MRP Benefits 😊

MRP coordinates inventory, production & ordering of many components across many products:

• Less safety stock & wasted material
  → Inventories should fall substantially
• Better knowledge about delivery lead times
  → Fewer production delays & less expediting
• Higher proportion of orders are delivered on time
  → Greater customer satisfaction

MRP Difficulties 😞

• Current production system has to change a lot
  – People tend to resist change
• MRP systems are not flexible
  – Everyone must stick to the MRP schedule
• Workers must be trained
  – How to enter data? How to read reports?
• Big files must be accurately maintained
• Implementation can take a long time
MRP Usage

• Used a lot in assembly industries:
  – Electronics
  – Machinery
  – Apparel

• Applications in the services are increasing:
  – Hospitals: supplies & equipment for surgeries
  – Restaurants: food planning

Beyond Basic MRP

• 1st book on MRP (1975): Joe Orlicky (IBM)
• Closed-Loop MRP (early 1980’s)
  – Automatic feedback regarding capacity
  – Is there enough capacity overall & at each WC?
• MRP II (mid-1980’s)
  – Is there enough labor, machine-hours & cash to meet the material requirements plan?
  – More data are brought into the planning process
Beyond Basic MRP – more

- DRP: Distribution Resource Planning (late ’80s)
  - Apply MRP ideas to distribution function
- ERP: Enterprise Resource Planning (’90s - now)
  - Tie many functions together:
    - Customer order is received from one place
    - POs automatically sent to suppliers in other places
    - Inventory levels automatically adjusted after fulfillment
    - The MRP system is updated
    - Payables & receivables sent to accounting dept., etc.

Some ERP Successes 😊

- *AutoDesk* lowered customer delivery time from 2 weeks to 1 day
- *IBM Storage Systems* lowered time to ship replacement parts from 22 days to 3 days
- *Fujitsu Microelectronics* reduced time to fill orders from 18 days to ½ day
Some ERP Failures 😞

- *Applied Materials* was overwhelmed by organizational changes & abandoned ERP
- *Mobil Europe* spent several $100M only to abandon its ERP system
- *Hershey’s* lost $300M on its implementation b/c they went “live” during their busiest time of the year
- *Dow Chemical* spent $500M over 7 years, but had to abandon its ERP system and start over

Conclusion

- ERP systems have great potential, but …
  - They’re very complex software systems
  - Not flexible: Users must adapt to software
  - Require lots of $, time & expertise to implement
- Most success to date in large, multi-nationals
- Can ERP succeed in small-midsize companies?