MRP Benefits

Coordinates inventory, production & ordering of components across many products:

• Inventory goes down
  – Less safety stock & wasted material
• Better knowledge about delivery lead times
  – Fewer production delays & less expediting
• Higher % of orders 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, accurate files must be maintained
• Implementation can take a long time
MRP Usage

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

• Applications in the services is 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 - continued

• 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 1 place
    • PO is automatically sent to suppliers in another place
    • Adjust inventory levels automatically after fulfillment
    • Update MRP system
    • Send payables & receivables to accounting dept., etc.
Some ERP Successes 😊

• *AutoDesk* lowered customer delivery time from 2 weeks to 1 day
• *IBM Storage Systems* lowered time it took to ship replacement parts from 22 days to 3 day
• *Fujitsu Microelectronics* reduced its cycle time for filling orders from 18 days to $\frac{1}{2}$ day
Some ERP Failures 😞

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

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