



Rob Dobson &  
Associates

# Achieving Effective Technical Control

*Rob Dobson*

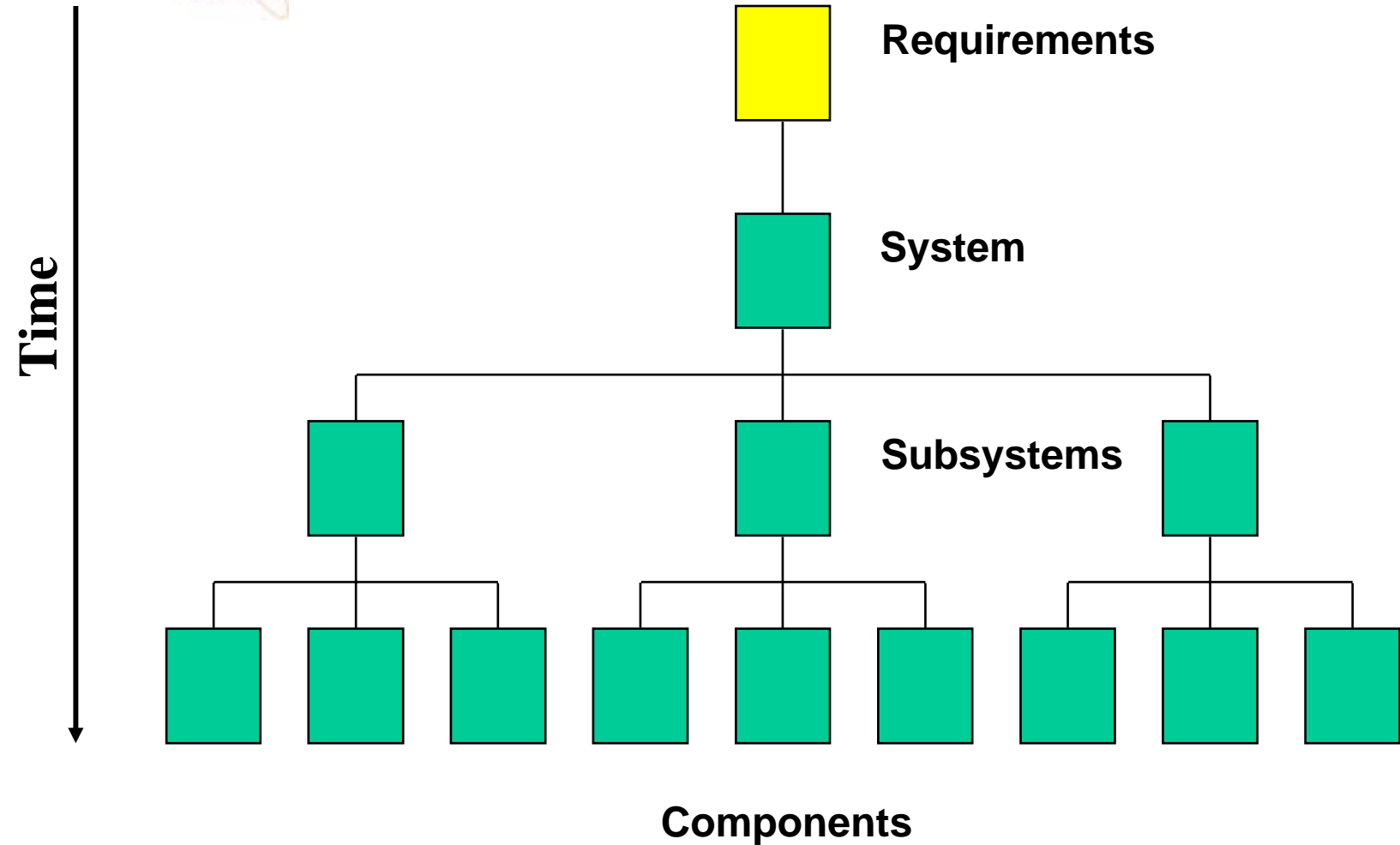
# Statement of Problem

- How to:
  - Ensure customer's technical requirements are satisfied
  - Have clear accountabilities for technical outcomes
  - Integrate technical control with cost and schedule control
  - Satisfy accounting and commercial practices

# Assumptions

- Requirements
  - Complete
  - Stable
  - Validated
- All Stakeholders In Agreement
  - End Users
  - Acceptance Authority

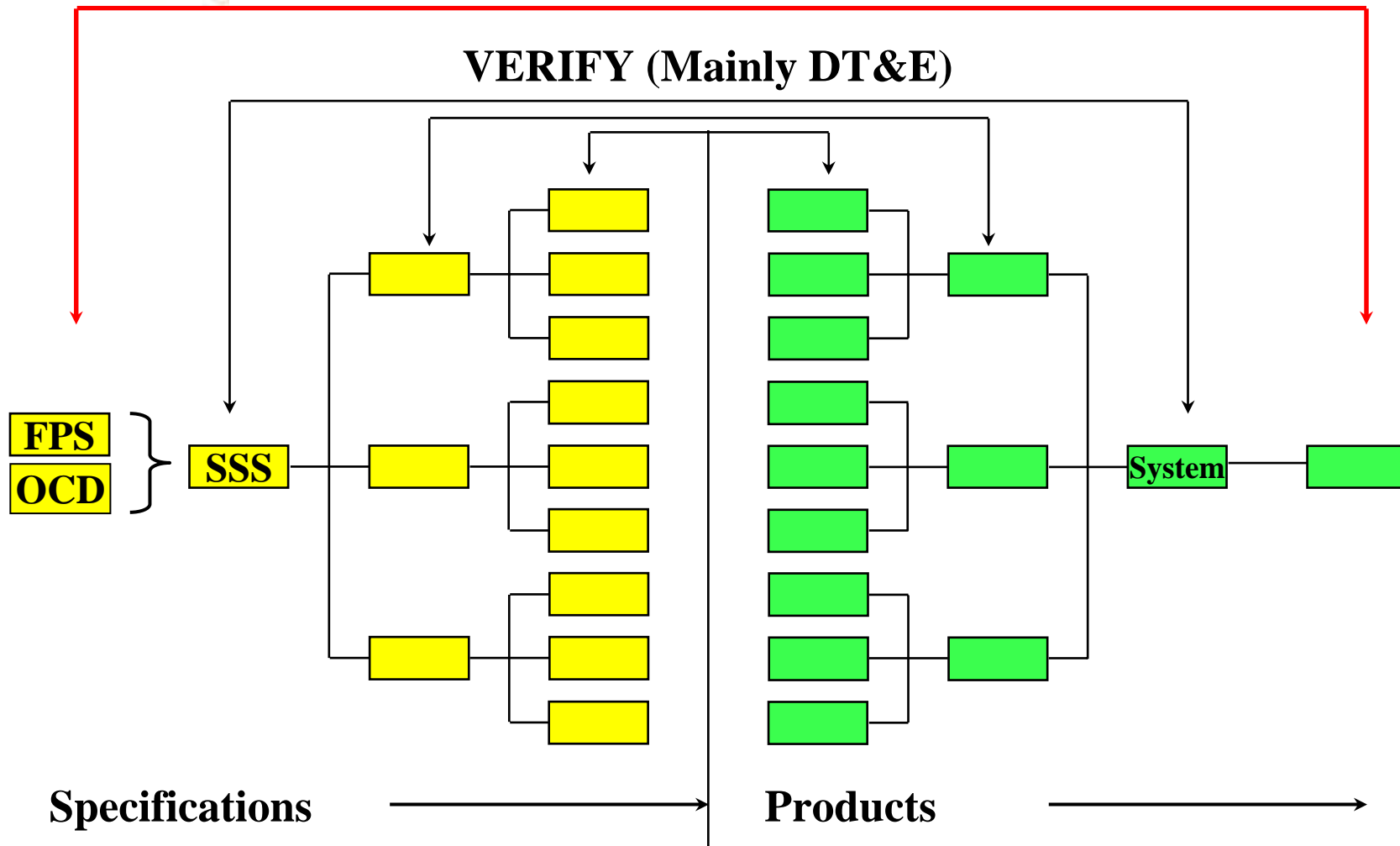
# Product Structure / Hierarchy



# Technical Control

**VALIDATE (Mainly OT&E)**

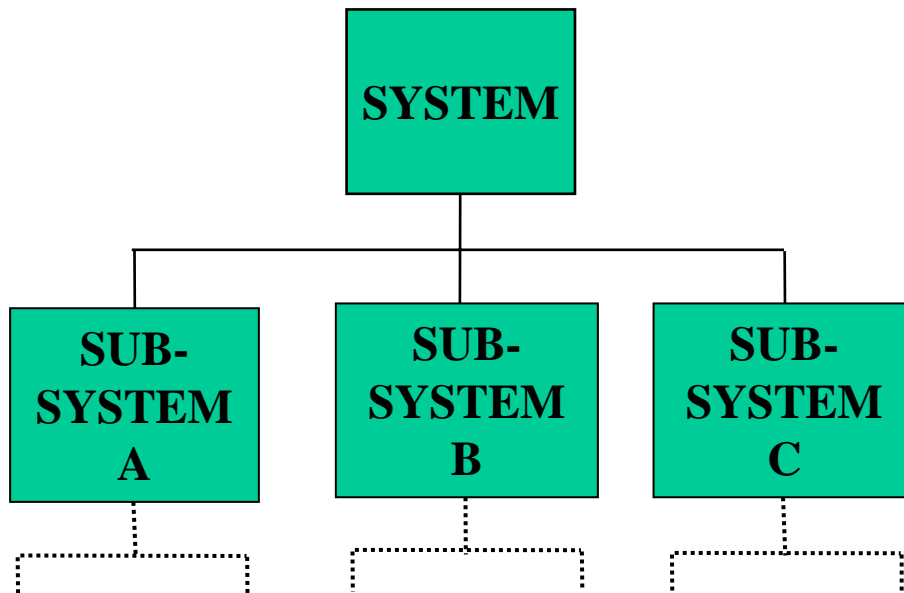
**VERIFY (Mainly DT&E)**



# Design Manager Responsibility

## SYSTEM DESIGN MANAGER

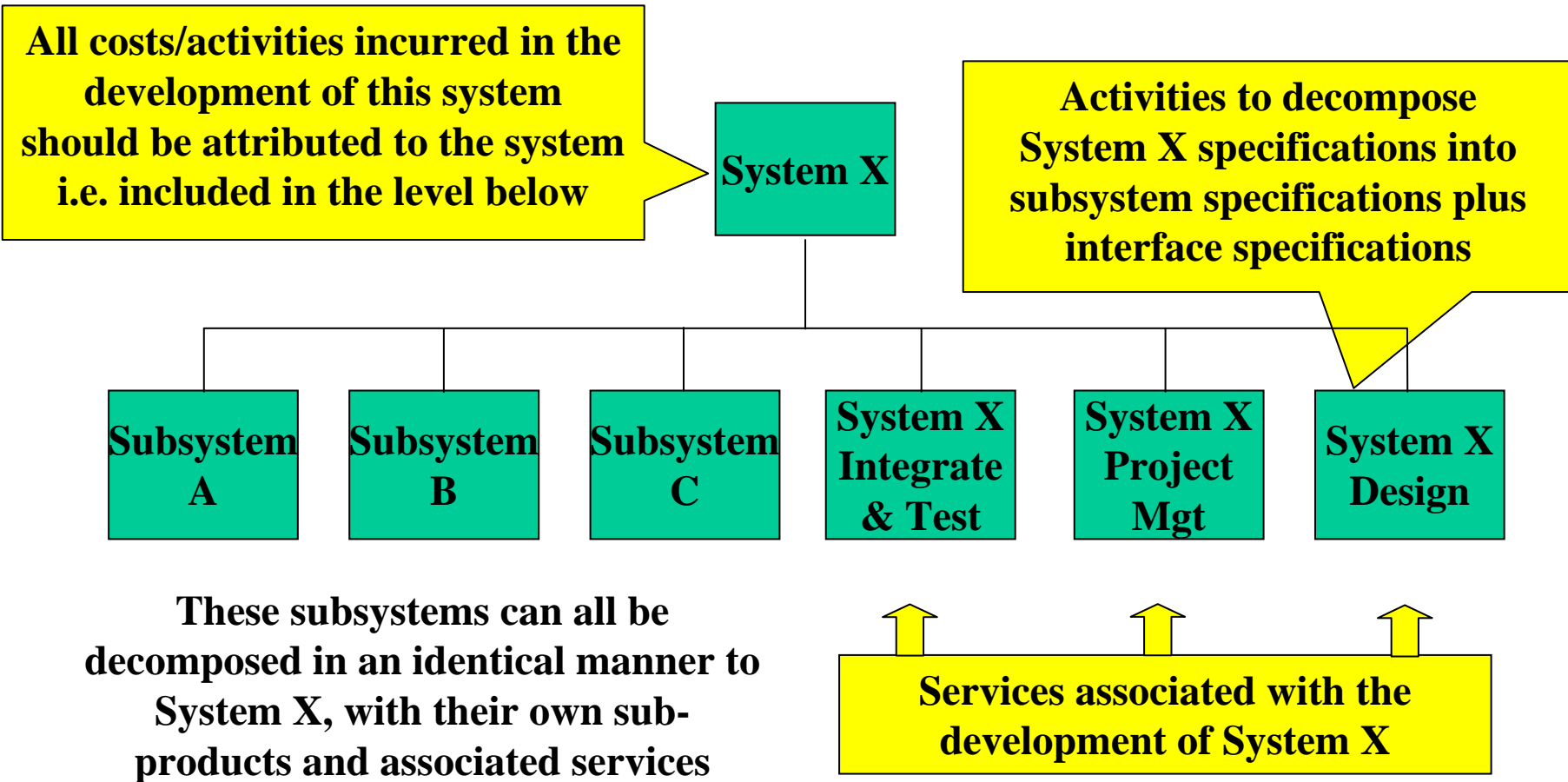
**“I guarantee that if these subsystems are developed to my specifications and are connected as I have specified, then the resultant will meet the specification for my system (product).”**



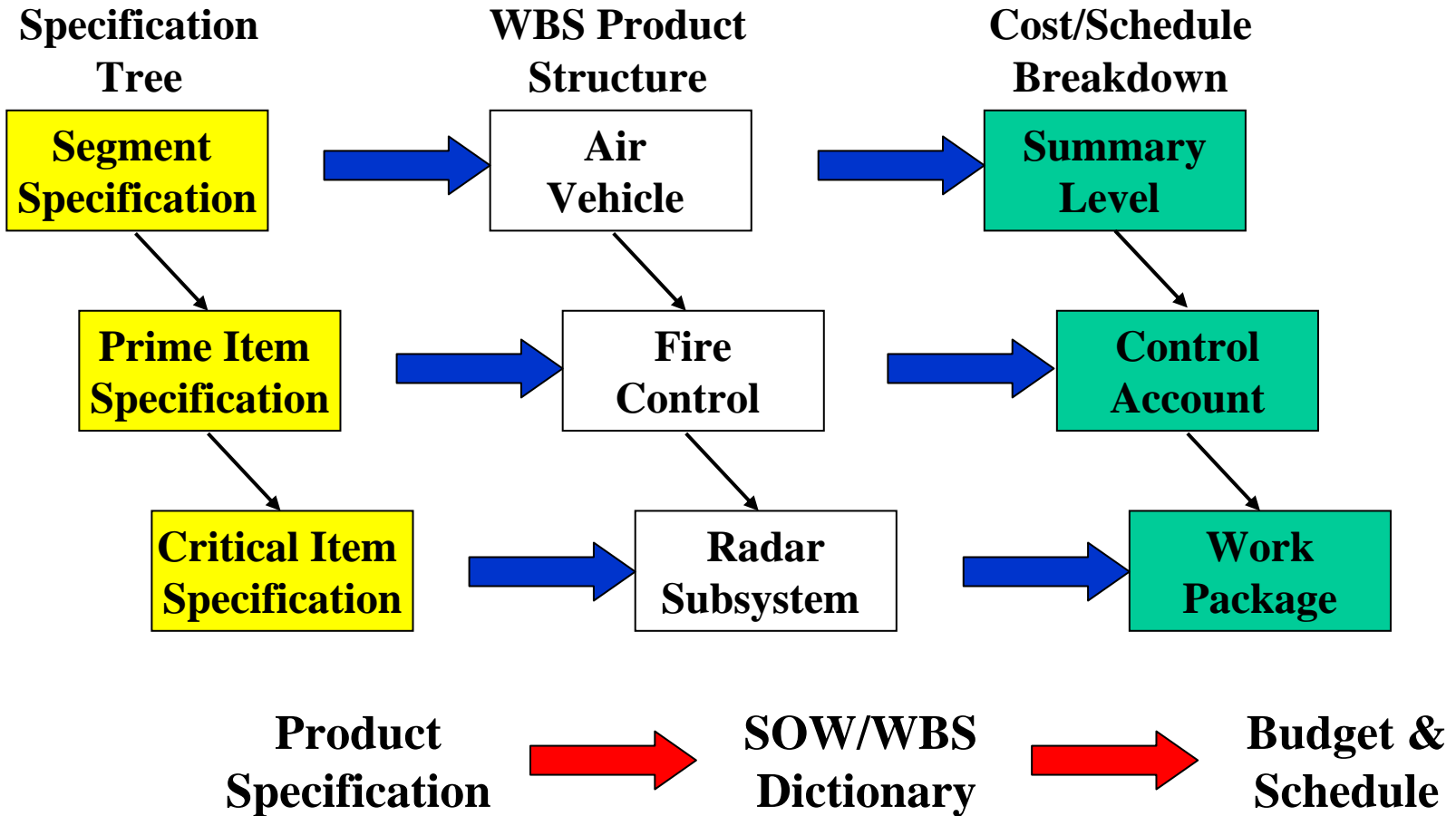
## SUBSYSTEM DESIGN MANAGER

**I guarantee that if these subsystems are developed to my specifications and are connected as I have specified, then the resultant will meet the specification for my system (product).**

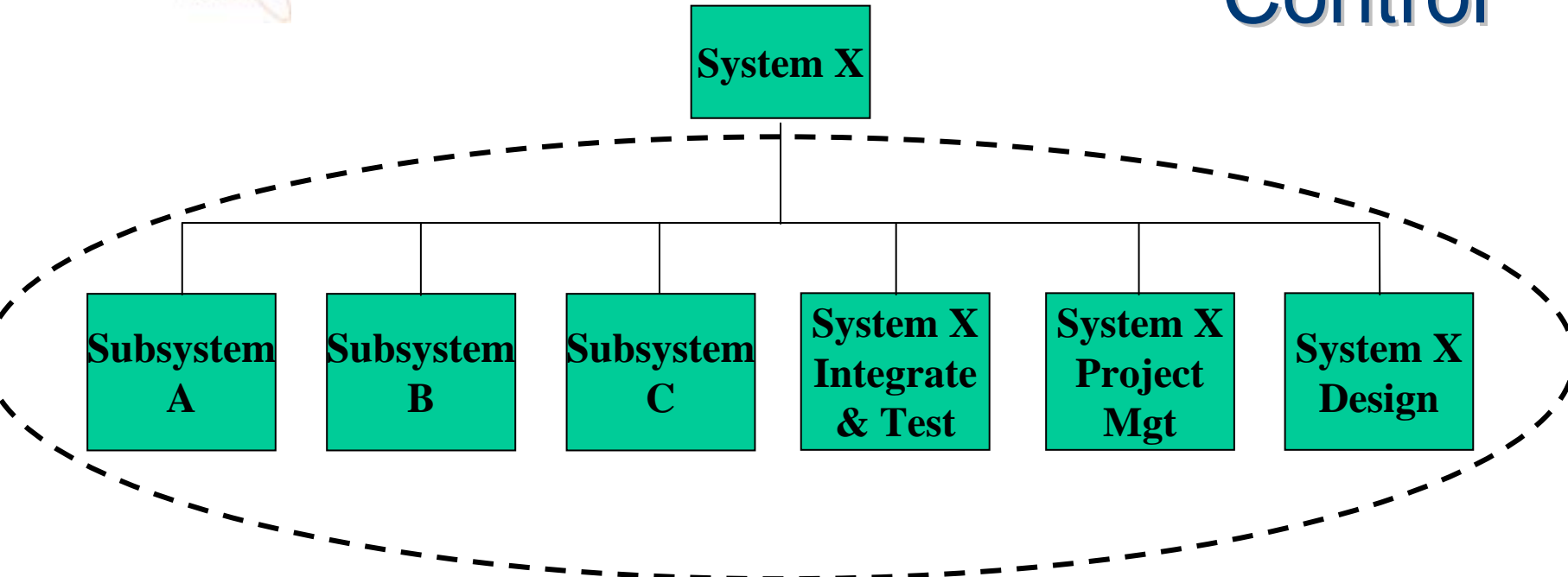
# Activity Based Cost Attribution



# WBS Elements As Subcontracts



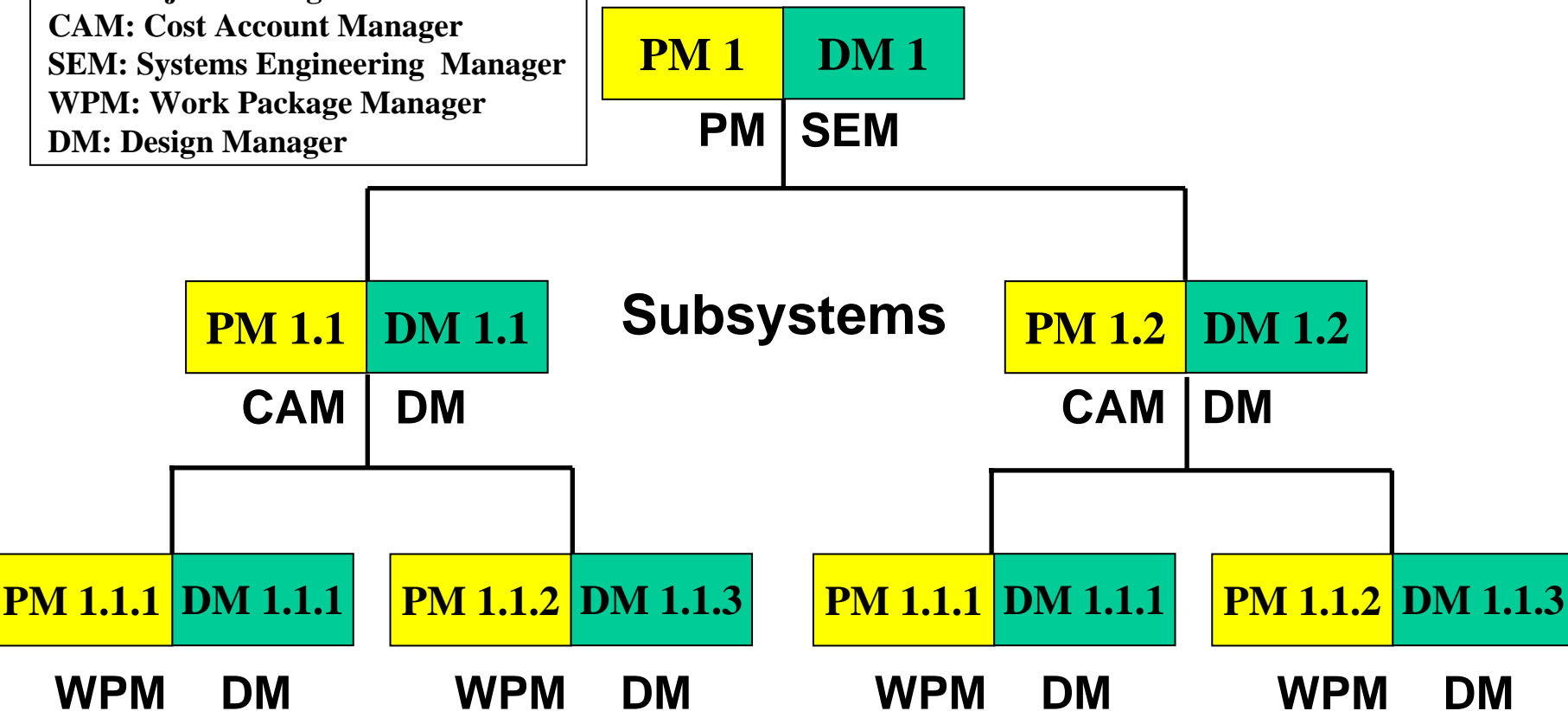
# Cost Schedule & Technical Control



- **System X cost is equal to the sum of all costs contained within the dotted line.**
- **The schedule to complete System X is equal to the schedule to complete all activities within the dotted line.**
- **System X specification is met by the combination of the specifications for subsystem A, B & C plus the interface specifications.**

# Project Manager/Design Manager Relationship System

**Legend**  
**PM:** Project Manager  
**CAM:** Cost Account Manager  
**SEM:** Systems Engineering Manager  
**WPM:** Work Package Manager  
**DM:** Design Manager



# Horizontal Threads

- Some threads cut across multiple subsystems
  - Control
  - Fault isolation
  - Difficult to have clear technical accountability
- Appoint a Design Manager
  - Manage as a subsystem
  - Produce a thread specification
  - Specification decomposed and allocated to subsystems

- Develop a product structured WBS
  - Products identified in specification tree
  - Product specifications traceable to customer's requirements
- Appoint a Design Manager for each product
- Map cost and schedule onto products
  - Endows WBS elements with attributes of a subcontract
- Treat WBS elements as subcontracts