

Best Practice
eXensys – Sales Order to Execution

Exensys Software Solutions Ltd.		AA/B/CCDD V x.y
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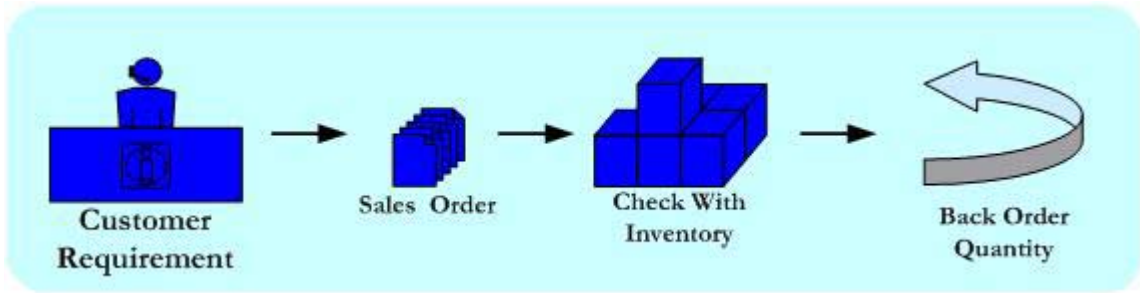
Introduction:

In a manufacturing environment, a sales order can be converted into a production order to show that work is about to begin to manufacture, build or engineer the products the customer wants. This paper basically speaks about how a sales order is being converted to production order and how the execution takes place further.

Overview:

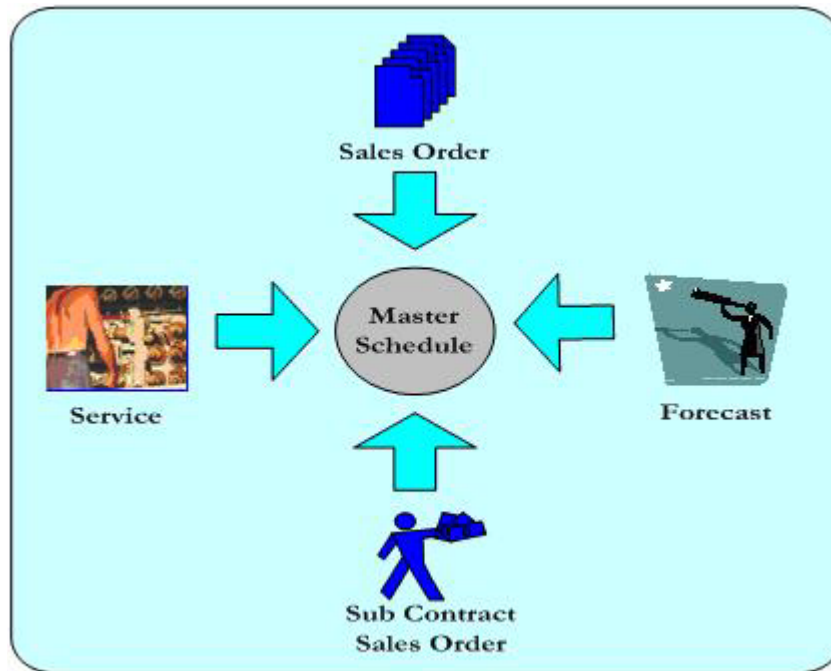
Sales Order:

The process is initiated by creating a sales order for an item required by a customer. Once the sales order is generated the backorder quantity will be arrived to how many quantities of the items have to be exactly produce. To arrive at a backorder quantity the existing quantity for the required item already available in the inventory will be checked.



Planning Cycle:

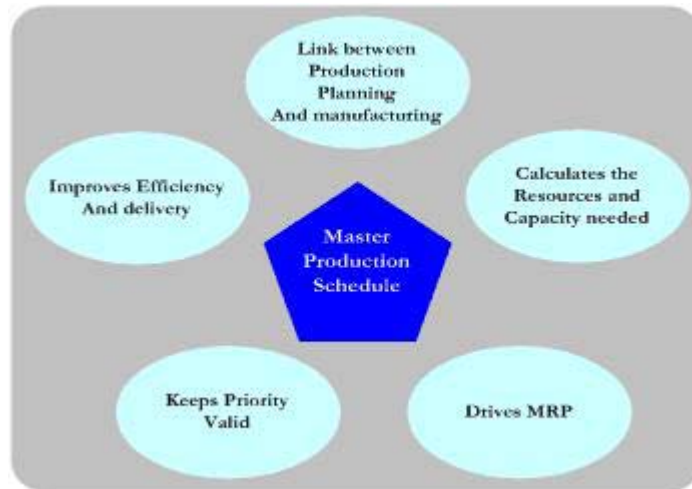
- *Master Scheduling:* Business Performance Sustained



Once the backorder quantity is arrived the sales order will be referred in the master scheduling. Master scheduling is the process where the master schedule is generated and reviewed and adjustments are made to the master production schedule to ensure consistency with the production plan. Master scheduling consolidates the demand from sales orders, production plan, replenishment order, service order etc for the time period. Basic Inputs to master scheduling are the production plan from SOP, inventory plan i.e. the targeted inventory level, backlog plan i.e. the targeted backlog level, service orders, distribution plan.

- *Master Production Schedule:*

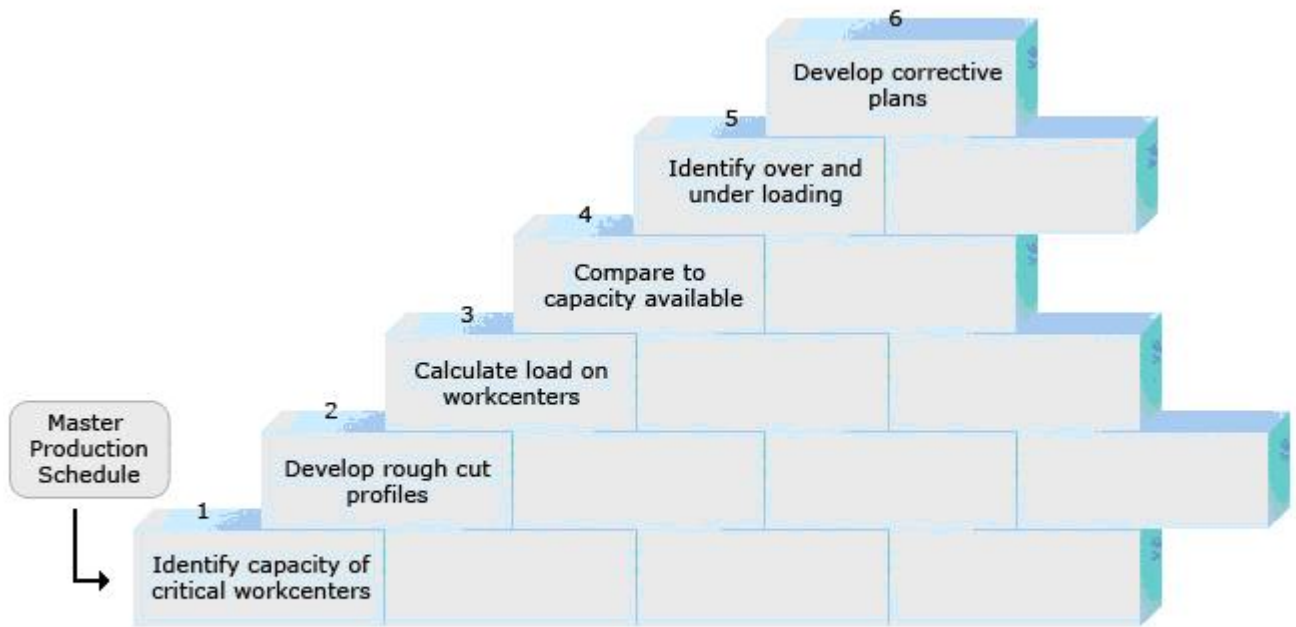
Once all the demands are consolidated the next process will be preliminary Master Production Schedule. The Master Production Schedule (MPS) translates the business plan, including forecasted demand, into a production plan using planned orders in a true multi-level optional component scheduling environment. Using MPS helps avoid shortages, costly expediting, last minute scheduling, and inefficient allocation of resources. Working with MPS allows consolidating planned parts, producing master schedules and forecasts for any level of the Bill of Material (BOM) for any type of part.



- *Rough Cut Capacity Planning:*

The process after master production schedule is the Rough Cut Capacity Plan (RCCP). RCCP Converts the master production schedule into load requirements for critical resources. Comparison to available or demonstrated capacity is usually done for each critical resource. RCCP only considers the critical work centers doesn't considers the effect of job sequence or job set up time dependency. The process normally starts with identifying the critical work center. Then the bills of resources needed for products are considered. Then using MPS for each product by period, the load on each work center is calculated.

Finally comparison of calculated load on the critical work centers to the demonstrated capacity available is done. Potential under load and overloads are identified. Based on this corrective action are taken to balance the required capacity with the planned capacities.



After converting the master production schedule into load requirements the MPS quantity is firmed.

- *Material Requirement Planning*

Then Material requirement planning will be done for the final product to be produced. MRP's managerial objective is to provide "the right part at the right time" to meet the schedules for completed products. An MRP System serves a central role in material planning and control. It translates the overall plans for production into the detailed individual steps necessary to accomplish those plans. It provides information for developing capacity plans and it links to the systems that actually get the production accomplished.

In MRP the following activities are carried out:

- BOM Explosion.
- Lead Time Offsetting.
- Gross & Net Requirement.
- Releasing Purchase & production order.

BOM Explosion:

This segment addresses the use of planning data as the basis for performing the gross-to-net calculations by exploding bills of material to calculate the time-phasing of inventory requirements. The requirements are exploded level by level, accounting for order quantity.

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Lead Time offsetting:

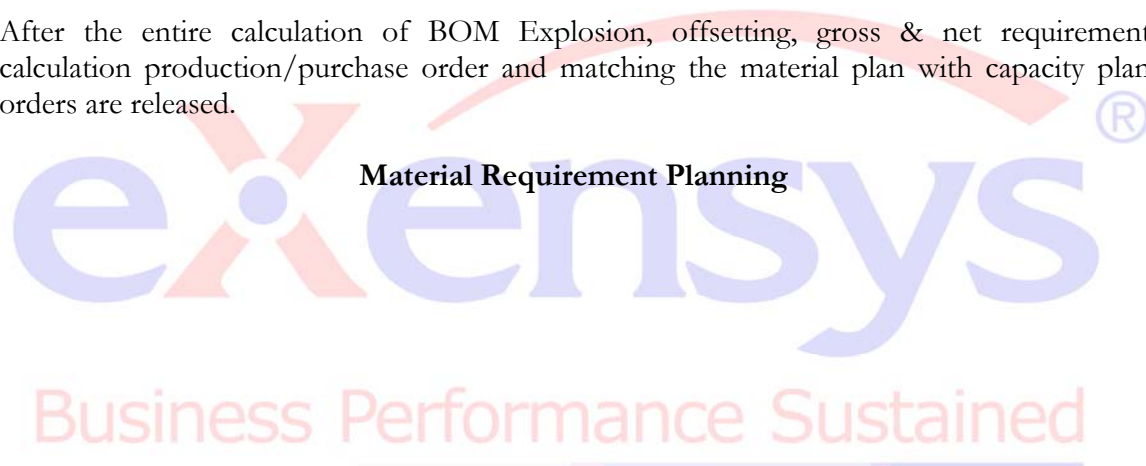
Offsetting is placing the exploded requirements in proper periods depending on the lead time.

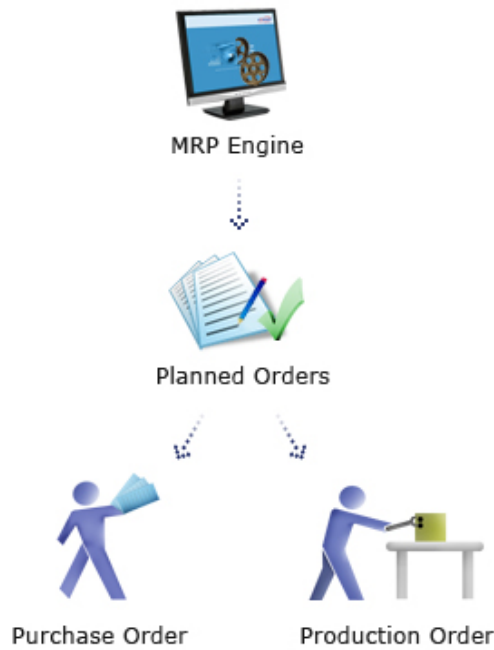
Gross and net requirement:

Gross requirement is the quantity of item that doesn't consider the on-hand inventory quantity, where as net requirement is the amount required after subtracting the on hand inventory quantity plus the scheduled receipts.

Releasing Production and Purchase requisition:

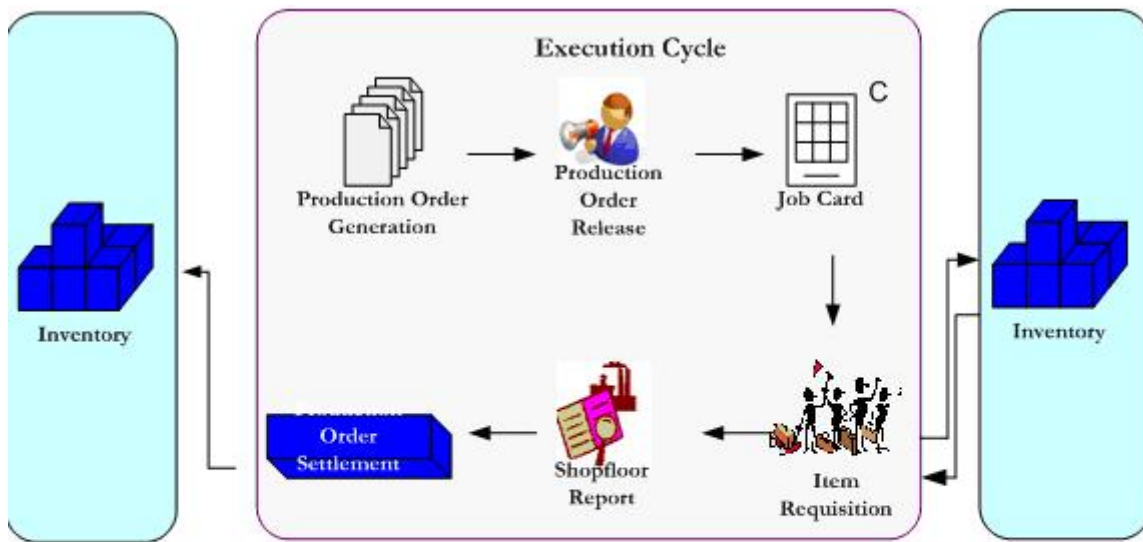
After the entire calculation of BOM Explosion, offsetting, gross & net requirement calculation production/purchase order and matching the material plan with capacity plan orders are released.





Execution Cycle:

Subsequent to a Planned Order release, a production order is generated. A Production order can also be manually generated. For a Planned Order Generated PO, the start date and end date are system defined. No Alterations can be made. Production order can also be of Manual & Rework type. For these types of PO, user have to pick up the start date, the end date is defined by the system. For continuous process line PO, routing is rate based and scheduling period is defined that decides start date and end date for the production order. For batch production order, quantity with start date and end date is mentioned. In batch processing, operations are defined in the routing masters with sequence numbers and operations relationships are also defined with operations overlapping percentage if applicable.



Production Order is released after the material availability check is carried out operation wise. It mentions the machines, components with their scheduled quantities or any substitutes to carry out the production.

Job Card is generated to initiate the actual production on some specified time. Once it is issued to the operators, it can be assumed that the production will start at the time mentioned in the job cards after receiving the BOM items by item requisition process. After the Production order is released to the shop floor, items have to be moved from the inventory to the shop floor to start the actual production. So a request is raised from the shop floor.

Shop Floor Report captures actual production status. Active response to varying situation can happen only when appropriate, exact information is available.

The progress or setback of every item is exhibited individually. Date variation, quantity variation are also observed.

Production order settlement is done after the completion of the production orders. It serves as an input for the inventory to receive the items produced and returned to the inventory. Apart from these details the actual costs incurred for the order are also mentioned.

Benefits:

- Customer satisfaction.

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- Effective control of existing orders.
- Controlled production flow.
- Effective Reporting consumption.
- Improve shop floor performance.

Conclusion:

