PRESENTATION TO THE NUCLEAR WASTE TECHNICAL REVIEW BOARD

Subject: Physical System Functional Analysis

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PHYSICAL SYSTEM FUNCTIONAL ANALYSIS

Background

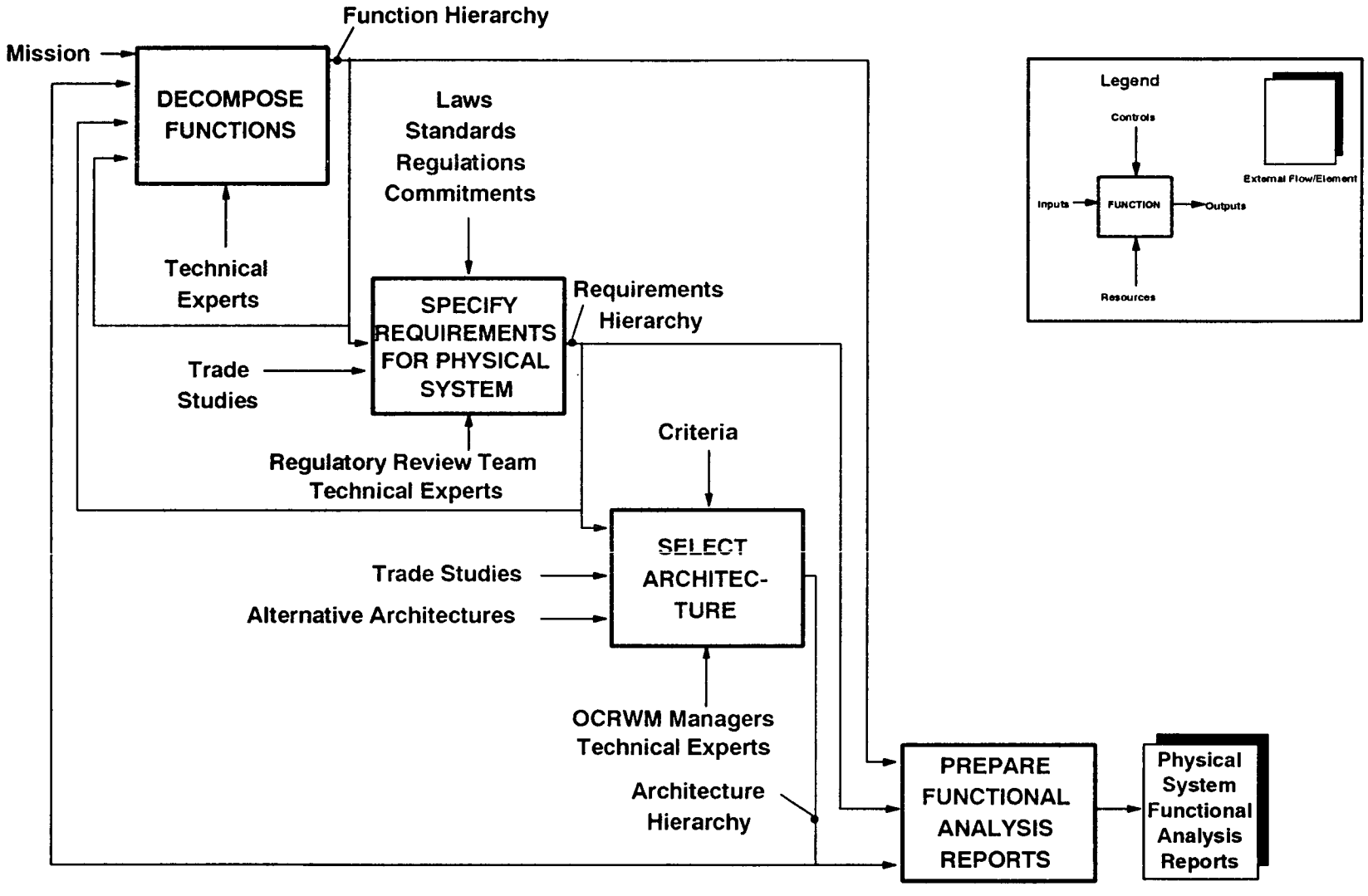
- August 1990 Management System Improvement Strategy (MSIS) requested implementation of systems engineering principles and conduct of a functional analysis approach to integrate program functions with physical system requirements.

- Ongoing efforts since August 1990 are related to producing revised technical baseline requirements documents in accordance with QA Technical Document Management Plan.

- A functional analysis approach was implemented using a QA qualified contractor team supported by OCRWM technical line personnel and technical experts in a series of individual functional analysis meetings.

PHYSICAL SYSTEM FUNCTIONAL ANALYSIS

Approach



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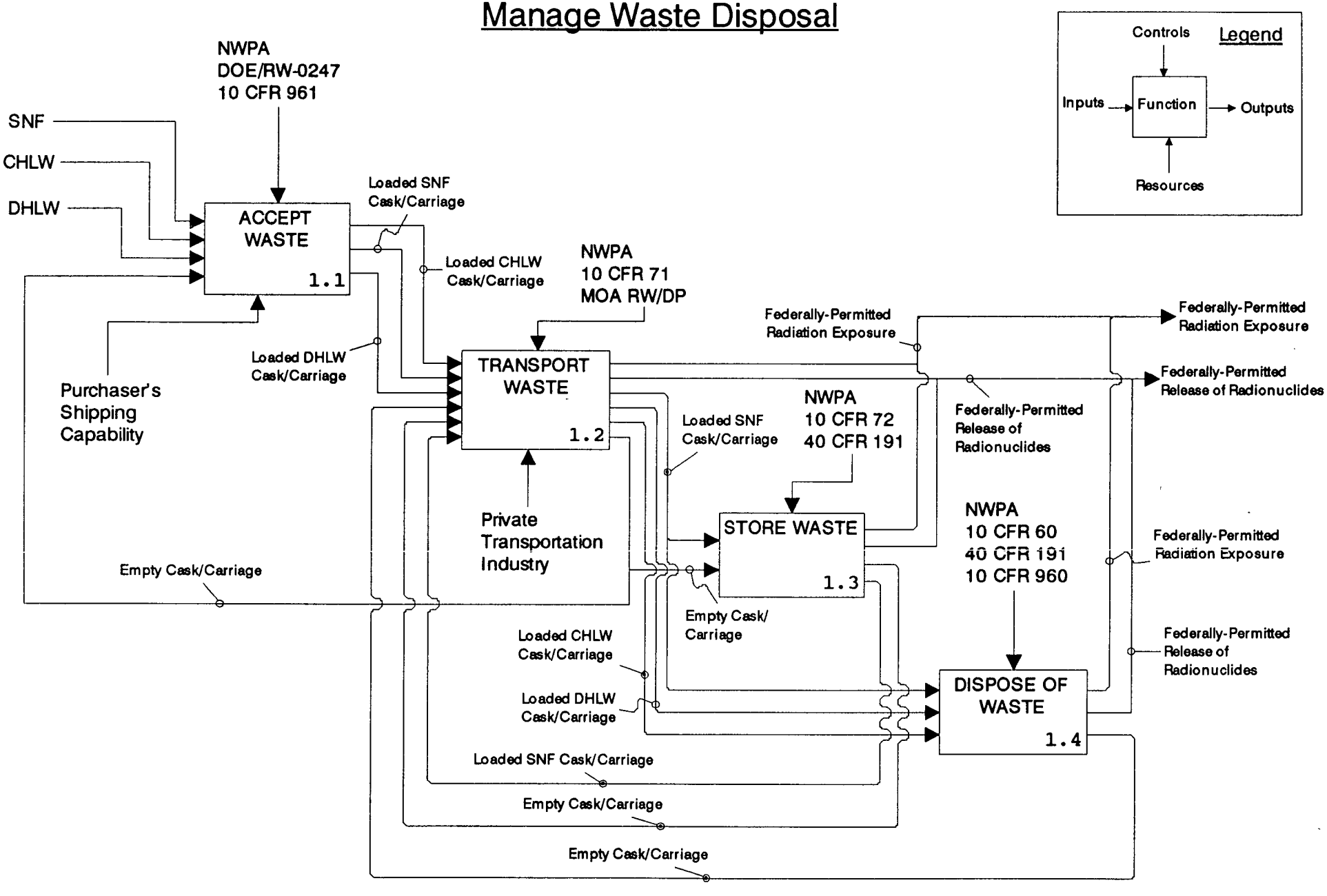
PHYSICAL SYSTEM FUNCTIONAL ANALYSIS

Manage Waste Disposal



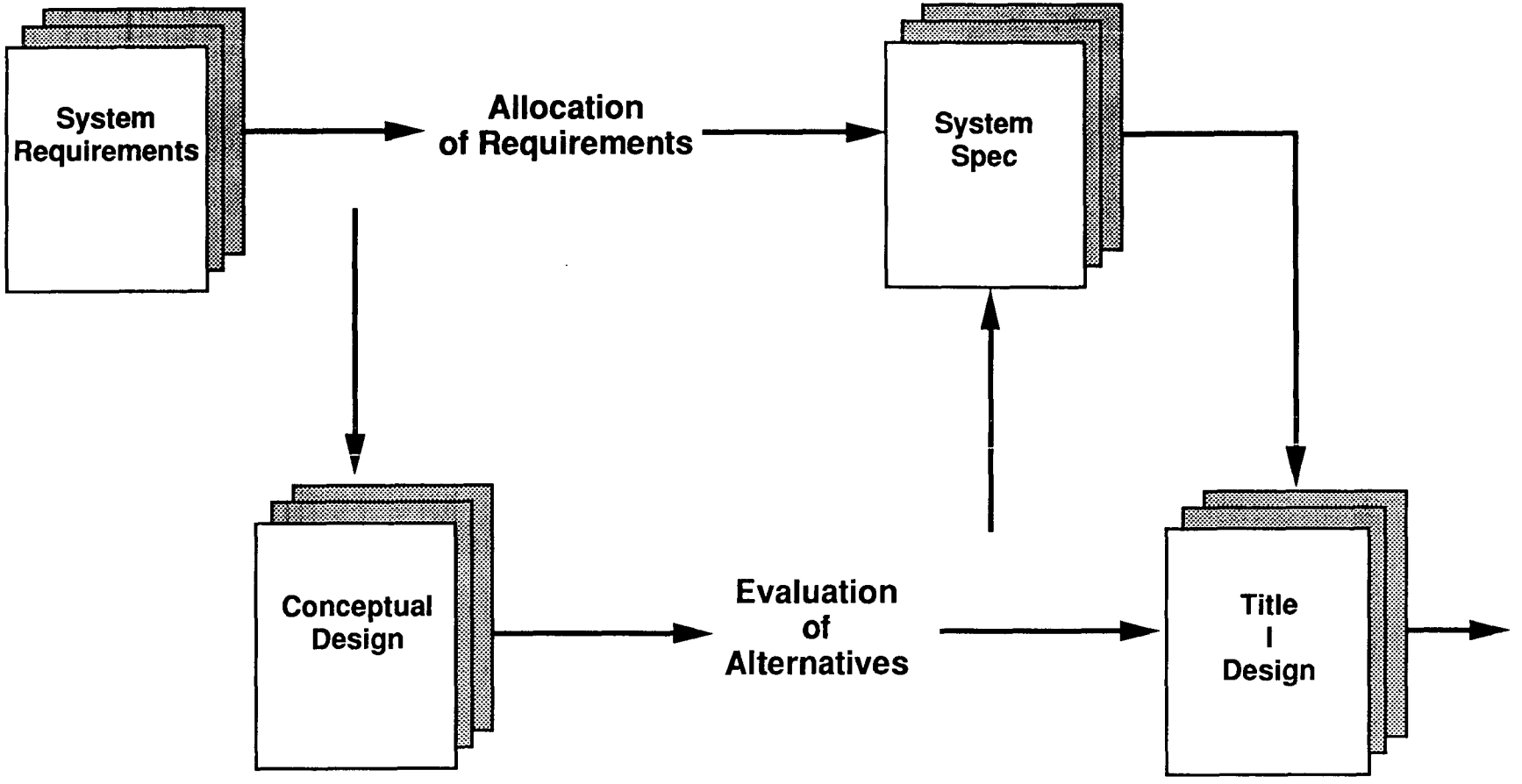
PHYSICAL SYSTEM FUNCTIONAL ANALYSIS

Physical System Requirements Documents

TITLE	STATUS
Overall System	Undergoing Program Change Control Board Review
Accept Waste	Will initiate functional analysis efforts in October, after Transport Waste
Transport Waste	Currently undergoing functional analysis - (August - October)
Store Waste	Undergoing Program Change Control Board Review
Dispose of Waste	Undergoing Program Change Control Board Review
Exploratory Studies Facility	Undergoing Program Change Control Board Review

PHYSICAL SYSTEM FUNCTIONAL ANALYSIS

Using The Functional Analysis Results



PHYSICAL SYSTEM FUNCTIONAL ANALYSIS

Trade Studies

Physical System Functional Analysis leads to the need for:

- **Allocating requirements and,**
- **Selecting from alternative system configurations,**

both of which depend on the results of trade studies.

PHYSICAL SYSTEM FUNCTIONAL ANALYSIS

System Trade Studies Process

1. Define the specific analysis objectives

2. Identify system alternatives and/or configurations for consideration

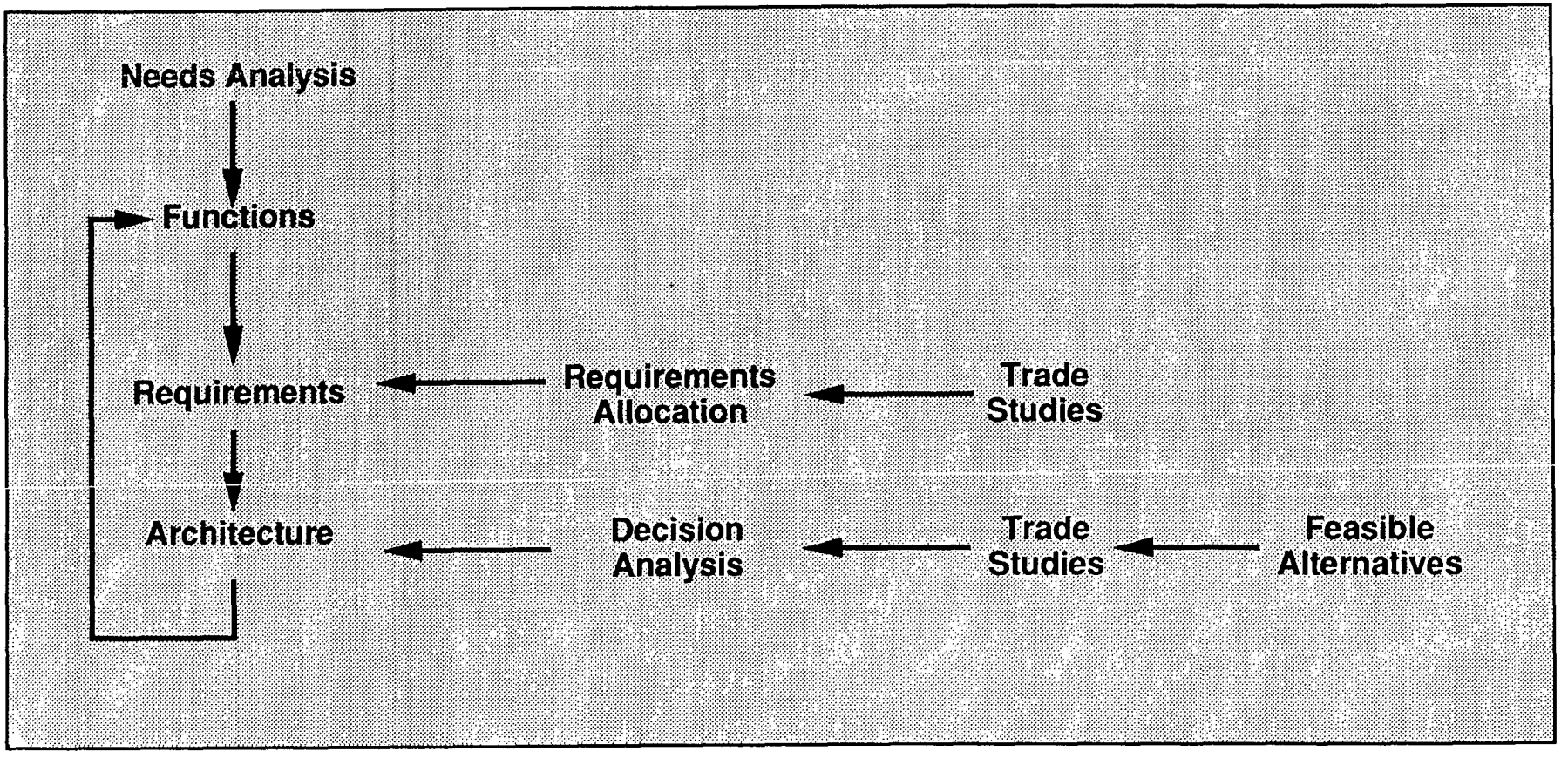
3. Identify common figures of merit (cost, health and environmental risks, schedule, reliability and other performance measures)

4. Generate figures of merit for system alternatives

5. Conduct decision analysis.

PHYSICAL SYSTEM FUNCTIONAL ANALYSIS

Synchronization of Decisions



PHYSICAL SYSTEM FUNCTIONAL ANALYSIS

Summary

The Physical System Functional Analysis is an explicit, logical and orderly approach to requirements allocation which:

- **Ensures consistency and traceability,**
- **Explicitly identifies key interfaces,**
- **Provides a framework for integrating systems analyses,**
- **Preserves flexibility for implementation,**
- **Develops program-wide technical support, and**
- **Leads to comprehensive requirements documents.**