



What will be the future of Manufacturing Resource Planning?

Everybody knows about Manufacturing Resource Planning (MRP II); created in the 1970's, it is the most widespread planning method in the world. This methodology plans the manufacturing activities of a company based on demand forecasts: it is what we call a “push flow method”. MRP II is built on multiple processes from strategic to operational levels, from business planning, to capacity requirements planning.

The business world evolved since the 1970:

- Supply Chains are now constituted of large networks of actors;
- Products' life cycle decreased;
- Clients demand increasingly low delays;
- Products are more customized and diversified;
- But numerous parts require long replenishment delays
- E-Commerce
- Political conflicts

Companies have to cope with increasing complexity and uncertainty as they face the same symptomatic hurdles: delivery delays, shortages, long lead times, permanent stage of emergency, unreliable previsions, high inventory levels, wrong inventory...

However, companies still continue to use a 40-year-old material requirement systems known as MRP (Material Requirement Planning (MRP I) and MRP II), though all the problems mentioned above put forward that MRP is no longer adapted to this changing business environment.

What could be the answer: Demand Driven MRP(DDMRP)?

Demand driven MRP is a multi-echelon formal planning and execution technique. The foundation of DDMRP is based upon the connection between the creation, protection, and acceleration of the flow of relevant materials and information to drive returns on asset performance. Using an innovative multi-echelon ""Position, Protect, and Pull"" methodology, DDMRP helps plan and manage inventories and materials in today's more complex supply chain, with attention being paid to the different stakeholders, the market, engineering, sales, and the supply base. This method enables a company to decouple forecast error from supply order generation and build in line to actual market requirements, and promotes better and quicker decisions and actions at the planning and execution level.

The DDMRP combines principles coming from MRP, Lean Management, Theory of Constraints and 6 Sigma, and is deployed following a 5 steps process:

1. Strategic Inventory Positioning: which items should be stocked and what will be the level of this inventory? DDMRP takes into account 6 factors to define what should be stocked. One of the most important concepts is "decoupling". It consists in positioning inventory adequately to decouple the client's demand and the supply process: the different items do not concern a particular order. DDMRP is based on the idea that inventory is not only a liability but sometimes an asset: when positioned on the right place at the right moment and at the right level, they enable to avoid the propagation of variability throughout the supply chain, to manage production and orders, and to ensure a minimum lead time;

2. Buffer profiles and levels: Define the right size of the buffers (divided into 3 zones: green, yellow and red), that's to say the levels of inventory or margins required in function of replenishment delays, variability and minimum order quantity for instance.

3. Dynamic adjustments, redefine the size of the buffers regularly.

4. Demand Driven Planning: anticipate inventory levels according to current supply orders, current inventory and actual orders over a specified period, so that new supply orders are generated appropriately.

5. Demand Driven Execution: Order and Produce in function of items' availability. Priority definition is facilitated and collaboration is encouraged. DDMRP favors on-going improvement. (based on segmentation

Results

The DDMRP enabled to obtain the following results:

- OTD increases
- Lead Times reduction
- Inventory reduction:
- Supply Chain Cost reduction
- Shorter cash cycles
- ...

Conclusion

DDMRP could be the most effective option for some companies, as it can provide great value compare to MRP, as it combines some of the still relevant aspects of Material Requirements Planning (MRP) and Distribution Requirements Planning (DRP) with the pull and visibility, and the variability reduction. But this will be different for different markets and industries so therefore detailed analysis is required in order to take a decision.

It is not something that can be done without considering technology (DDMRP cannot run on some of the MRPII/ERP systems in use today, but in general most of the vendors are working on this), planning talent(organization), efficient processes and clear strategies.



Xeleos Consulting and Optimact can support you on finding the right approach both on business and technology side. For more information please contact Gunter Fonteyne, gunther.fonteyne@xeleos.com.