

Service

Supply chain integration at M-real office paper mills

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This article describes how M-real's Office Papers division implemented Greycon solutions to support its business objectives of enhancing and maintaining high levels of customer service as well as improving the profitability of the business through efficient and integrated Supply Chain planning.

M-real is one of Europe's leading providers of solutions for printing, office and consumer packaging. The Office Papers division operates 3 mills in Europe with a production of over one million tonnes per year. The mills are located in France, Sweden and the UK, with business offices in Amsterdam (NL).

In recent years, M-real has gone through

a series of reorganisation changes and acquisitions, leaving the Office Papers division in particular with: (1) a variety of software (and manual routines) operated across the mills which made it difficult to get a coherent view of the business and (2) a fragmented planning process, resulting in duplicate efforts (costs) and delays.

In order to maintain and expand its position as a leading market player, the Office Papers division needed to reduce its sourcing costs and, at the same time, increase the speed and accuracy of its supply. To support this objective, the division initiated a project, named COPE, to address the business processes for Sales/

Operations Planning, Rough Planning and Fine Planning/Trim Optimisation.

After a selection process, the contract was placed with Greycon, a company specialising in this sector. The Greycon planning and scheduling system is tightly integrated with SAP/R3, which is used as the corporate order entry system in M-real, and to the local MES systems being used at each of the mills.

Moving from Legacy Systems to an Integrated Solution

The arguments in favour of an integrated solution are strong: With a standard and integrated solution, IT and overhead costs will be reduced, as will the duplicate efforts invested in maintaining various systems. Illustrations (1) and (2) show the IT landscape before and after the COPE project.

The second challenge of the project was to move from Production-Driven Planning to a Customer-Oriented Supply Chain. Traditionally, the planning activities in paper mills are driven by the concept of block schedules; these are very rigid and often the underlying cycles are so ancient that they may be sub-optimal. M-real Office Papers division has recognised this limitation and therefore initiated a new supply chain planning process that is demand (i.e. customer and market) and business profitability driven. The key elements of this process are:

Key Process 1:

Demand & Supply Balancing through Multi-Mill Optimisation

The starting point of this process is the demand forecast calculation performed by the system. This is based on the sales history data and then adjusted by the business to incorporate the market



Illustration 1: Picture of a top-level process view with the functions of each system

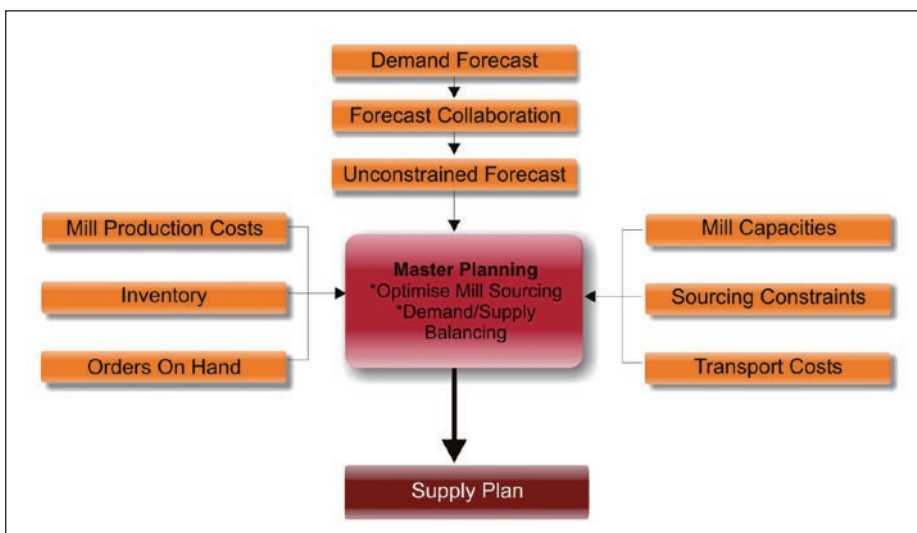


Illustration 2: The supply plan is the allocation of demand proposed for each mill/stock location.

intelligence. Demand is partitioned into mandatory and optional classes.

The demand is then balanced against the mills' supply as part of the Master Planning process. Its key feature is a supply network optimisation process (supported by large-scale linear optimisation) that suggests the best supply plan (also referred to as allocations) to fulfil the demand and achieve higher profits while taking into account transportation costs, production costs and prices, among other things.

The supply plan is the allocation of demand proposed for each mill/stock location. Allocation is based on time-buckets, typically weeks or months, and may consider aggregated or disaggregated capacity.

The benefits of such rough balancing of demand and supply can be important: Tests indicate that an optimised allocation can be 3-5% better in terms of key financial indicators than the manually-generated ones.

Key Process 2:

Block Scheduling and Run Optimisation

The rough allocation created by the supply network optimisation is then converted into a time-continuous run/block schedule for the key processes (which may include not just the paper machines, but also key converting processes). The trade-offs at this stage are between the three conflicting objectives of minimising inventory, minimum production costs (mainly sequence-dependent switchover costs) and optimised customer service.

By establishing precise penalties for all these factors, the quality of schedule can be evaluated. If necessary, the algorithm parameters can be adjusted to generate alternative solutions.

A direct by-product of this process is the generation of inventory replenishment orders. A key difficulty in the industrial sector where the Office Papers division operates is the distinction between finished and semi-finished (cutter reel) inventory. Some innovative thinking had to take place in order to deliver a workable solution in this respect.

Key Process 3:

ATP and Sales Orders Processing

Available-to-promise (ATP) enquiries are created in SAP R/3 and sent to Greycon where checks of master planning allocation, stock (on-hand and future) and production capacity are performed using various scheduling rules such as backwards or forward scheduling. Due date quoting for ATP enquiries is performed in a few seconds and, once the customer service representative obtains approval of the dates from the customer, the sales order processing is completed in SAP and production orders are generated for the purpose of the fine planning and execution. The process is largely invisible to the user, who remains throughout in the SAP SD order processing screens.

Key Process 4:

Fine Planning & Trim Optimisation

This is a subject well known to readers of this magazine, so needs no further description here.

Key Process 5:

Packaging Materials Planning

The packaging materials' availability is a key constraint in the Office Papers' business. As part of the planning process,

The project was initiated in October 2005, and the implementation was launched in January 2006. In October 2006, the project had officially passed its first major milestone with the Go Live of the New Thames site (UK) with the integrated planning solution.

According to M-real: "Within New Thames, the migration and transition activities progressed very well (...) and all stock is now transferred to the new system. The system is stable and performing well and the Project Team is confident that this milestone can be considered as passed with great success."

M-real attributes this success to "the commitment that has been shown throughout the project by the New Thames testing and support teams."

It is M-real's opinion that the project is now effectively reaping the benefits of the good testing and preparation work, and that a firm foundation has now been laid for successful roll-outs.

In April 2007, the second site (Alizay in France) went live with the same solution, and the third site Husum is due to go live before October 2007; in the meantime, the business integration of the mills through the Master Planning process is progressing and is due to be completed at the end of 2007.

The resulting system provides obvious benefits in terms of simplified systems landscape. In addition to this, the key business drivers are the aligned business objectives across multiple mills, accurate ATP / CTP check, reduced inventory and better trim optimisation.

There have been benefits for Greycon as well, increasing its skill sets and capabilities in several areas.

An analysis of what makes a successful medium-scale supply chain project in the paper project will throw up a number of success factors (this has been the subject of a separate article). There is no doubt however that in this case, M-real's project management capabilities, blending realism, toughness and attention on the bigger picture were a key contributor. ■)



the system generates purchase requisition suggestions synchronised with the scheduling of production orders. This takes into account the stock on-hand as well as the supply lead-time. The purchase requisitions are then transferred from Greycon to SAP where the purchase orders are created and goods' receipt recorded, at which time the planners in Greycon are informed of the availability so that the schedules can be updated accordingly.