Chapter 5

NEW PRODUCT DEVELOPMENT

BA 477 Purchasing and Supply Management

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LEARNING OBJECTIVES

1. Understand why buyers and sellers should be involved in the new product development.
2. Learn the steps of designing and developing new products.

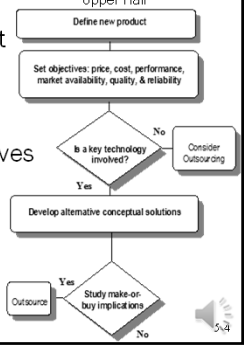
THE DESIGN PROCESS

- The Investigation or Concept Formation Phase
- The Development Phase
- The Production Phase
- Value Engineering / Value Analysis

INVESTIGATION PHASE

- Defining the New Product
- Statement of Objectives
- Key Technology
- Development of Alternatives
  - + Suitability
  - + Produceability
  - + Component availability
  - + Customer acceptability

Figure 5-1, Upper Half



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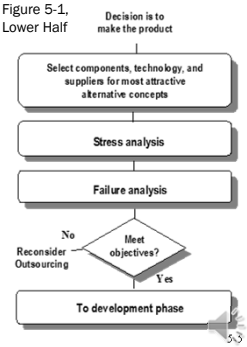
INVESTIGATION PHASE CONTINUED

- Development of Alternatives
  - + Make-or-Buy and Outsourcing Analysis
  - + Select Components, Technologies, and Supplies
  - + Stress Testing and Failure Analysis

Figure 5-1, Lower Half



5-3

QUESTIONS TO ASK PRIOR TO INVITING A SUPPLIER INTO THE DESIGN PROCESS

(Early Supplier Involvement)

- Will the supplier be able to meet our cost, quality, and product performance requirements?
- Does the supplier possess the required engineering capability?
- Will the supplier be able to meet our development and production needs?
- Does it have the necessary physical process and quality capabilities required?
- Does the supplier have both the resources and the reputation of being able to overcome problems and obstacles as they arise?

5-6

QUESTIONS TO ASK PRIOR TO INVITING A SUPPLIER INTO THE DESIGN PROCESS

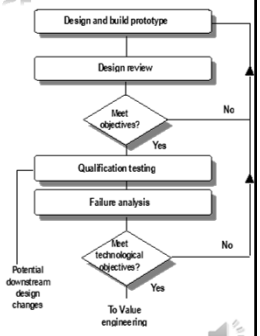
- Is the supplier financially viable?
- Are the supplier's short and long term business objectives compatible with ours?
- If a long term relationship appears desirable, are the technology plans of the two firms compatible?
- If a long term relationship appears desirable, is it likely that we can build a trusting relationship?

5-7

THE DEVELOPMENT PHASE

- Prototypes
- Design Reviews
- Qualification Testing
  - margin tests
  - life tests
- Failure Analysis
- Meet Objectives?
- Value Engineering

Figure 5-2, Upper Half



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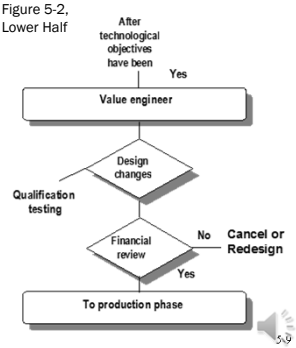
THE DEVELOPMENT PHASE

- Design Analysis
- The Value Engineering Checklist
- Viability

Figure 5-2, Lower Half



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VALUE ENGINEERING

- Value engineering is a systematic study of every element of cost in a material, item of equipment, service or construction project to ensure that every element of cost fulfills a necessary function and at the lowest possible total cost.
- Value engineering is typically focused on the design stage.

ANALYSIS OF EACH COMPONENT

- Can any part be *eliminated* without impairing the operation of the complete unit?
- Can the design of the part be *simplified* to reduce its basic cost?
- Can the design of the part be changed to permit the use of simplified or less costly *production methods*?
- Can less expensive but equally satisfactory *materials* be used in the part?

THE VALUE ENGINEERING CHECKLIST

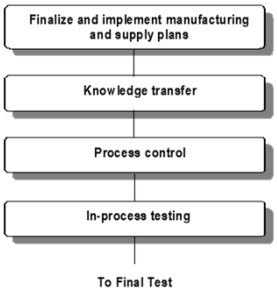
1. Can the item be eliminated?
2. If the item is not standard, can a standard item be used?
3. If it is a standard item, does it completely fit the application, or is it a misfit?
4. Does the item have greater capacity than required?
5. Can the weight be reduced?
6. Is there a similar item in inventory that could be substituted?
7. Are closer tolerances specified than are necessary?

THE VALUE ENGINEERING CHECKLIST

8. Is unnecessary machining performed on the item?
9. Are unnecessarily fine finishes specified?
10. Is "commercial quality" specified?
11. Can you make the item less expensively in your plant? If you are making it now, can you buy it for less?
12. Is the item properly classified for shipping purposes to obtain lowest transportation rates?
13. Can cost of packaging be reduced?
14. Are suppliers contributing suggestions to reduce cost?

THE PRODUCTION PHASE

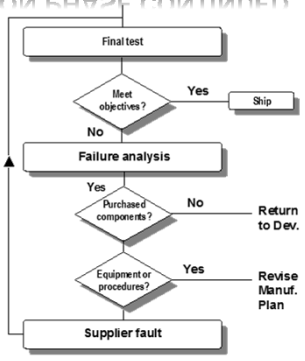
Figure5-4,
Upper Half



- Manufacturing and Production Plans
- Knowledge Transfer
- Process Control
- In-Process and Final Testing
  - + adjust or calibrate the performance
  - + eliminate defects before much value is added to the product

PRODUCTION PHASE CONTINUED

Figure 5-4,
Lower Half



ENGINEERING CHANGE MANAGEMENT

(Engineering Change Orders (ECOs))

- Supply Management involvement:
  - + provide input on the purchased materials implications of a proposed change,
  - + discuss the timing of proposed changes in order to minimize costs associated with unusable incoming materials,
  - + to be aware of forthcoming changes so that appropriate action can be taken with affected suppliers.

HOW TO EXPAND SUPPLY MANAGEMENT'S CONTRIBUTIONS

- Learn language of design (*engineeringeese* or *doctoreese*)
- Design or Project Teams
- Materials Engineers for Supply Management
  - + materials engineering and
  - + supply management activities of sourcing, pricing, and negotiating
- Co-Location (Harley-Davidson)
  - + Faster to market,
  - + reduced total cost,
  - + improved quality

SUPPLY MANAGEMENT PROFESSIONALS WHO INTERFACE SUCCESSFULLY WITH ENGINEERS

- Early Supply Management Involvement is part of the culture and policy of the firm
  - + Often requires policy development from upper management to ensure initial involvement
- Engineers view Supply Management involvement as an asset, not a nuisance
  - + Supply Managers must acquire skills and knowledge
  - + Learn how to read engineering drawings
  - + Learn technical terms
  - + Meet with supplier's sales personnel to review technical information about products
  - + Visit suppliers

TAKEAWAYS

- The design stage provides the greatest opportunity to reduce the life cycle costs of products.
- Supply management and the firm's suppliers have major contributions to make during this process.
- Analysis of adding value is not limited to a firm's services and products, supply managers themselves must add value to the design process in order to become a viable and lasting member of the design team.

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