Planvisage Product/Services Hardware Technical Overview:
CPC

Client Overview – CPC

CPC is a leading exporter of grey iron castings and machined components. The company is based in Coimbatore and is part of KG Group. The company has annual turnover of US 11 million in revenues or about INR 45 crores with 70% export revenues. They have two divisions namely Foundry and Machine Shop. The foundry shop produces about 8000 tones of cast iron per month.

Foundry makes cast iron out of scrap material. Scrap material is melted and poured into a mold. On cooling, the iron takes the shape of the mold to form rough cast iron. The casting can be sold to customer or sent to the Machine Division for further processing. The machine shop operations include milling and drilling to form the finished component. The machine shop will also add other components like gears to produce a finished product.

Process Workflow – Before SCM
Sales & Marketing
Sales and Marketing team receives the schedules and orders from the customer. Customers generally provide one month of schedules from the domestic customer and one to three month schedule from export customers. The schedules have a quantity but no due date or customer required date. Apart from schedules, there could be certain confirmed orders with due dates. Orders and schedules are passed to the production department beginning of each month for capacity planning to calculate the quantity commit for the month. If the quantity commit is less than the schedule, then this is communicated back to the customer.

Production Department
Capacity Planning
The capacity plan is generated for both machine shop and foundry. This plan is generated at the weekly aggregate level. To arrive at the casting demand a fixed lead time is used to subtract from the demand date for the machine shop. This demand date is furthered buffered to add another week to create the final date. The one week is basically added as a safety buffer between machine shop and foundry.

- Sales & Marketing
- Purchasing Department
- Production Department
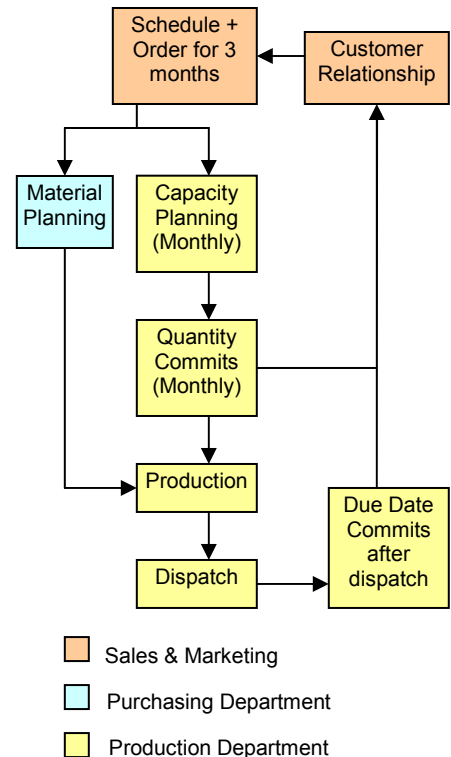
For example, an item has a fixed lead time of 3 weeks and if schedule demand is week 24 for the machined part, then demand for casting is taken as week 20 (24-3 week lead time minus 1 week buffer). This is passed as demand to the foundry shop for their planning.

Quantity Commits
Based on machine shop and foundry capacity planning, some orders may have to be shorted. This quantity commit is communicated to the sales team. Still the sales team does not know when the order will be fulfilled. The sales team expects that order will be fulfilled by end of the month.

Production
Foundry Shop
Foundry shop receives both domestic and overseas orders. The ratio is 30% and 70% respectively. The customers would be external customers and internal customers (machine shop). Apart from high level capacity planning, they prepare a 4 day schedule for every shift. This 4-day schedule is fixed and does not change

Quick Reference

CPC (P) Ltd
Casting to Perfection

Company Name
CPC (P) Ltd

Manufacturing Industry
Castings and Valves

Solution
CPC selected Planvisage SCM solution to improve their production planning and scheduling. They needed a powerful server to run the planning algorithm. They selected the IBM X class of servers to meet their requirement.

Implementation Time
The solution was implemented in 15 weeks

Hardware Specs.
CPC went in for IBM X series server to run Planvisage solution

Software Specs.
Windows 2003 server
IIS Webservice
.Net Framework 2.0

Planvisage
Envisage your plan

About Planvisage
Planvisage is one of Asia's leading solution providers for manufacturing companies who face supply chain challenges.

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even if there is a resource break down. The disrupted work order is moved to the fifth day instead of trying to accommodate within the 4-day schedule.

Machine Shop
Machine shop caters mostly to export orders, which is about 90%. They prepare a daily level schedule primarily based on material availability. They do not have visibility other than one day schedule. Some operations are sub-contracted.

Dispatch & Due Date Commits
Whenever material is produced and dispatched, an invoice is generated. This is communicated to the customer by the sales team. Dispatch is common for both machine shop and foundry.
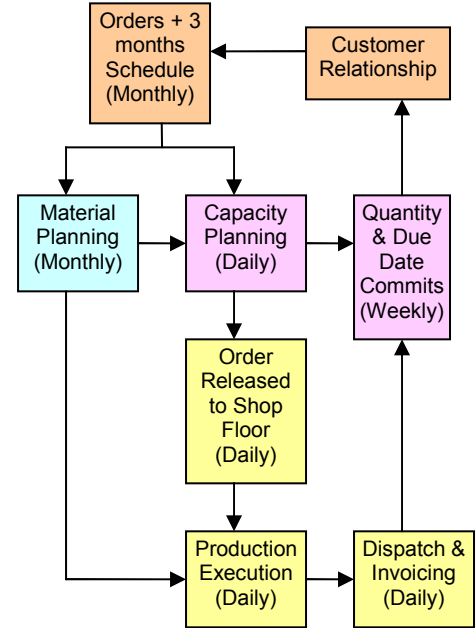
Purchasing Department
A central Purchasing department handles all the raw material requirements for both foundry and machine shop. Requirements for the foundry are based on periodic review of 30 days. Minimum required quantity is arrived based on history. For machine shop, demand from sales and marketing team is used to release a purchase orders. Capacity planning is not used to arrive at the required date for placing the purchase order. Instead a fixed lead time is used and considerable buffer is added.

Process Workflow – After Planvisage SCM

Sales & Marketing
Sales and marketing team prepares customer orders and schedules for 3 months. This will be done at beginning of each month and will be a monthly cycle. Since marketing receives more orders than the available capacity, some orders have to be shorted. This is carried out manually by General Manager based on customer preference and tonnage capacity. The final schedule is passed on for both material and capacity planning. Based on the plan generated by Planvisage Production Planner, customer orders are planned and a commit is given to the customer as well as short quantities and delays. This is communicated back to the customer on a weekly cycle.

Legend	
▨	Sales & Marketing
▨	Purchasing Department
▨	Production Department
▨	SCM

SCM

Capacity planning for both machine shop and foundry is done daily by Planvisage SCM. The main inputs to SCM are:

- Customer orders and schedules as given by sales and marketing
- Inventory of raw materials as maintained in stores
- Planned purchase orders as generated by purchasing department
- Inventory and WIP position as maintained by production department

The plan generated is for a 3 month horizon with first month being at a daily granularity. Based on the plan, following action are carried out

- Sales and marketing find out status of the customer orders. This is

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communicated appropriately to the customers
- Machine shop and Foundry release job orders to the shop floor as recommended by the Planvisage SCM
- Forward visibility of resource load, inventory and WIP position is known to all the departments

Production Department
Production department executes the orders on dates as specified by SCM. On a daily basis, following data has to be maintained in SCM:

- Update quantity completed and rejected at each operation
- Maintain status of orders
- Update actual start and end time if required

Process Improvements
The process improvements include the following:

Planning is done on a daily granularity rather than a weekly bucket. This has improved accuracy of foundry planning without unnecessary buffers between foundry and machine shop.

Daily capacity planning taking into account both foundry and machine shop constraints brings in more visibility to all the departments. Marketing team knows the deviation in delivery dates of sales orders much before. This allows CPC to proactively communicate changes in plans. Machine shop is planned taking into account all the deviation of deliveries from foundry shop.

The planning is driven by the sales orders as given by the marketing team. So the entire production process is geared to meet the sales order quantity and due date. Since the planning is based on just-in-time, work-in-progress is minimum and the flow is smooth.

Overall System Architecture
The overall system architecture deployed at CPC is as given below:
- Product built on .Net architecture
- Data between client and webserver is exchanged through xml. Client references web server through url address

- .Net framework has to be installed on all the machines. It is available for free from Microsoft web site
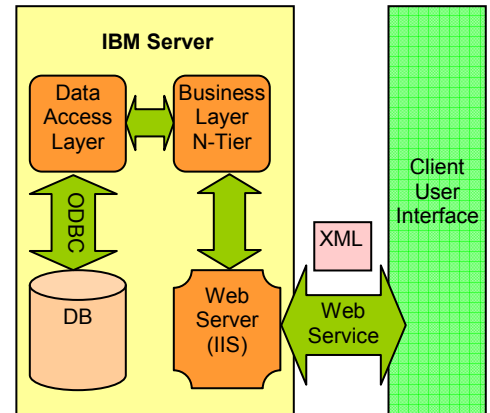
- IIS has to be installed on the server. It comes bundled with operation system (Win2000 or XP Professional Edition)
- Business logic and data access layer is deployed over IIS
- Data access references database through ODBC connection
- Different instances of server can be installed within one single IIS
- Database could be SQL or MySQL
- Uses memory resident database for better performance

System Deployed
In order to run the planning algorithm on a daily basis, CPC went in for IBM X Series 226. It has Intel Xeon processor with speed of 3.00 ghz, RAM of 2 GB and hard disk of 80 GB.