



International Cost Estimating and Analysis Association

A History of Thought in Defense Acquisition

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Introduction

- Defense Acquisition Process “Lay of the Land”
- The historical roots of the Earned Value Management System (EVMS)
 - Polaris Missile Development
- The historical roots of the Contractor Cost Data Report (CCDR)
 - F-14 Tomcat Development

Theory of Administration

- German Concepts
 - Neutral experts
 - Clear demarcation of authority
 - Clear lines of hierarchy
- Woodrow Wilson
 - Policy vs. Administration
- General Staff (1903)
 - Independence of the technical services/bureaus
- German Historical School
 - Analytical holism supersedes individualism
 - Foundation of U.S. economics as a profession

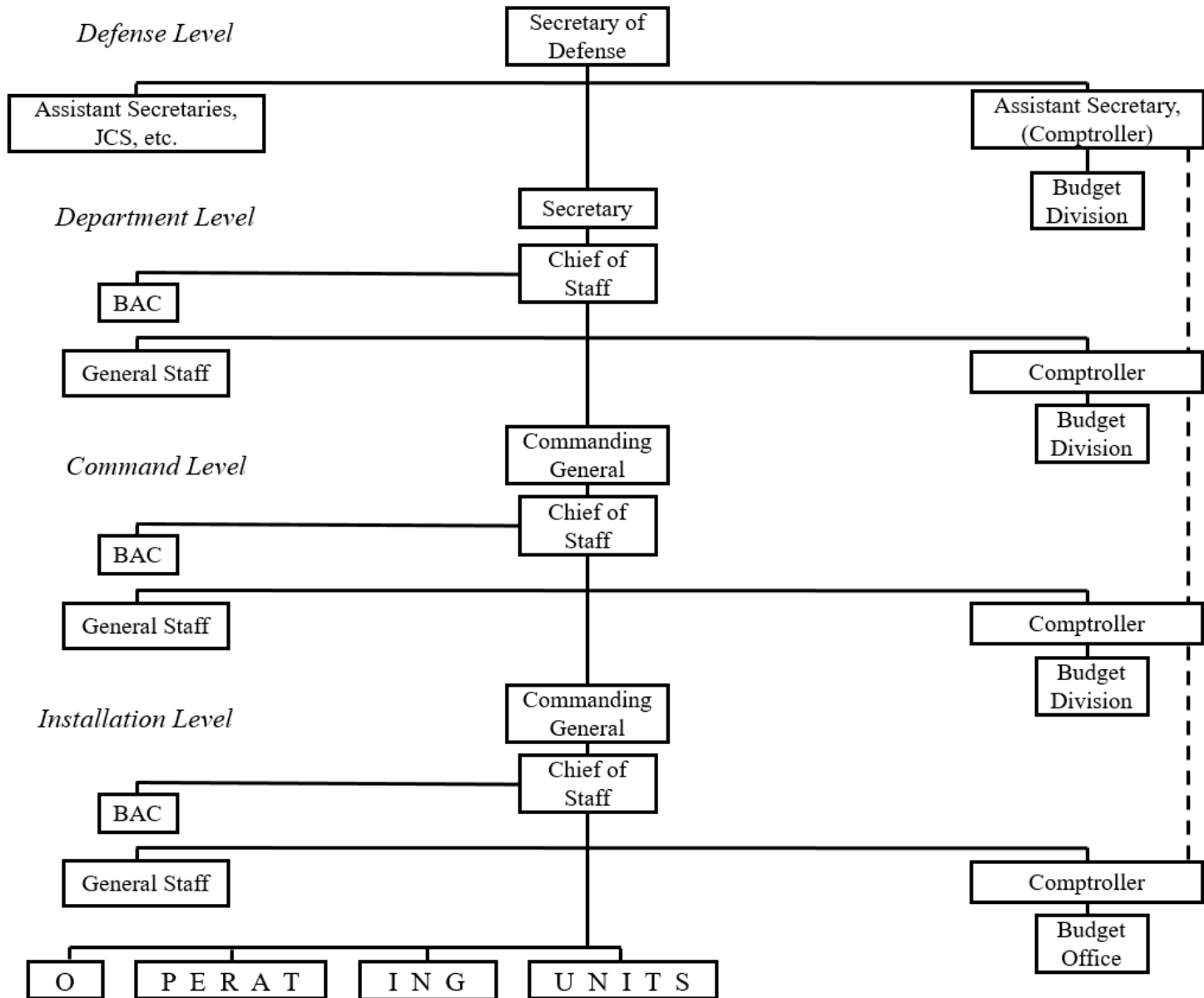
World War I

- War Industries Board
- Contracting
 - Cost-plus requires auditable accounting
 - Direct vs. Overhead vs. G&A
- Post-war calls to extend the war economy
 - Central planning of “in kind” transfers as opposed to market prices

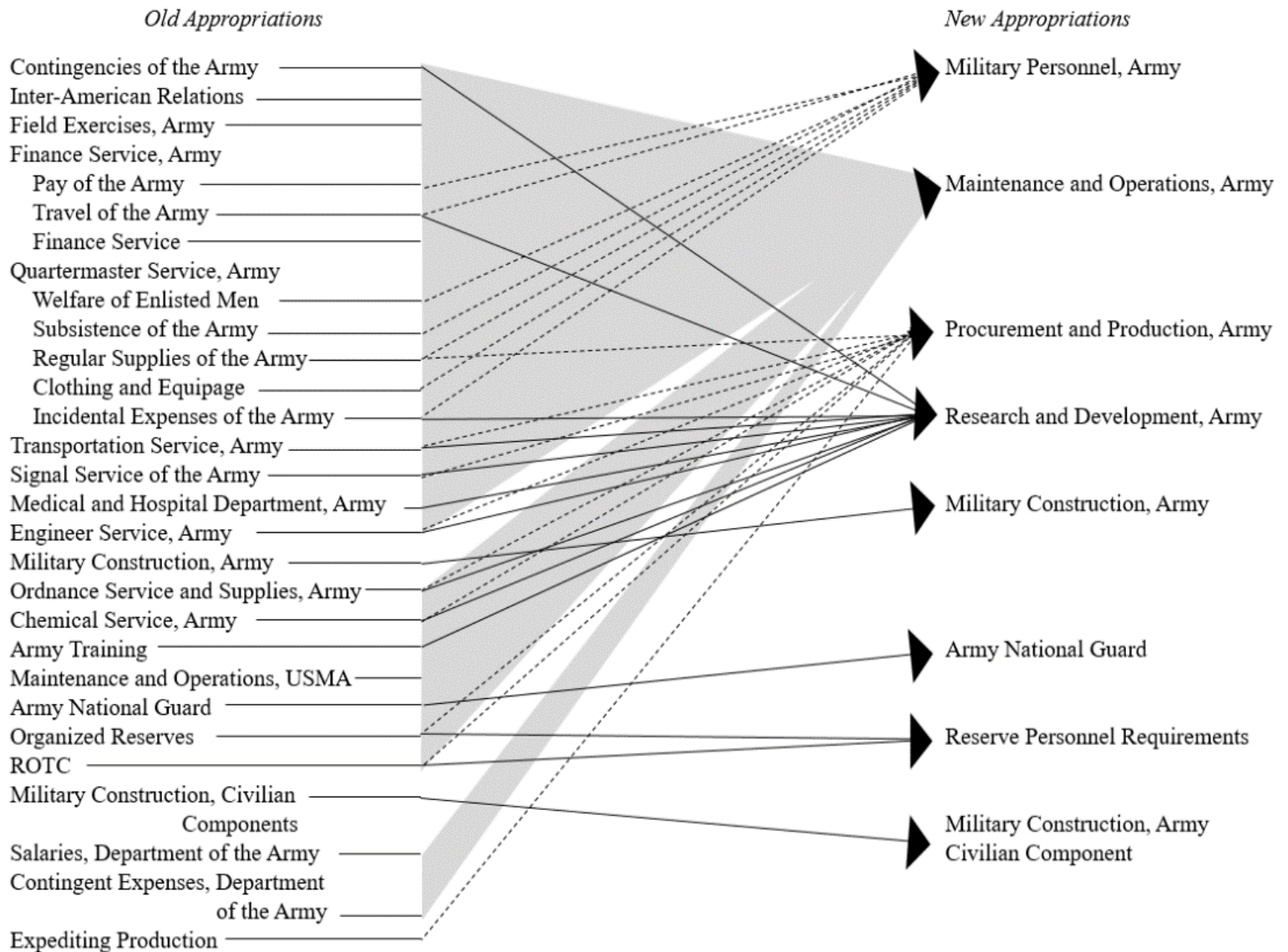
World War II

- Problem of allocation
 - Controlled Materials Plan
 - Legacy of Taft Commission (1911)
- Unification
- Military vs. Civilian control

Organization for Budgeting



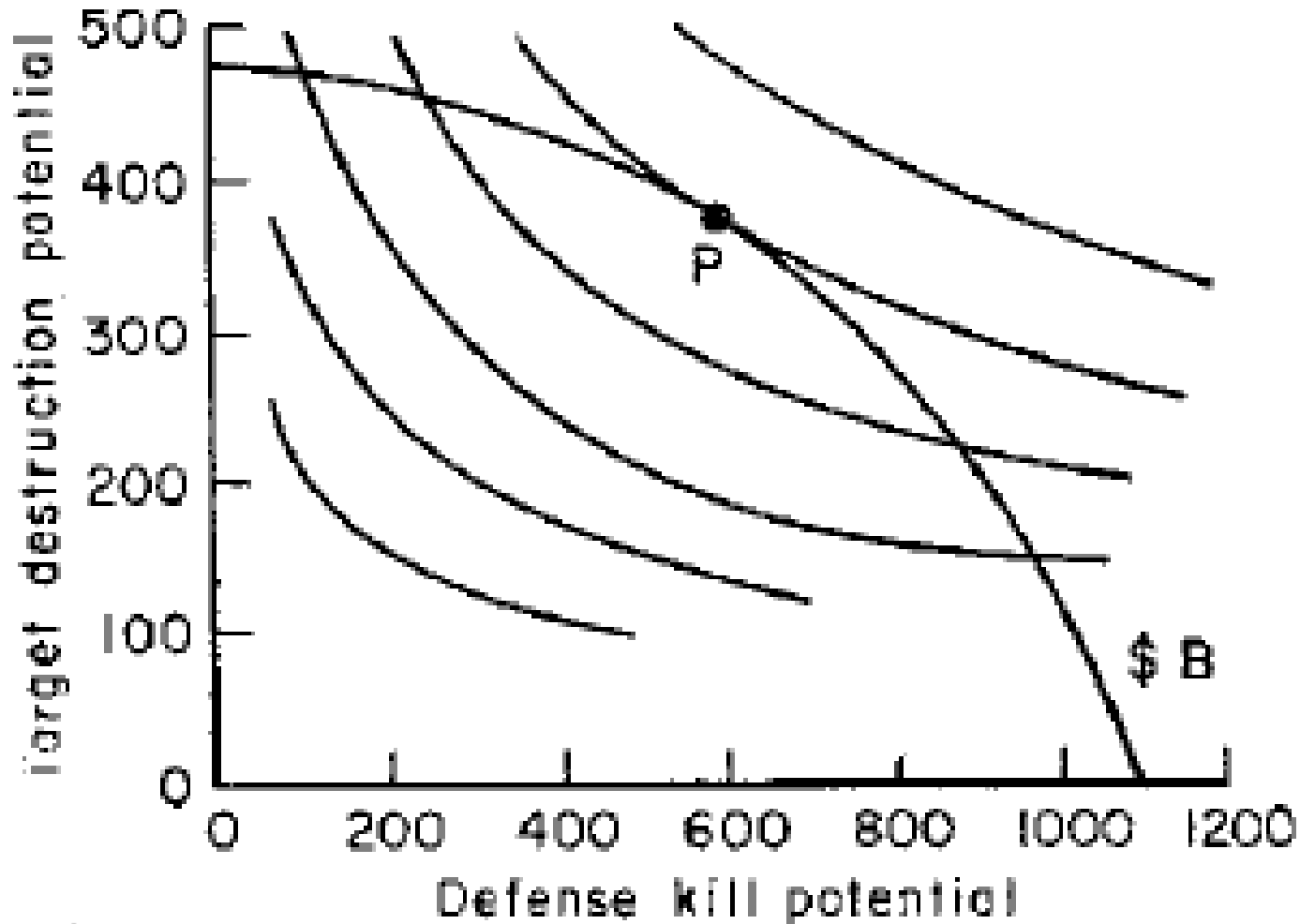
From Object/Org. to Program Budgeting



Systems Analysis

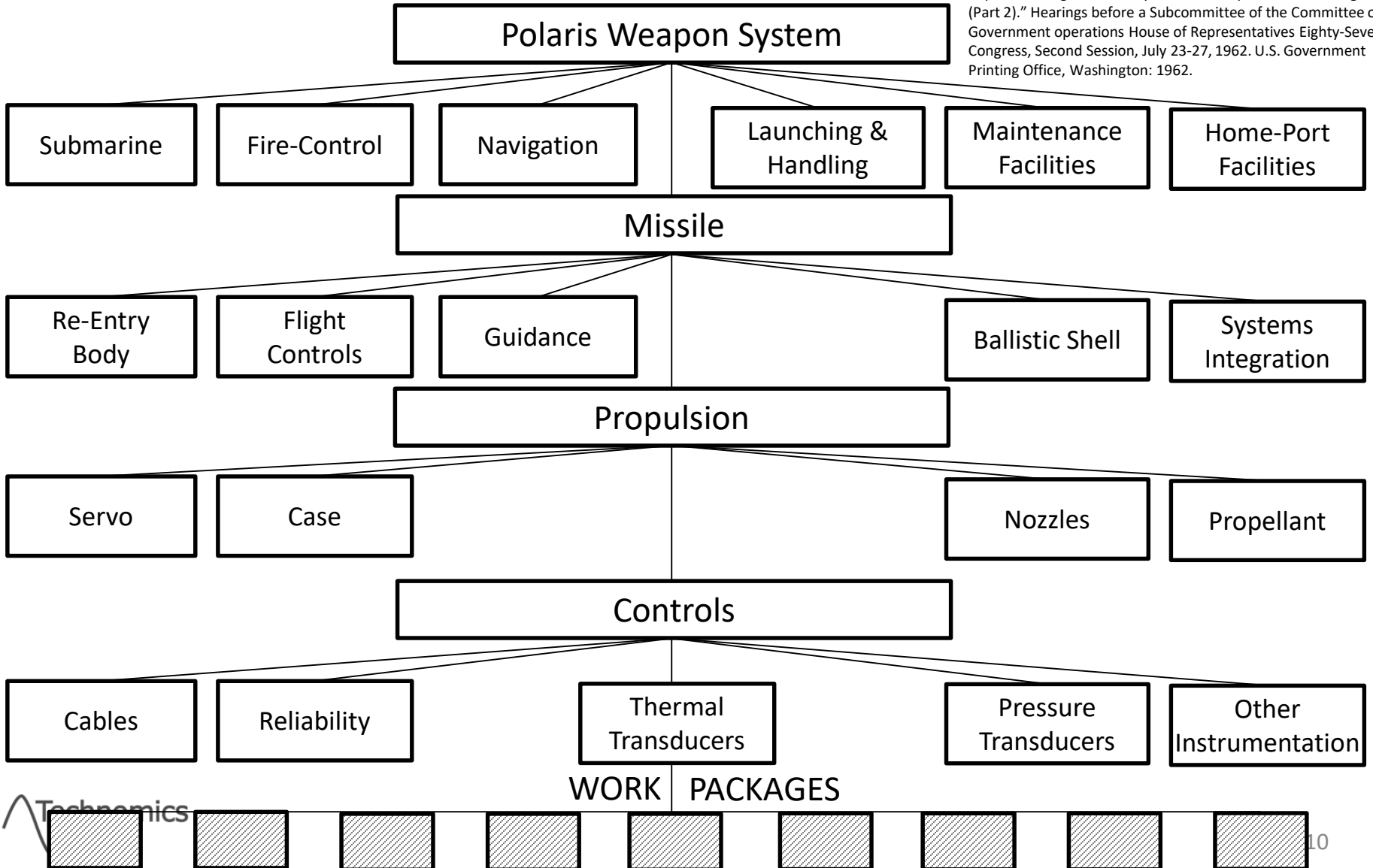
- Four rationales for Systems Analysis
 - Developing un-procured systems is wasteful
 - Air Force can reliably evaluate designs
 - Contractors are not well compensated for development alone
 - Too much time between R&D and procurement
- 1949 Bomber study
 - Diverse vs. Unique?
- Systems analysis as Cost-Benefit analysis
 - Descends from Marshall/Samuelsson

Applied Economic Theory



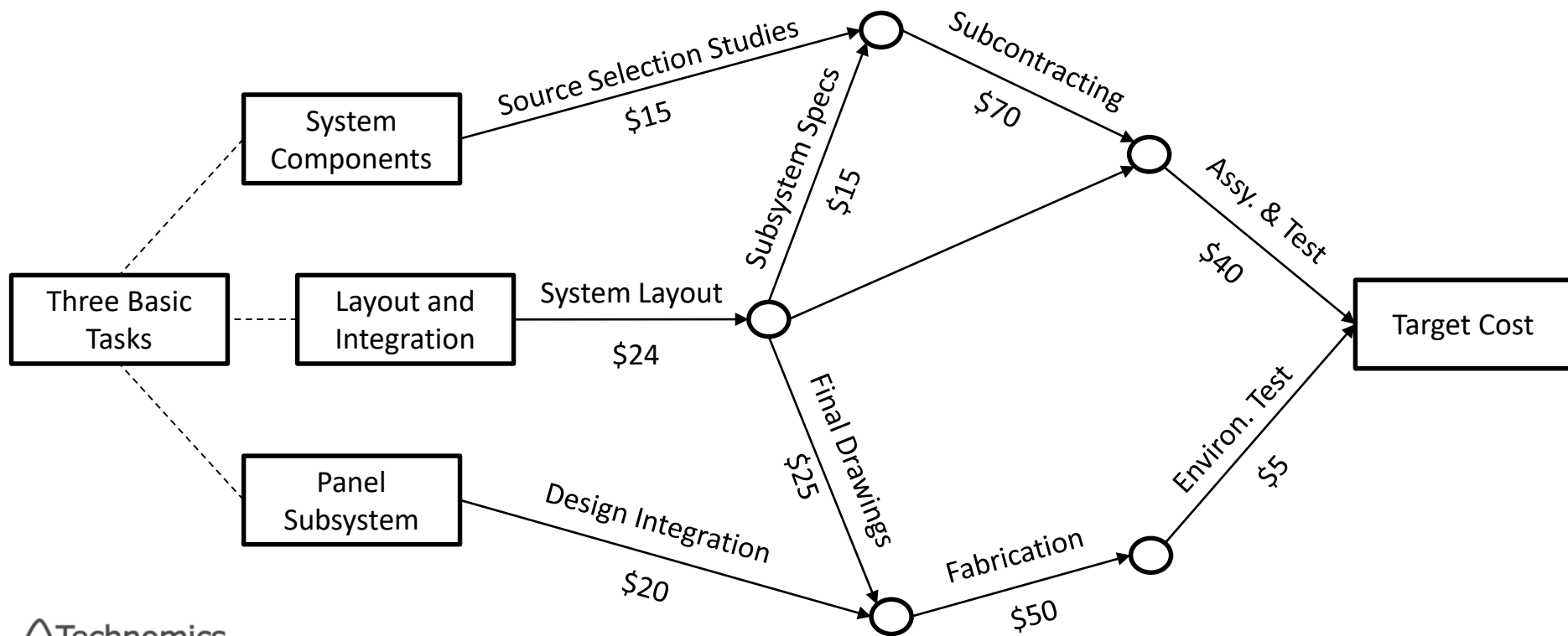
PERT Starts with the WBS

Reproduced figure from "Systems Development and Management (Part 2)." Hearings before a Subcommittee of the Committee on Government operations House of Representatives Eighty-Seventh Congress, Second Session, July 23-27, 1962. U.S. Government Printing Office, Washington: 1962.

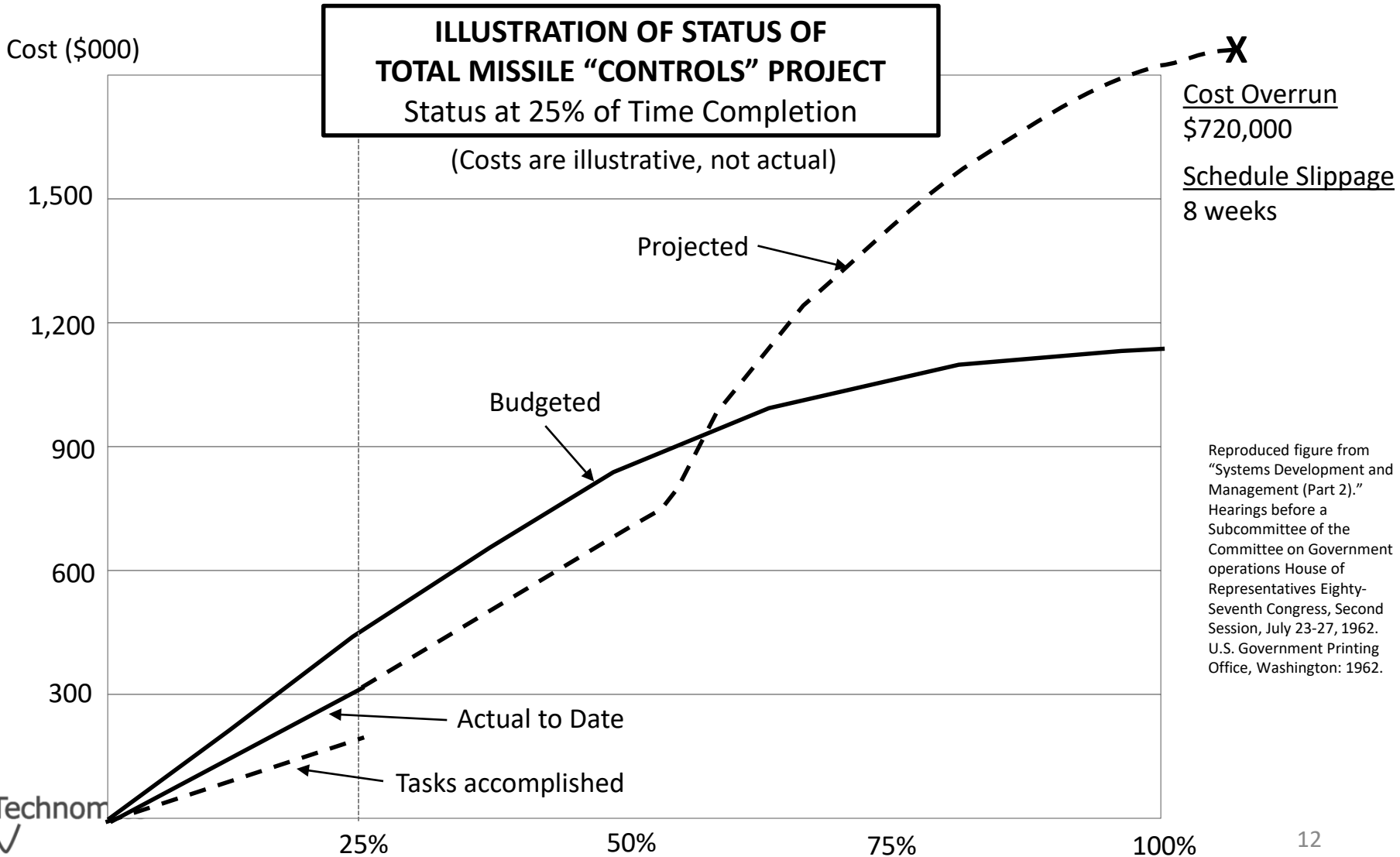


Each “Work Package” is Scheduled and Cost Estimated

THERMAL TRANSDUCERS – COST ESTIMATES (000)



PERT/COST



Parametric Cost Estimating

- 1969 Grumman proposal for F-14 was up to $\frac{1}{4}$ the cost estimated by the government using parametric analysis
 - Less than two years later, Grumman's estimate nearly matched the parametric
 - Presented to Dep. Sec. Def. David Packard in December 1971
 - Just months later, Sec. Def. Laird formed the Cost Analysis Improvement Group (CAIG)
 - Authorized to collect cost data from industry

Cost Estimating Data

- Requirements not met by PERT
 - Recurring / Nonrecurring
 - Functional Categories
 - Hours / Quantities
 - Fixed-price production
 - Business base effects
- Contractor Cost Data Report (CCDR)
 - Direct (1921, -1, -2)
 - Indirect (1921-3)
 - Segregating direct vs. indirect analysis

Today's Acquisition Mgmt. Systems

