An Analytic Model for DoD Investment & Divestment Decisions

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An Analytic Model for DoD Investment & Divestment Decisions

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- Abstract: Unclassified
- This Page: Unclassified

Limitation of Abstract: Same as Report (SAR)

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Problem: **DoD finds it difficult to prepare for and responsively enact Divestments**

**Root causes**
- Not incentivized to be Affordable
- Not structured to be Effective
- Efficiency signals are unclear

**Dangerous but established Rules of Thumb (ROT)**
- Imperfect information and analytics
- Divestments treated differently than investments
- Accountability and outcomes not aligned

**Workarounds**
- Hard to manage
- Hard to understand
- Undefendable decisions

**Results**
- Hard to defend
Outline: How do we fix it?

- Leverage the successes of others
- Develop a model
- Recommend Changes

- Reward shared awareness
- Track decisions
- Institute divestment panels

Model for divestment decisions
## Summary:

Poor Analytics $\rightarrow$ Omitted Criteria $\rightarrow$ Cognitive Bias* $\rightarrow$ ROT $\rightarrow$ BP** $\rightarrow$ Y/N

<table>
<thead>
<tr>
<th>Omitted Criterion</th>
<th>Cognitive Bias</th>
<th>DoD Rules of Thumb for Divestment</th>
<th>Recommended Best Practices</th>
<th>Model Y/N Criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational and Operational Impacts</td>
<td>Reasoning by Analogy</td>
<td>• Take from those who have a lot</td>
<td>Dedicate a (small) full-time team to Divestment planning</td>
<td>Mission Critical?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cut “fairly” (salami)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance Viability</td>
<td>• Illusion of Control</td>
<td>• Use trigger events to re-baseline</td>
<td>Plan the details of a divestment transition for the timeframe needed</td>
<td>Core Competency?</td>
</tr>
<tr>
<td></td>
<td>• Escalating Commitment</td>
<td>• Penalize the transparent</td>
<td></td>
<td>High performance?</td>
</tr>
<tr>
<td>Economic Value</td>
<td>Single outcome calculation</td>
<td>• Pay for new w/ unrelated funds</td>
<td>• Account for the de-integration costs</td>
<td>Modernization Impact?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Congressional favor</td>
<td>• Track key variables to calculate a comparable SROI</td>
<td></td>
</tr>
</tbody>
</table>

**Invest or Divest? Mixes of Three Criteria**

1. **High Strategic Value?**
   - Yes
   - No

2. **High Performance?**
   - Yes
   - No

3. **Economically Sound?**
   - Yes
   - No

- **Operations logic critical** → High performance, core competency → **Invest**
- **Operations logic not critical** → Low performance, not core → **Divest**

**Legend:**
- **Clear**
- **Not Strategic; Performance mixed; Cost Drives**
- **Strategic; Performance mixed; Cost Drives**

**Cases:**
1. **Operations logic critical** → High performance, core competency → **Invest**
2. **Operations logic not critical** → Low performance, not core → **Divest**
3. **LPO** → Too costly → **Divest**


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Applying Proven Divestment Approaches to DoD

Simplify the logic, require yes/no answers, and track the data

Others

- High Strategic Value?
- High Performance?
- Economically Sound?

DoD

- Impact Readiness?
- Modernized?
- Force Structure Supportable?

Selecting Investment Sets for Divestment

**= Opt to Keep  = Opt to Divest**

<table>
<thead>
<tr>
<th>Criteria Area</th>
<th>Factor</th>
<th>Discriminator</th>
<th>Acceptance</th>
<th>In/Divest?</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Strategic Value or Readiness</td>
<td>Operations Logic Critical</td>
<td>Investment set meets critical equipping, training, operations needs for current / future missions of COCOM forces or vital to accomplishment of QDR Goal.</td>
<td>Mission Critical?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mission Essential or Support?</td>
<td>No</td>
</tr>
<tr>
<td>High Performance or Modernization</td>
<td>Core competency?</td>
<td>Validated Requirement</td>
<td>a. Included on Unified Command Integrated Priority list?</td>
<td>At least three, or b. and c.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b. Average above threshold?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>High performance?</td>
<td>Performance in array of KPP metrics*</td>
<td>c. $ profile defendable w/ Mod needs</td>
<td>Only two, and not b. and c.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Progresses modernization as needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economically Sound or Force Structure Sustainable</td>
<td>Cost Effective</td>
<td>Cost is supportable, LPO outsourced, or is income</td>
<td>Advantageous NPV?</td>
<td>Answer for each</td>
</tr>
<tr>
<td></td>
<td>Secondary Effects (SE) + Insurance</td>
<td>Intended externalities, unintended consequences</td>
<td>Are SE measureable? Do they add/subtract so NPV is worthwhile?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Deadweight</td>
<td>Deadweight impact over-rides investment impact</td>
<td>Does intervention matter to outcome?</td>
<td>No</td>
</tr>
</tbody>
</table>

*Capability Performance; Force Protection; Survivability; Sustainment (Reliability, O&S costs); Net-Readiness; Training; & Energy.*
## What are All The Combinations?

**Intuitive? Reflective of ROT? “Seeing criteria profile”**

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<tr>
<td></td>
<td>Modernization impact?</td>
<td>Impact on Balance of investment types</td>
<td></td>
<td>Y</td>
<td>either</td>
<td>Y</td>
<td>Y</td>
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INVEST OR DIVEST?  EXAMPLES DISCUSSION

**High Strategic Value?**
- Yes
- No

**High Performance?**
- Yes
- No

**Economically Sound?**
- Yes
- No

**Invest? Divest?**

1. **CLASSIFIED NETWORKS?**
   - Operations logic critical
     - Yes: High performance, core competency → Supportable or LPO → Invest
     - No: Operations logic not critical
       - Yes: Low performance, not core → Too costly, Risks UNK → Divest
       - No: Ops Not critical
         - High, core: Supportable → SR, Watch, Invest
         - Low, not core: Supportable, or Income source → DFAS?

2. **AMPHIBIOUS ASSAULT VEHICLES?**
   - Operations logic not critical
     - Yes: Low, not core → Supportable or LPO → Invest
     - No: Ops Not critical
       - High, core: Supportable → Limited supportability, Invest
       - Low, not core: Supportable, or Income source → DFAS?

3. **DATA CENTERS?**
   - Operations logic critical
     - Low, not core: Learn, partner, or outsource (LPO) → Invest
     - Yes: High performance, core competency → Mitigation
     - Yes: Too costly, Risks UNK → Divest

4. **NUCLEAR ARSENAL?**
   - Operations logic critical
     - Yes: High performance, core competency → Mitigation
     - Yes: Too costly, Risks UNK → Invest
     - No: Too costly, Risks UNK → Divest
Summary: How do we fix it?

**Reflect on Models of Human Choices**

- Leverage the successes of others

**Organize for Simple Use**

- Develop a model
- Identify current shortcomings
- Simplify the logic
- Incorporate best practice
- Apply DoD Concepts

**Change the Conversation**

- Recommend Changes
- Reward shared awareness for improved analytics
- Track investment vs. divestment decisions and data points
- Institute divestment panels

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Research complex spaces with high stakes:
- Social value constructs
- Human Factors
- Insurance Constructs
- Commercial for profit environments
- Economic models

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Model for divestment decisions

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Investments Decisions Are Not the Same as Divestment Decisions

“The thought of giving up a once-treasured possession can be an emotional exercise for anyone, even if the object of affection has outlived its use. As investors, we can find it difficult to sell a once-favored holding—even more difficult than the decision to purchase it.”

- Why? Self Interest and emotion: Pride, anxiety, neglect, greed, or power. “Anyone with money can buy stocks, but only smart people can sell them”  

- But the government is not the stock market…
  - “Public money” (a.k.a., “not yours”) may bear less emotion, but the mindset space is filled with other emotional elements: politics, power, patriotism, and even altruism.

- Decisions should be made based on ultimate goals

Order of Buy ≠ Opposite of Order of Sell

Two reasons, especially in the government

**Lots of data but limited knowledge**
- Gestalt: The whole can be greater than the sum of the parts
- Interdependencies *unlikely* to be well understood
- Imperfect information, lack of causality measurement

**Weak measures of success**
- No common value proposition (e.g., profits or stock prices), normalized value scale, or way to compare impacts of decisions to the “bottom line”
- Size of budgets become $ meter—does not promote divestment
- The notion of “affordability” is challenging to define/execute

Causes pause when we divest, as the “whole” must be taken or comes apart

Hard to defend decisions
**Rules of Thumb: Biases**

- Four types of cognitive biases in decision-making, depending on predisposition toward the investment, drive “rules of thumb”

<table>
<thead>
<tr>
<th>Investment Activity</th>
<th>Cognitive Bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consideration of alternative acquisition</td>
<td>Reasoning by analogy: “In the decision process leading to acquisition, decision makers rely on analogies to simpler situations that may bear little similarity to their strategic problem.”</td>
</tr>
<tr>
<td></td>
<td>Illusion of control: “In the evaluation of an acquisition, decision makers overestimate the potential impact of their expertise on the acquired unit’s performance.”</td>
</tr>
<tr>
<td>Management of the acquisition</td>
<td>Illusion of control: (see above)</td>
</tr>
<tr>
<td></td>
<td>Escalating commitment: “Information on declining performance of the unit triggers rationalization and escalating commitment.”</td>
</tr>
<tr>
<td>Consideration of divestment</td>
<td>Single outcome calculation: “When divestment of a failing unit is finally considered, it quickly becomes the only course of action considered.”</td>
</tr>
</tbody>
</table>

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Rules of Thumb: Private Sector Remedies ¹

**Private Sector**
- Dedicate a team to divestment full-time, just as you do with acquisitions.

- Establish objective criteria for determining divestment candidates—don’t panic and sell for a song in bad times

- Work through all the details of the deintegration process before you divest

- Make sure you can clearly articulate how the deal will benefit the buyer and how you will motivate the unit’s employees to stay until the deal is done.

**Observations on DoD**
- *DoD has thousands of people that work on strategic and investment planning*

- Government must still think about fiscal losses

- Government should invest to remedy the knowledge shortfall about their investments

- Costs of transition and divestment is often captured in DoD, but an under-appreciated because it takes a long time

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Rules of Thumb: Government Divestment

**Rule Applied in Government**

- Those that “seem to have a lot”
- Salami-slice
- Programs not sticking to acquisition cost/schedule, e.g., Nunn-McCurdy breaches or near-breaches
- Those with poorly captured performance
- Bias to solve gaps using unrelated offsets
- Congressional disregard or favoritism

**Observation**

- Goal of bureaucracies is to maximize budgets, yet, proportionally large budgets become a target for redistribution or for “paying bills.”
- Programs are cut across the board, with a strict percentage regardless of impact (“sequester”)
- Programs often get “re-baselined.” Possibly a divestment, often the same money is spread over time.
- Programs that measure may be held to a different standard and are not fiscally rewarded for transparency in effectiveness or efficiency
- Refusal to assess baseline for cuts related to gaps, in fear of fiscal penalty biases decisions away from smart cuts
- Drives, or saves, many divestment decisions, for all military departments alike.
Logic Model Definitions

- **Context**: Economic, political, and social circumstances
- **Income**: Target group needs
- **Input**: Financial and personnel resources available
- **Structure**: Legal and finance characteristics of sponsor
- **Concept**: Roles, responsibilities, due dates of targets
- **Process**: Targets linked to activities
- **Output**: Directly provided contributions of program/activity to achieve the desired impact(s)
- **Outcome(s)**: Effects or desired conditions of target group after activities completed
- **Impact**: Overall effects that are logically, theoretically, or empirically substantiated
- **Secondary effects**: Positive and negative effects not intended by program or activity plans
- **Deadweight**: Portion of outcome(s) that would have been produced without program or activities
- **Time stamps**: (Not defined in paper, but offered here)
  - Initial: Time taken for initial impacts to be realized
  - Interim: Time taken for secondary effects to be observed and quantified or qualified
  - Long-Term: Time taken for relationships between actual impacts and deadweight to be delineated
Insurance Models*

- Insurance companies pool risk so that the average probability of loss is mediated and competitive premiums can be charged
- Actuarial calculations of premiums for coverage and for gains from insurance capital required (“r”) for profitability depend on the accuracy of these pooling statistics
- Insurance models must abide by standards in guidelines to ensure investment diversity/quality for the insured and for investors
- Three large problems exist in insurance modeling:
  - Risk categorization errors: deeper modeling may rate securities lower and subject quality to question, e.g., some bonds are refinanced debt
  - Time: portfolios containing older high-rated securities are stacked with newer, lower rated securities; the average is masked by older and ‘timed’
  - Policy: As laws change, previous portfolios get grand-fathered in; this will make portfolio subject to both previous problems, often cause divestment

Government investments are riddled with risk categorization, time, and policy “generation” issues – called Time Inconsistency