ERP & MRP II

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ERP: Enterprise Resource Planning

- ERP (From the 80's & 90's) includes ALL Business Management Systems, Philosophies and Performance Evaluation at All Levels
Enterprise Resource Planning (ERP)

ERP is an industry term for the broad set of activities supported by multi-module application software that helps manufacturer or other business to manage the important parts of its business.
A typical ERP system will use multiple components of computer software and hardware to achieve the integration.

ERP delivers a single database that contains all data for the software modules, which would include:
Manufacturing
Engineering, BOM, Scheduling, Capacity, Workflow Management, Quality Control, Cost Management, Manufacturing Process, Manufacturing Projects, Manufacturing Flow

Supply Chain Management
Inventory, Order Entry, Purchasing, Product Configuration, Supply Chain Planning, Supplier Scheduling, Inspection of goods, Claim Processing, Commission Calculation

Financials
General Ledger, Cash Management, Accounts Payable, Accounts Receivable, Fixed Assets
Projects

Costing, Billing, Time and Expense, Activity Management

Human Resources

Human Resources, Payroll, Training, Time & Attendance, Benefits

Customer Relationship Management

Sales and Marketing, Commissions, Service, Customer Contact and Call Center Support

Data Warehouse

Self-Service interfaces for Customers, Suppliers, and Employees
AIM OF ERP

SOLUTION

CUSTOMER SATISFACTION

QUALITY

PRICE

COST

Profit

Market Share
MRPII: Manufacturing Resource Planning

- MRPII (From the 80's & 90's) includes ALL Manufacturing Resources for "What If" Pro-Active Process Simulations
Manufacturing Resource Planning (MRP II)

An information system that integrates all manufacturing and related applications, including decision support, material requirements planning (MRP), accounting and distribution.
The difference between MRP, MRP II and ERP

- MRP is simply about ensuring the materials are available to manufacture a specific part in a specific volume.
- MRP II takes care of all other aspects of a job including ordering, tracking inventory and ensuring capacity.
- ERP is an integrated information system that serves all departments within an enterprise.
- ERP software provides an integral coordination of the activities, which are carried out at every department of the enterprise.
ERP philosophy has evolved from MRPII philosophy. MRPII philosophy evolved from MRP philosophy. It is important to understand the difference between each term.

Effective **ERP** requires that integrated management processes extend horizontally across the company, including product development, sales, marketing, manufacturing, and finance.
The main function of material requirements planning MRPII is to guarantee material availability, that is, it is used to procure the requirement quantities on time both for internal purposes and for sales and distribution. This involves automatic of procurement proposals for purchasing and production.
The old term Manufacturing Resource Planning was always a handicap when it came to getting sales people and technical people interested; ERP - Enterprise Resource Planning - breaks down this traditional barrier at least. For anyone to benefit from ERP, everyone has to contribute; this is the key to ERP survival.
TYPICAL FUNCTIONS

- Typical function of MRP
  1. Financial modules
  2. Business Plan
  3. Resource Planning
  4. Production Plan
  5. Sales and Operations Plan
  6. Master Production Schedule
  7. Detailed Capacity Planning
  8. Product Costing Modules

- Typical function of ERP
  1. Financial Planning Simulations
  2. Business Planning Simulations
  3. R&D Management Simulations
  4. Supply Chain Management Simulations
  5. Production Management Simulations
  6. Resource Management Simulations
The resource planning MRPII and ERP have some fundamental question also this question are the same for MRPII and ERP. These question follow as:

1. What do you want to make?
2. What materials does it take?
3. What materials do you have?
4. What materials do you need to get?
EXAMPLE:
SAP SUPPORT CENTER
The basic system (BC) includes:

- **SD** Sales & Distribution,
- **PP** Production Planning,
- **MM** Materials Management,
- **PM** Plant Maintenance,
- **FI CO** Finance & Controlling, etc.

Each module handles specific business tasks on its own, but is linked to the others where applicable. For instance, an invoice from the Billing transaction of Sales & Distribution will pass through to accounting, where it will appear in *accounts receivable* and cost of goods sold.
MATERIAL MANAGEMENT

Material Management
In the figure, mean of material management (MM) supports the procurement and inventory functions occurring in day-to-day business operations such as purchasing, inventory management, reorder point processing, etc.
SUPPLY CHAIN
In this figure show that, A supply chain, logistics network, or supply network is a coordinated system of organizations, people, activities, information and resources involved in moving a product or service in physical or virtual manner from supplier to customer. The entities of a supply chain typically consist of manufacturers, service providers, distributors, sales channels (e.g. retail, ecommerce) and consumers (end customers). Supply chain activities (aka value chains or life cycle processes) transform raw materials and components into a finished product that is delivered to the end customer.
This figure shows the simple flow of logistics. Every step of logistics, to vendor to customer, material resources are needed. These resources are managed by material management.
Material requirements planning is divided into two which are external supply and internal supply. The examples of data that flows in the previous system are material, batch, vendor, accounts, customer, inventory level, etc.
Controlling and accounting has the most influential data flow with the material management. Purchase requisition, purchase order, material receipt and invoice is the general order of material management in this integration.
Database keeps information about the vendors to provide comparison between them. The price, quality and the lead time are the key elements of decision making. The integration is also helpful in this decision making process.
Invoice control is also an important process. Transport invoice, prepayment, automated price updating can be possible with SAP.
MM Information System

- Production place
- Storage
- Material
- Batch
- ABC analysis
- Stock Value
- Planning
- Flexible Analysis
- etc.

- Purchasing Group
- Vendor
- Mater. group
- Material
- ABC analysis
Material management is feeded by the information that comes from purchasing information system and stock control.
Outputs

- Documents
  - Proposals
  - Orders
  - Order approvals
  - Delivery plans
  - Shipping papers
  - W.house check list
  - Material doc.
  - Accounting doc.
  - mat.
  - delivery/shipping doc.
  - invoices
  - Dept & credit doc. (invoice)

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