Defense Spending is Declining

DoD's Costs as a Share of Economic Output
(Percentage of gross domestic product)
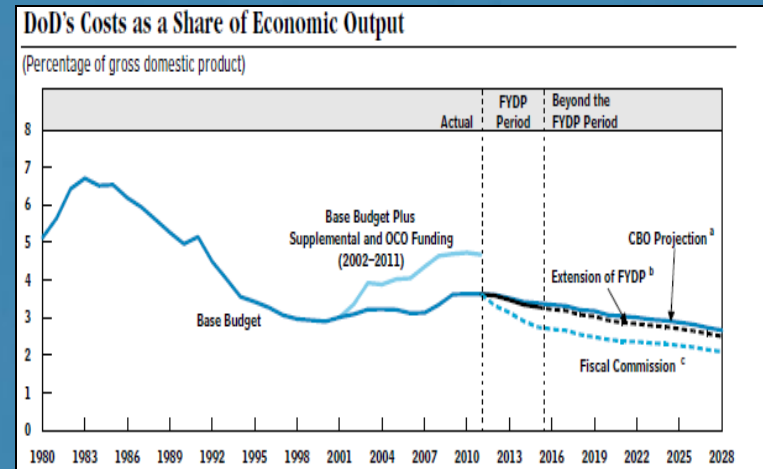
Portfolio Decisions Require Analytical Rigor

Improving Decisions Through Analysis

Capabilities-Based Portfolio Analysis

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Investment and Divestment Decisions are Complex...

...and require deep thought

Introduction

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Investment and divestment decisions are complex and require a complete understanding of existing investments relative to all requirements and capabilities within a portfolio.

Portfolio Analysis Should[1,2,3]

- Better inform decision making and optimize resources

- Ensure that investments are managed collectively as capabilities that yield economies of scope and scale

- Support strategic guidance and policies

- Help determine the best mix of investments based on cost and effectiveness

[1] DoDD 7045.20, Capability Portfolio Management
[2] SECNAVINST 5230.14, IT Portfolio Management Implementation
[3] Dr. Carter Memo dated

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Capabilities Based Portfolio Analysis

Agile analytical framework for investment and divestment decisions

Purpose and Goals of Requirements-Based Portfolio Needs Analysis

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» **Purpose** – Provide an agile analytical framework with supportive metrics and tools for making <u>investment</u> and <u>divestment</u> decisions.

» **Goals**
  » Comprehensive understanding of the portfolio
  » Gain efficiencies across the portfolio
  » Balance capability across the portfolio

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Capabilities-Based Portfolio Analysis Framework

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Phase I		Phase II		Phase III
Baseline Investments	**Requirements Analysis**	**Requirements Mapping**	**Boundary Analysis**	**Decision Analysis**

Objective:
Description of capabilities provided and acquisition maturity.

Activities:
- Describe initiatives and assess acquisition maturity
- Apply AMAT metrics
  - Programmatic
  - Acquisition
- ID number and types of users

Outcome:
Baseline understanding of each investment

Objective:
Comprehensive understanding of requirements within the portfolio.

Activities:
- Consolidate, organize, and categorize all requirements
- Determine commonality and conflicts

Outcome:
Consolidated list of requirements to lay groundwork for assessing investments

Objective:
Redundancies identified to enable elimination of inefficiencies.

Activities:
- Map requirements to investments
- Identify redundancies and gaps

Outcome:
Mapping of investments to all requirements to identify redundancies

Objective:
Interdependencies identified to understand span of control.

Activities:
- ID HW, SW, and network interfaces
- ID database interfaces

Outcome:
Clarified interdependencies of each investment

Objective:
Assess resource allocation and align investments with Product Group objectives

Activities:
- Cross-functional mapping of investment to capability and resources being used
- Conduct attribute analysis

Outcome:
Depiction of how resources are utilized relative to capabilities provided and requirements supported

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Phase I – Baseline Investments

Understand capability, user base and demand for each investment

| Baseline Investments | Requirements Analysis | Requirements Mapping | Boundary Analysis | Decision Analysis |

» Describe primary features and capabilities provided by each investment

  » Determine acquisition maturity of investments through use of the Acquisition Maturity Assessment Tool (AMAT)
    » Programmatic Elements (funding source, requirements defined, staffing)
    » Acquisition Elements (TRLs, commercial availability, degree of market research completed, acquisition strategy in place)
  » Develop descriptive metrics
    » Identify number of users
    » Identify level of users

» Outcome: Baseline understanding of each investment, the demand for each investment and their types of users

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Phase I – Requirements Analysis

Requirement ID	Source Project	Related Requirement ID	Requirement Category	Sub-Category	Requirement Title	Requirement Description
HH 1	JBCP	HH 59 (TLDHS), HH 82 (RVVT)	hardware	Weight	Light Weight	Less than one pound
HH 2	JBCP	HH 91 (RVVT)	hardware	Battery	Battery	Run on battery for 6 hours
HH 3	JBCP		hardware	Display	Screen	Color, at least 3" x 4" and at least 80 characters wide
HH 4	JBCP	HH 81 (RVVT),	hardware	Display	Lighting	Screen readable in complete dark to direct sunlight
HH 5	JBCP	HH 95 (RVVT)	hardware	Environmental	Temperature	Storage and operation between -40 degree C and +60 degree C
HH 6	JBCP		hardware	Display	Readability	Display readable from .1 to 1 meter distance, 65° left, right, or below center line, and 40° above center line
HH 7	JBCP		OTHER		Electromagnetic compatibility	Mutually compatible with other equipment in env, (applies to handheld itself; network radio is separate component)
HH 8	JBCP		hardware	Performance	MTBF	Mean time between failure (including due to mechanical and electrostatic shock) is 465/700 hours (T/O)
HH 9	JBCP		hardware	Components	Hardware repair/replace	At least 3 LRU's (battery, memory, phone) such that broken LRU can be identified and replaced in less than 30 minutes, including reboot and restoration to operation and configuration state prior to failure.
HH 10	JBCP		hardware	Performance	Safety	Does not create hazards for user, either during normal use, or as explosive debris.
HH 11	JBCP	HH 96 (RVVT)	hardware	Environmental	Water Resistent	Operate after submersion to 1 meter, when in water resistant packaging
HH 12	JBCP		network	Communications Interface	Military Network Reuse	Connect to standard secure military communications network as a standard node for data transmit and receive. This includes standard use of network features such as security, LPJ modes, etc.
HH 13	JBCP	HH 86, 88 (RVVT)	IA	Security	Connection Security	Ensure security of the link from the handheld to the secure military network
HH 14	JBCP		network	Communications Interface	Receive only mode	LPD mode in which handheld receives data without transmitting
HH 15	JBCP	HH 64 (TLDHS)	network	Communications Interface	Wireless network	Self-configuring wireless network links as needed to connect handheld to nearby vehicle
HH 16	JBCP	HH 64 (TLDHS)	network	Communications Interface	Wireless Range	300 meters to 2000 meters (Threshold/Objective) to vehicular access point.
HH 17	JBCP		network	Throughput	High Bandwidth	Sufficient bandwidth to send data in time for mission (depends on efficiency of data compression and data routing)
HH 18	JBCP		network	Throughput	Low Latency	5 seconds (Threshold/Objective) for UA update messages over network
HH 19	CAPSET V		software	Data Interoperability	Software compatibility with COCs	Compatible software protocols and processes to enable easy integration between handheld as client and COCs as servers.
HH 20	CAPSET V, JBCP		OTHER		Usage compatibility with	Training for COC's carries over to handheld.
HH 21	CAPSET V, JBCP	HH 68 (TLDHS), HH 90 (RVVT)	Power	Power Interface	Hardware compatibility with	Plug in for electrical power including battery recharge.

Comprehensive list of requirements logically organized to enable investment assessment

| Baseline Investments | Requirements Analysis | Requirements Mapping | Boundary Analysis | Decision Analysis |

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» A thorough analysis of a complete list of requirements and their relationship to one another

  » Elicit all known requirements
  » Consolidate and Organize requirements
  » Determine degree of commonality
  » Descriptive metrics
    » Relative Weights of Requirements Groupings
    » Strength of Association Between Requirements

» <u>Outcome</u>: A comprehensive list of requirements organized into logical groupings to enable investment assessment

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Phase II – Requirements Mapping

Clear understanding of how each investment aligns with *all* requirements

| Baseline Investments | Requirements Analysis | Requirements Mapping | Boundary Analysis | Decision Analysis |

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» All initiatives mapped to a complete list of requirements

  » Map investments to requirements
  » Map capabilities to investments
  » Identify requirements intersections
  » Identify investment attributes intersections
  » Identify redundancies
  » Identify gaps
  » Descriptive Metrics
    » Each investment's Requirements Percent-fill
    » Percent Requirements and Percent Capability Overlap between investments
    » Others as deemed appropriate
    » Degree to which investments maps to all requirements
    » Number of investments that map to only their requirements

» <u>Outcome</u>: A clear understanding of how well each investment aligns with *all* requirements - supported by metrics

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Phase II – Boundary Analysis

Clarified boundaries and interfaces among each investment

| Baseline Initiatives | Requirements Analysis | Requirements Mapping | Boundary Analysis | Decision Analysis |

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» Identify interdependencies and commonalities between investments and their components.

  » Identify boundaries between data sources and networks
  » Identify external interdependencies
  » Create data flow diagram for each initiative
  » Define the boundaries for each Initiative

» <u>Outcome</u>: Clarified boundaries and identified common components of each investment

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Phase III – Decision Analysis

Understand how all resources are utilized relative to investment's alignment with requirements

| Baseline Investments | Requirements Analysis | Requirements Mapping | Boundary Analysis | Decision Analysis |

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» Pin-point how resources are being used and compare results with the degree to which investments are aligned with *all* requirements

  » Determine dollars spent per initiative
  » Determine number of personnel supporting each initiative
  » Perform cross functional mapping of initiatives to the capability provided and resources being used
  » Conduct attribute analysis
  » Establish ROI metrics

» Outcome: Clear understanding of how resources are utilized relative to the investments' alignment with requirements to enable PG-11 leadership to make informed resource allocation decisions

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End State

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» **Phase I**
  - » **Goal: Understand the Portfolio**
    - » Describe the handheld smart-device capability that is currently being built by projects, or at a minimum the handheld component of a project within PG-11 and assess the acquisition maturity for each
    - » Understand the requirements developed for all handheld smart-device projects within PG-11, looking for commonality and gaps between projects

» **Phase 2**
  - » **Goal: Gain Efficiencies across the Portfolio**
    - » Identify redundant handheld smart-device development within PG-11
    - » Identify handheld smart-device interdependencies and interfaces with other projects inside and outside PG 11

» **Phase 3**
  - » **Goal: Balance Capability across the Portfolio**
    - » Evaluate the expenditure of resources for handheld smart-devices across the product group and nominate candidates for further investment or divestiture
    - » Make resource allocation recommendations using data-driven, fact-based analysis that will provide PG-11 with a reasonable chance of achieving acceptable ROIs (monetary and non-monetary)
    - » Determine the feasibility of pairing down to a common solution

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End State

Phase I – Understand Portfolio

Phase II – Gain Efficiencies Across Portfolio

Phase III - Balance Capability Across Portfolio

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Questions

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