Chapter 6 - Cost Management

What should be gained from this chapter?

(1) You should be able to define, and describe the benefits of, life-cycle costing.

(2) You should know and understand the basic steps in life-cycle cost analysis.

(3) You should have the ability to convey a basic understanding of functional economic analysis.

(4) You should be able to describe a work breakdown structure and how it is used.

(5) You should be able to define, and describe the advantages of, activity-based costing.

(6) You should have the ability to convey a basic understanding of cost and effectiveness analysis.

LIFE-CYCLE COST:

Total cost of a system over its complete life cycle

LIFE-CYCLE COST ANALYSIS BASIC STEPS:

1. Describe system in functional terms and identify metrics

2. Describe system life cycle and identify activities in each phase

3. Develop work breakdown structure for all activities

4. Estimate costs for each work breakdown package using activity-based costing

5. Develop computer-based model for analysis

6. Develop cost profile for baseline system

7. Develop cost summary and identify high-cost contributors

8. Determine causes for high-cost activities

9. Conduct sensitivity analyses to identify high-risk areas

10. Rank high-cost activities using Pareto diagram

11. Identify feasible alternatives and determine life-cycle cost profiles and break-even points

12. Recommend preferred approach and develop system modification plans if appropriate

FUNCTIONAL ECONOMIC ANALYSIS:

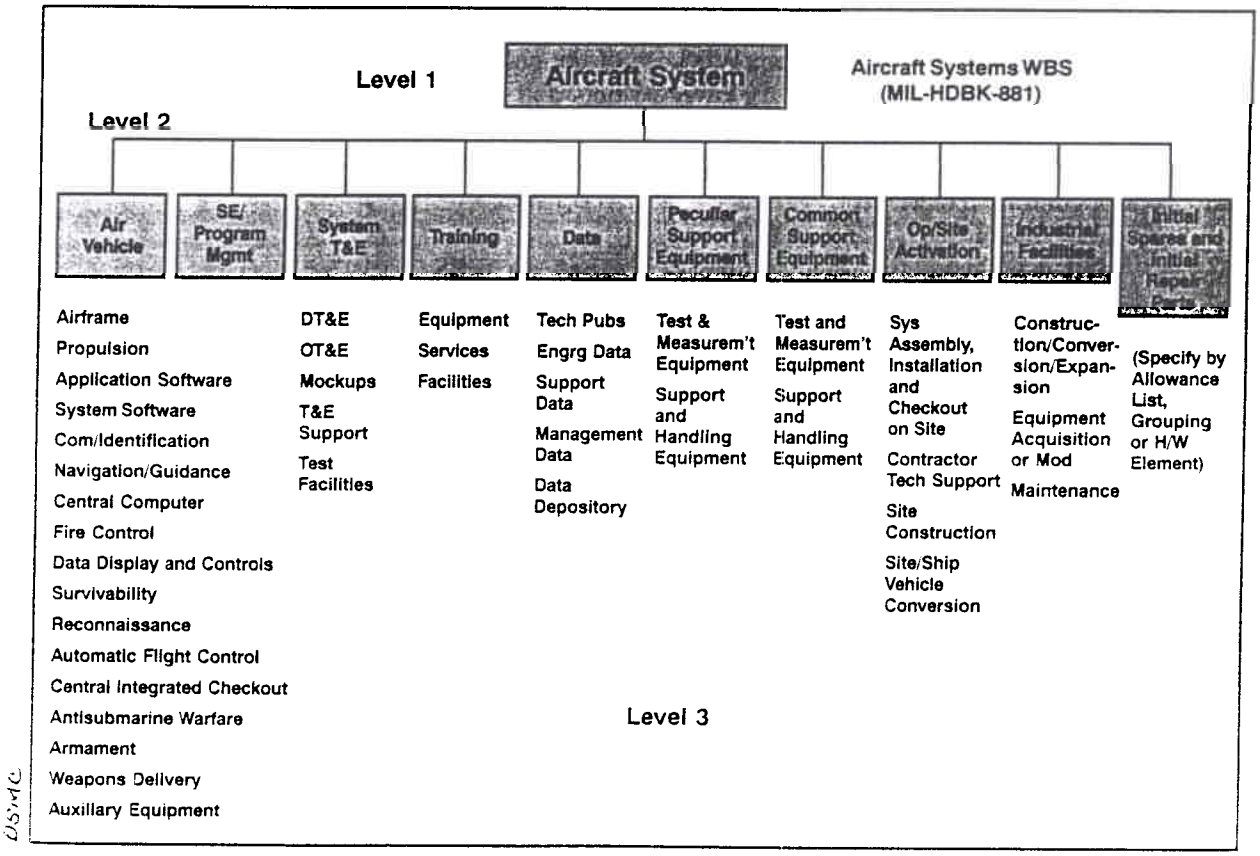
(Note - Focus of Chapter 25)

- **Functional analysis addresses activities that a system must perform by creating action-oriented functional blocks**
- **Functional blocks are linked in a flow format**
- **Inputs, outputs, constraints and resources are identified for each functional block**
- **Costs are estimated for each function, and costs are allocated downward from the top to yield design-to-cost metrics**
- **Work breakdown structures are created and costs compiled by function**

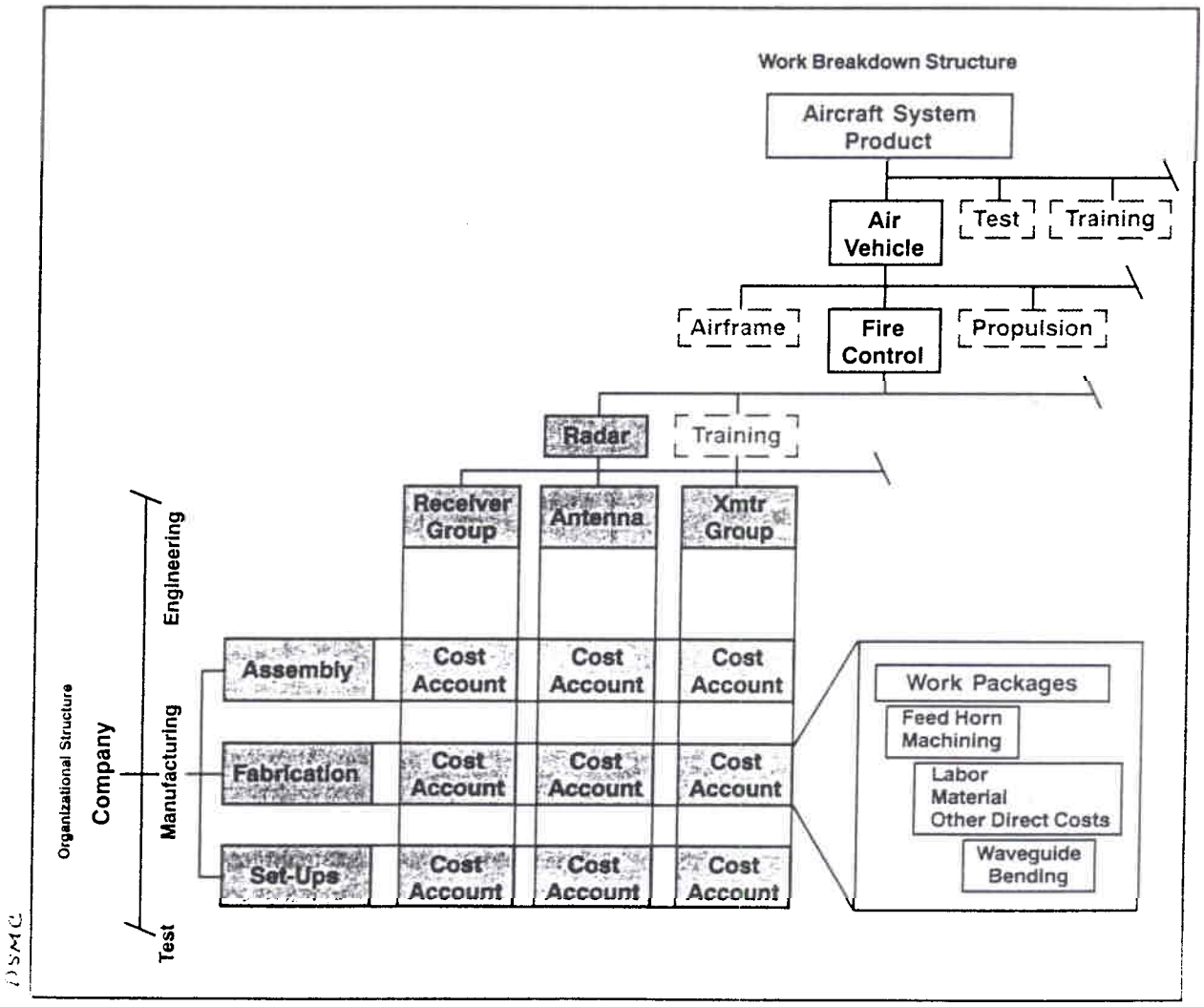
WORK BREAKDOWN STRUCTURE:

Organization of work packages

EXAMPLE STRUCTURE:



EXAMPLE WBS CONTROL MATRIX:



ACTIVITY-BASED COSTING:

- **A methodology directed toward the detailing and assignment of costs to items that cause them to occur**

- **Objective is to enable traceability of all applicable costs to the process or product that generates them**

- **Allows for the initial allocation and later assessment of costs by function**

COST AND EFFECTIVENESS ANALYSIS:

- **Cost-effectiveness relates to measurement of a system in terms of system effectiveness and total life-cycle cost**
- **Cost-effectiveness evaluation is similar to cost-benefit analysis**
- **Metrics for cost-effectiveness can be expressed in terms of a ratio between a system effectiveness measure and life-cycle cost**

EXAMPLES —

Cost-Effectiveness Figures of Merit (C-E FOM):

- **availability / life-cycle cost**
- **performance / life-cycle cost**
- **logistics effectiveness / life-cycle cost**
- **overall equipment effectiveness / life-cycle cost**