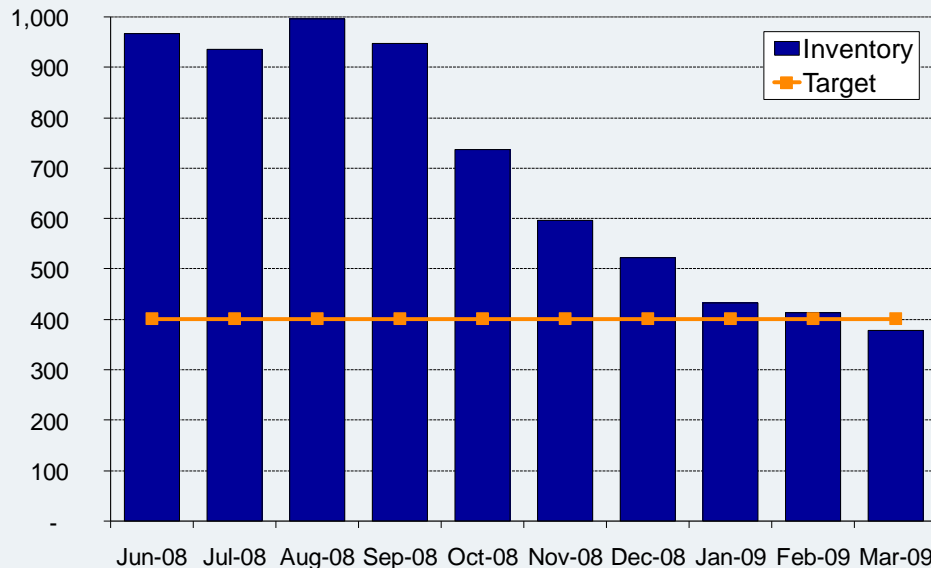
Planning Cockpit

Production Plant =DEF2
Stock holding plants =DEF2,DEF9

Plant	Work ctnr	Descrptn.	Planning S	Material	Short Desc	Scenario	Kanb.	Kanb.	Kanb.	Kanb.	Kanb.	Kanb.	Kanb.	Req. Produ	Planned Pr	Reorder Po	Fixed Lot	Plng. time
DEF2	PPOLYME		0	107095	LICOWAX PED 191 FL	S4	■	■	▲					72.000,000	0,000	120.001,000	24.000,000	035
DEF2	PPOLYME		0	10709512549	LICOWAX PED 191 FL	0020 S4	■	▲	▲	▲				48.000,000	4.800,000	70.001,000	12.000,000	035
DEF2	PPOLYME		0	10709512570	LICOWAX PED 191 FL	0600 S21								0,000	0,000	20.890,000	8.000,000	035
DEF2	PPOLYME		0	10709522180	LICOWAX PED 191 FL	0500 S21	●							0,000	0,000	33.250,000	20.000,000	035
DEF2	PPOLYME		0	15695112549	LICOWAX PED 192 FL	0020 S4	■	▲	▲					36.000,000	12.000,000	74.401,000	12.000,000	035
DEF2	PPOLYME		0	15695112570	LICOWAX PED 192 FL	0600 S4	■	■	▲					72.000,000	48.000,000	139.201,000	24.000,000	035
DEF2	PPOLYME		0	15745112549	LICOWAX PED 1101 FL	0020 S21	●							0,000	0,000	6.921,000	4.800,000	035
DEF2	PPOLYME		0	15745112570	LICOWAX PED 1101 FL	0600 S21	●							0,000	0,000	15.721,000	7.200,000	035

Our first plant went live in Q2 2008 and the benefits have been clearly evident

Inventory (Tonnes)



- The first plant to go live has delivered a 60% reduction in inventory at a designed service level of 95%
- We expect to reduce global inventory by more than 20% in 2009 upon completion of the roll out

Contacts for Further Information

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