As with any business, the Naval Sea Systems Command (NAVSEA) must evaluate itself in relation to the uncertainty of the future and its current environment. As part of the Department of Defense (DoD), NAVSEA is confronted with pressures to continue downsizing; with declining Research, Development, Test, and Evaluation (RDT&E) infrastructure and resources; and with strong competition from the private sector for scientific, engineering, and management resources. At the same time that it must meet its responsibilities, which span all aspects of the life cycle of ships, submarines, and their components—from acquisition through support to the Navy Program Executive Officers (PEOs), to in-service maintenance and engineering, to retirement/disposal—it must recognize and accommodate both force modernization and sustainment of vital long-term capabilities in the face of declining resources. These tensions require that NAVSEA explore those innovative best practices experimented with and exercised by contemporary organizations, both public and private, in order to avoid trying to do everything well itself while becoming increasingly constrained.

The work of RAND researchers was to formulate a methodology for making business-planning decisions involving the activities, products, markets, technologies, people, and facilities of NAVSEA, initially with a view toward organizational realignment. The time horizon for those plans was 2007, so that the analysis results would be far enough in the future that simple extrapolations of the current status quo would not be appropriate, yet not so far in the future that forecasts of future geopolitical, technological, and business environments would be totally unreliable, and so that a possible implementation of results could influence recommendations for budget cycles before 2007.

Our work supporting NAVSEA organizational decisionmaking involved a three-phase methodology: analysis of the strategic environment in 2007 to identify products, technologies, and activities that are central to the success of current and future naval strategy; a quantitative analysis of those products, technologies, and activities, as well as markets, to further determine which products would have the highest importance and widest breadth for the NAVSEA of 2007;
analysis of potential organizational designs/structures to capitalize on commonalities—\textit{centrality}—among products/personnel/technologies to achieve goals for least cost or high differentiation (i.e., superior value in product quality, special features, or in-service maintenance—\textit{niche specialization}) for NAVSEA customers.

Each analysis began with a review of documents pertinent to the subject, site visits to Navy or NAVSEA organizations to gather additional information or participation in presentations, and team discussions; then selection of a methodology most appropriate for achieving the desired goal; and finally iterations of the methodology to complete a framework for planning. Many times, the methodology for the framework was a RAND-developed tool. The research team was the same for each phase of the analysis and participated in the gathering and analysis of data on NAVSEA. The main methodologies underpinning the three analyses are presented in Table S.1.

\begin{table}
\centering
\caption{Methodological Underpinnings of Study}
\begin{tabular}{|l|p{0.7\textwidth}|}
\hline
\multicolumn{2}{|c|}{Strategic Environment and Implications} \\
\hline
Assumption-Based Planning & Identifies the assumptions within planning documents, looks for vulnerabilities in those assumptions, identifies indicators that an assumption is failing, and enables shaping and hedging actions to be taken to add robustness to a plan \\
\hline
Strategy-to-tasks framework & Links national security strategy to NAVSEA mission \\
\hline
Markets and Products and Activities to Fulfill Them & \\
\hline
Market analysis & Identifies forces that will drive growth in emphasis on specific markets \\
\hline
Priority setting/portfolio analysis & Ranks products, markets, activities according to specific measures, then arranges those ranked elements against two of the measures, with different management actions assigned to different ranks \\
\hline
Organization & \\
\hline
Industry structure & Provides context in which the future NAVSEA corporation is intended to operate \\
\hline
Focus & Segments NAVSEA’s activities into conceptual business units \\
\hline
Shape & Identifies the horizontal and vertical integration of business units \\
\hline
Size & Develops a methodology to assess NAVSEA’s size, given focus and shape, and to determine boundaries for what is inside NAVSEA and what is outside it \\
\hline
\end{tabular}
\end{table}
STRATEGIC ENVIRONMENT AND IMPLICATIONS

The strategic analysis began with a survey of the policies, directives and mandates, and similar documents that determine the shape of naval strategy, such as the historical record for the range of naval strategies; the President’s security strategy, such as Clinton’s A National Security Strategy of Engagement and Enlargement (The White House, 1995); National Military Strategy, the current one of which organizes around the terms “deter, shape, prepare, respond” (Joint Chiefs of Staff, 1997); Joint Vision 2020 (Joint Chiefs of Staff, 2000) and the current Navy vision of its operations, Forward . . . from the Sea (Department of the Navy, 1994) and tomorrow’s vision in Operational Maneuver from the Sea (U.S. Marine Corps, 1997).

We then considered forces and influences in the international security environment and organic to the U.S. military that might plausibly bring pressure on the current strategy by confronting it with more-able adversaries, opposing it with innovative approaches that render critical aspects of it less effective, or that deprive the Navy and Marine Corps of essential resources, ships, and other assets. For example, for the 2000–2010 decade, we concluded that fears and suspicions of Washington’s plans and motives might cause Russia to compete with the United States through limited modernization of its strategic nuclear force and that the People’s Republic of China’s procurement patterns reveal a fairly ambitious effort at power-projection modernization.

Next, using Assumption-Based Planning (ABP), we reviewed the available evidence to determine whether there are indications that any threatening developments just posited seem to be taking shape. We concluded that major concerns about the advent of a Revolution in Military Affairs in a potentially hostile force seems very unlikely in the near-term future under consideration. The emergence of a peer competitor likewise seems improbable.

Nevertheless, we identified forces at work—creative foes who contrive means of attack that leave their identities unknown—that could bring pressure on the current strategy, even in the absence of heavy defense investments and major arms transfers, undermining the quality of deterrence. Likewise, we judged that the Navy and Marine Corps role in forward presence for shaping and preparing the theater against dangerous contingencies and unforeseen developments could be undercut if regional adversaries succeed in intimidating local U.S. allies into withdrawing overflight and basing rights.

Finally, we identified the strategic imperatives that must be strengthened and revitalized to maintain the current naval strategy: to deter aggression by maintaining information dominance and potent forces; to shape attitudes and
events in key regions through forward presence and the ability to protect the United States’ partners; to prepare for all contingencies by maintaining a full complement of scalable capabilities and, again, through forward presence and information dominance; and to respond to near-term regional threats through network-centric warfare (i.e., integrated and networked combat systems) and, again, scalable capabilities and protection of partners. We presented NAVSEA’s specific functions, products, and outputs essential to each endeavor toward the bottom of a framework, such as that for Deter in Figure S.1.
FROM STRATEGIC IMPERATIVES TO STRATEGIC INTENT FOR COMPETITIVE ADVANTAGE: MARKETS AND THE PRODUCTS AND ACTIVITIES THAT FULFILL THEM

Simply knowing which of various products and activities enjoy high strategic priority is insufficient. For NAVSEA to optimize them, it must first understand the needs and preferences of the Navy markets that will consume the command’s products. These factors will influence the specific characteristics of individual products, the way they operate, and the way they are maintained. Our next analysis was directed at understanding the markets, products, and activities for which NAVSEA should be configured in 2007, and the interrelationships (interactions and linkages between and among them) for which NAVSEA should be configured in 2007.

Market Analysis

This required, first, identifying and defining *markets* (the sum of transactions and opportunities for transaction defined by products, customer needs and preferences, and credible competitors) for NAVSEA. The mandates used in the final frameworks in the strategy analysis provided a bridge to this business analysis. We used them as the definitions of individual markets, rearranging and combining some, as well as creating a new market, Acquisition Support. We then performed an analysis of strategic, technology, and business drivers that would be forcing the *emphasis* on certain markets (how the needs and preferences of the customer in a given market are changing and what those needs will be in the future) to grow more than that on others in 2007 (a market analysis) and to develop measures of the relationship between products, markets, and activities and a rating system for those measures so that an iterative portfolio analysis could be performed to distinguish the most important products in the most markets (*central products*) from superior-value, highly differentiated products (*niche products*) having one or two markets.

Portfolio Analysis

To perform such an analysis, it was necessary to gather as much information about NAVSEA and its components as possible to form comprehensive databases, or lists, that could be related to each other. We began with a review of documents on NAVSEA’s holdings, or core equities—*Core Equities—Red Team Review* (NAVSEA, 1999a)—which inventoried elements within individual NAVSEA centers or units, the functions and services they provide, type of knowledge, personnel required, facilities within the unit, educational background, etc., with a view to determining which equities should be retained in-house and which could be outsourced.
Our intent was to assist NAVSEA managers in making such determinations across NAVSEA, rather than unit by unit, and to identify commonalities, or linkages, that could optimize the activities (processes carried out by a set of organized resources—technologies, personnel, and facilities) to create products offered in markets throughout NAVSEA. For this reason, we also reviewed reports on and inventories of technology and educational needs for the Navy/Marine Corps/shipbuilding industry in the early twenty-first century: Naval Studies Board–National Research Council (NSB–NRC, 1997a), National Research Council (NRC, 1996), ONI (1998), and Gaffney and Saalfeld (1999); interviewed Navy personnel; brought our subject-matter expertise to bear; and made qualitative assessments.

By relating products to markets and to NAVSEA’s activities, we were able to arrive at measures having important implications for NAVSEA business planning and organization. Two such measures are relative product importance and market breadth. Relative product importance expresses the extent to which a product having a specific importance from 6 to 0 (see The RAND Product-Rating System section of Appendix C for a complete discussion) satisfies customer needs and preferences in a given market, summed across all markets to which the product contributes. The 6, 3, 1, and 0 scores represent the importance specific to each product for each of the 15 markets identified for NAVSEA. A product with a specific importance of 6 defines a market; a product with a score of 3 is important to that market. A product with a score of 1 supports that market. And a product with a score of 0 is not important to that market. This scale is different from the scale used for the different measures, such as the 3, 2, 1, 0 scale for the market-emphasis-growth factor, shown in Table S.2. The table is a spreadsheet of products against markets and shows scores derived by adding or multiplying specific-product-importance scores and market-emphasis-growth factors. Market breadth indicates the total number of markets to which the product contributes. The two measures are plotted for all 108 NAVSEA products, in Figure S.2.

The first number in parentheses in each cell in Figure S.2 corresponds to the scoring bin into which the product falls for market breadth in Figure 3.9; the second number in the parentheses corresponds to the scoring bin into which the product falls for relative product importance in Figure 3.8. The products in the High bin are given a 3; the products in the Very Low bin are given a 0. Figure S.2 (Figure 3.10 in the main text) is a cross plot, or grid, showing the interaction of market breadth with relative product importance. The products in cell (3, 3) are the only ones that were in the High bin in both Figures 3.8 and 3.9—i.e., they have both High relative importance and High market breadth. The products in cell (0, 0) in the lower left-hand corner were in the Very Low bin.
Table S.2
Section of Product–Market Observables Rating Sheet

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Test, evaluate, assess</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USW Operational Range Assessment Systems</td>
<td>0 0 3 3 0 0 0 0 0 0 0 0 1 7 3 6 12</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USW Analysis</td>
<td>0 0 3 3 0 0 0 0 0 1 1 3 0 3 14 6 6 21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missile Simulators, Trainers, and Test/Diagnostic Equipment</td>
<td>3 1 0 0 0 0 3 0 0 0 0 0 0 3 10 4 7 17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weapon and Combat System Assessment Systems</td>
<td>3 3 3 3 0 0 0 3 0 1 0 3 3 3 25 9 10 30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Readiness Analysis</td>
<td>3 3 3 3 0 0 0 3 3 1 1 3 3 3 29 11 13 33</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Navy Metrology Systems</td>
<td>1 1 1 1 1 0 0 3 1 1 1 0 1 1 1 15 12 13 17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIW Simulation Software</td>
<td>0 1 0 1 0 0 0 0 6 0 1 1 1 0 3 14 7 10 16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coastal Warfare Analysis</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aircraft Modeling and Simulation</td>
<td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theater Warfare Analysis</td>
<td>3 3 3 3 0 0 0 3 3 1 1 3 3 3 29 11 13 30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Continues to include all product groups and products)

a See Figure 3.5 for market-emphasis-growth scores.
Evaluate

Maintain; consider relative importance risk

NOTE: Relative product importance is the importance of a product summed across all markets. Market breadth is the total number of markets to which a product contributes.

Figure S.2—All NAVSEA Products Are Plotted for Market Breadth and Relative Product Importance (with product names indicated in each quadrant)
<table>
<thead>
<tr>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submarine Communications Systems</td>
<td>Surface Communications</td>
</tr>
<tr>
<td>Navigation Systems</td>
<td>Submarine Periscopes and Masts</td>
</tr>
<tr>
<td>Unmanned Undersea Vehicles</td>
<td></td>
</tr>
<tr>
<td>Decision Support Systems</td>
<td></td>
</tr>
<tr>
<td>Weapon and Combat System Assessment Systems</td>
<td>USW Launchers</td>
</tr>
<tr>
<td>Readiness Analysis</td>
<td>Surface Ship Missile Launcher</td>
</tr>
<tr>
<td>Theater Warfare Analysis</td>
<td>Underway Replenishment Techniques</td>
</tr>
<tr>
<td>General Missile Systems</td>
<td>Sonar Systems</td>
</tr>
<tr>
<td>Surface Weapons</td>
<td>Radar Systems</td>
</tr>
<tr>
<td>Sonar Imaging Systems</td>
<td>USW Deployed Systems</td>
</tr>
<tr>
<td>SOF Mobility, Life Support and Mission Support Equipment and Systems</td>
<td>Submarine Combat Systems</td>
</tr>
<tr>
<td>SOF Sensor Systems</td>
<td>Surface Combat Systems</td>
</tr>
<tr>
<td>Machinery Control Systems</td>
<td>Carrier Combat Systems</td>
</tr>
<tr>
<td>Small Manned Underwater Vehicles</td>
<td></td>
</tr>
<tr>
<td>Tactical Control System Software</td>
<td></td>
</tr>
<tr>
<td>Fire Control Systems</td>
<td></td>
</tr>
<tr>
<td>Surface Electronic Warfare Systems</td>
<td></td>
</tr>
<tr>
<td>Energetic Materials</td>
<td></td>
</tr>
<tr>
<td>Underwater Warheads</td>
<td></td>
</tr>
<tr>
<td>Gun Weapon Systems</td>
<td></td>
</tr>
<tr>
<td>Surface USW Systems</td>
<td></td>
</tr>
<tr>
<td>Mine Systems</td>
<td></td>
</tr>
<tr>
<td>Mine Countermeasure Systems</td>
<td></td>
</tr>
</tbody>
</table>

Figure S.2—Cont’d.
for both relative product importance and market breadth. The cell numbering is a convenient code for organizing management decisions.

Among the implications of this plot are that products that are important across a range of markets and are simultaneously of High importance could be considered candidates for new or continued investment; examples of such products are Surface Communications and Submarine Periscopes and Masts. Products that are restricted to few markets and have Low importance are candidates for repositioning in the marketplace: Either find a valuable use for such products in one or two markets or outsource the product. Products that appear to be risks in terms of market breadth only or importance only warrant maintaining, but with continued consideration of the possibility that they might slip into the Evaluate quadrant.

Investment decisions have many dimensions, not just breadth and importance of products, but process change for products, technology change for products, personnel involvement in products, facility use by products, and product/activity associations with business units. The analyses of products and markets involved a succession of two-dimensional grids like Figure S.2, as diagrammed in Figure S.3, which indicates that a manager’s decision can be refined by referring back to a grid from the earlier part of the analysis.

Likewise for markets. A market rated High for growing in emphasis in the drivers part of the market analysis may use products that have only Medium or Low importance. For determining a product’s centrality within NAVSEA’s portfolio, all markets are not equal. In Figure S.4, we once again plot relative product importance against market breadth, this time weighting each measure by growth factors (rated as 3 for High, 2 for Medium, 1 for Low, and 0 for Very Low growth) for the markets to which the products contribute, summed across all markets. We assign portfolio-level centrality to products that we judge to have at least Medium breadth in markets growing in emphasis or Medium importance in markets growing in emphasis, as long as they are not Very Low on either dimension. The remaining products were submitted to an analysis of their centrality to specific niches. This analysis resulted in a spectrum ranging from products defining at least one market through products that are not defining but are still important in at least one market, to those that are clearly in a supporting role, contributing to the market, but not in a major way (somewhat like indirect labor as opposed to direct labor) (see Figure S.5).

To make the assessments for the associations of products/markets/processes/technology/personnel/facilities, we created spreadsheets listing one set of components along the left side and another set across the top, together with a corresponding score/factor or product/sum. All told, spreadsheets linked
NAVSEA as a seller interacts with buyers in markets that represent common needs and preferences.

NAVSEA products or services are something a customer or stakeholder is willing to pay for and encompass the entire life cycle.

NAVSEA activities are processes and organized resources.

**Analyses Performed**

- Market-Emphasis Growth
- Market Structure
- Product Groups
- Specific Product Importance
- Product-Market Breadth
- Relative Product Importance
- Relative Product Importance Growth

**Major Interactions**

- Product-Market Distribution
- Market Breadth—Relative Importance
- Relative Product Importance—Breadth in Emphasis-Growth Markets
- Process Change—Technology Change

**Strategy Decisions**

- Determine product dominance (low-level corporate centrality)
- Invest or reposition
- Product positioning
- Corporate centrality
- Niche analysis
- Environmental Stability (refine investment decision)

**Commercial Availability**

- Corporate Centrality
- Organization’s Structure (Chapter Four)

---

These analyses are presented in Appendix C.

Figure S.3—RAND Market-Product-Activity Model, Showing Analyses Conducted in Each Stage
### Portfolio Central

- Interoperability
- Acoustic Signatures and Silencing Systems
- Non-acoustic Signatures and Silencing Systems
- Legacy Microwave Component Technology
- Legacy Microelectronic Technology
- Legacy Radar Engineering and Industrial Support
- Legacy Battery Systems
- Total Ship System Engineering
- Configuration Management
- Infrared Sensor Systems
- Laser Sensor Systems

### Niche Analysis Required

- High
  - Market breadth in markets of growing emphasis
  - Relative product importance in markets of growing emphasis
  - (0,3)
  - (1,3)

- Medium
  - (0,2)
  - (1,2)

- Low
  - (0,1)
  - (1,1)

**NOTE:** Bold text indicates that existing credible commercial sources are available.

**Figure S.4—Products in Figure S.2 by Market-Breadth Growth and Relative Product-Importance Growth**
<table>
<thead>
<tr>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative product importance in markets of growing emphasis</td>
<td></td>
</tr>
</tbody>
</table>

Figure S.4—Cont’d.
### Transitioning NAVSEA to the Future: Strategy, Business, Organization

#### Market-Defining products
- Underwater Warheads
- Small Arms
- Logistics Systems
- Torpedoes
- Tomahawk Systems
- Marine Corps Vehicle Systems and Components
- TBMD
- Cost Engineering Services
- Budget Preparation, Documentation, and Management
- Technical Management
- Contracts and Contract Administration
- Foreign Military Sales
- Ballistic Missile Systems
- Precision Guided Munitions
- **Physical Security Systems**
  - Combatant Craft
  - MIW Simulation Software
  - Missions Other Than War (MOTW) Systems
- **Diving, Salvage, and Life Support Systems**
  - Shipyard Activities—Non-Nuclear
- **Torpedo Depot Management and Operations**
  - Program Management for Acquisitions
  - Program Management for Repair and Maintenance

#### Important products
- USW Analysis
- **Missile Simulators, Trainers, and Test/Diagnostic Equipment**
- Small Arms Ammunition Management Systems
- USW Operational Range Assessment Systems
- General Management Activities
- **Information Technology Services**
- Environmental/Pollution Abatement Systems
- Navy Metrology Systems
- Weapons Materials
- Ordnance Environmental Support
- Explosive Safety Engineering
- Electromagnetic Energy Technology Products (Microwave Weapons)
- CADs, PADs, and AEPs—pyrotechnic devices
- **Surface and Undersea Vehicle Materials and Processing Technology**
  - Research on Semiconductors

#### Support products
- Electrochemical Power System Development
- **Navy Tactical Training Range (NTTR) Management**
- USW Range Management
- Laser Weapons Systems
- Aircraft Modeling and Simulation

NOTE: Bold text indicates commercial-source availability.

**Figure S.5**—Spectrum of Niche Centrality for “Niche analysis required” Products in Figure S.4
together 15 markets, 108 products, 49 processes, 1,200 activities, 70 technologies, 319 occupations for 45,000 people, 195 facilities, and 7 major business units.

It is important to realize that the measures are most meaningful when incorporated in the broader context of strategic intent—the shifting of enterprises, or primary purposeful activities of the organization, what Porter (1990, p. 37) calls positioning for competitive advantage. Such shifts create a need for change in NAVSEA's organizational structure. Consequently, although the research team developed the measures in this phase of the study, we employed them more fully when we analyzed potential organizational structures.

**ORGANIZATIONAL STRUCTURE**

Our initial plan for this phase had four parts: *industry context*, to describe the scope and structure of industries in which NAVSEA operates; *focus*, to segment NAVSEA's activities into conceptual business units; *shape*, to identify the horizontal and vertical integration of business units; and *size*, to develop a methodology for assessing NAVSEA's size in relation to the focus and shape of the future organization. The plan was revised to exclude the size analysis.

**Industry Context**

*Industry* comprises all organizations, public or private, that are in the business of providing, supporting, or disposing of naval ships. More broadly, 95 percent of NAVSEA contract dollars go to 10 industries, Ship-Building and Ship-Repairing being the largest, with Engineering Services next. Over 60 percent of the dollar value of the Ship-Building industry in the United States flows through NAVSEA.

**Focus**

In this part of the analysis, we segmented NAVSEA into conceptual *business units*, entities that focus on a well-defined set of products, markets, functions, etc., and whose structure is also determined by its customers, which for a NAVSEA unit could be the PEOs, the Type Commanders, or the Fleet; and certain stakeholders in NAVSEA—those accruing the benefits or sustaining the costs of NAVSEA's operations—such as the Chief of Naval Operations and the Assistant Secretary of the Navy for Research, Development and Acquisition. We purposely avoided identifying and characterizing the existing NAVSEA business units. It is not our intent to have readers infer comparisons between the business units we identify and the existing organizational structure of NAVSEA.
Therefore, we have elected to segment NAVSEA into “conceptual” business units that do not reflect the current business-unit structure of NAVSEA.

For its customers, NAVSEA’s principal advantage over possible competitors is its knowledge of the Fleet, which has implications for innovation in naval capabilities and efficiency in Fleet support. NAVSEA’s stakeholders are primarily interested in fleet readiness and capability improvement—interests that, in turn, have implications for NAVSEA’s organization.

To arrive at a basic portfolio of business units, we developed and applied a work activity hierarchy to NAVSEA’s future activities, as identified in the preceding phase, taking account of customer and stakeholder interests. Activities fell into groups suggesting seven units: Managing Ships; Providing Program- and Project-Management Services; Resourcing Science, Engineering, and Acquisition Professionals; Managing Infrastructure; Organizing and Managing Existing Knowledge; Creating and Managing New Knowledge; and Providing Systems-Engineering Services. For each business unit, we defined product, market, and competitors; described the benefits it offers to customers relative to those offered by competitors; proposed a strategy; and suggested a structure. Business units and their component structures are shown in Figure S.6.

**Shape**

The strategic intent of a corporation determines corporate organizational structure. During the course of our study, NAVSEA articulated a comprehensive corporate strategy. This strategy built on the extensive work of the past several years (NAVSEA, 1999a) and was formulated with the participation of the entire NAVSEA organization, parts of which have produced forward-looking business-unit strategies and detailed business plans (NAVSEA, 1999b, n.d.). While not trying to propose a specific strategic intent for NAVSEA in 2007, we used the current corporate strategic plan, other public pronouncements of senior leadership, and our discussions with senior leaders to identify potential statements of strategic intent as it might exist in 2007.

We began with the structure shown in Figure S.6, in which all business units are viewed as organizationally equivalent and report directly to Headquarters. Then, working from our alternative potential statements of intent, we posited four different ways to aggregate those units into business lines reflecting those statements: industry positioning, market/customer, competency, and product life cycle. (We show organization charts for two of these statements.)

**Industry Positioning.** Product differentiation and low cost are the strategic intent for competing within the industry. For the low-cost part, we made the
Figure S.6—Activities Portfolio of NAVSEA Corporate Structure
Managing Ships unit a low-cost business line whose products are not well differentiated from those of potential competitors. This business line, which could also be referred to as Readiness Enhancement, provides stakeholder value to the Chief of Naval Operations (CNO) by serving Type Commanders as customers. The other general activities all produce high-cost, highly differentiated products that fall into two major business lines. The first, which provides stakeholder value to the Assistant Secretary of the Navy (Research, Development and Acquisition) (ASN [RDA]), is Managing Knowledge. It comprises not only the business units for managing existing and new knowledge, but also the Providing Systems-Engineering business unit. It serves the PEOs, the Type Commanders, and the operating Fleet as customers. The second, of value to the other two business lines and to the PEOs, is Managing [Critical] Resources, i.e., management of programs and projects, of infrastructure, and of professional staff.

**Market/Customer.** NAVSEA can be described as in the business of meeting current and future naval needs. If that were the organizing principle, NAVSEA would have two lines of business—Enhancing Readiness and Developing Future Capabilities (see Figure S.7). Viewed from the customer’s point of view (instead of as an industry-positioning strategy), Enhancing Readiness must include not only Managing Ships but also Organizing and Managing Existing Knowledge. Developing future capabilities means, in effect, providing support to the PEOs, and includes all the other generalized activities except for Managing [Corporate] Infrastructure, which is here subordinated directly to NAVSEA Headquarters (as it is under the next two alternatives also).

**Competency.** The third organizational alternative is based on the hypothesis that NAVSEA’s basic strategic intent is to identify, develop, and sustain core organizational competencies. If there is a common competency that influences NAVSEA’s value to all its stakeholders, it is, as the preceding phase of the analysis revealed, engineering. In this paradigm, then, Creating and Managing New Knowledge, Providing Systems-Engineering Services, and Resourcing Science, Engineering, and Acquisition Professionals are combined with the solutions- and standards-oriented activities of Organizing and Managing Existing Knowledge. Managing Ships, which incorporates the remaining aspects of organizing and managing existing knowledge, and program and project management services are then business lines of secondary importance. These would compete on the basis of cost and, if they turn out to be uncompetitive, could be outsourced.

**Product Life Cycle.** NAVSEA’s strategic view might be that its business is providing full-spectrum life-cycle product support. Indeed, the products in the second phase of the study were viewed as an aggregation of activities
Figure S.7—Organizational Structure of the Market/Customer-Oriented Strategic Intent
throughout a life cycle. If so, three business lines are needed: (1) Creating and Managing New Knowledge, i.e., innovation; (2) Supporting Acquisition, which comprises Providing Systems-Engineering Services, Providing Program- and Project Management Services, Resourcing Science, Engineering, and Acquisition Professionals, and the standards-related aspects of Organizing and Managing Existing Knowledge; and (3) Providing In-Service Support, which would include other aspects of Organizing and Managing Existing Knowledge, together with Managing Ships activities—planning, scheduling, repair, and maintenance (see Figure S.8).

Size

The objectives of the final stage of the organizational analysis were to link activities to specific organizational structure, to further refine the corporate structure based on the importance of the activities, and to delineate what might be inside and what might be outside of NAVSEA’s formal boundaries. NAVSEA management decided to perform this analysis. However, we delineate a framework that NAVSEA can use to carry out this analysis. It asks for judgments about which business units contribute more or less to strategic intent, which business units deliver more or less value to NAVSEA customers and stakeholders, and which business units yield products that are more or less central.

The results of the three phases of our completed study provide the basis for NAVSEA to proceed with the organizational sizing analysis. Products, activities, personnel, facilities, and technologies can be linked to NAVSEA organizational elements, and the business units described above can be evaluated individually and within the context of a corporate portfolio. The two-dimensional grids developed in the second phase can be used for answering the questions in the sizing framework. Of particular importance for the sizing stage is the portfolio-centrality analysis, which can be used as the entry point for consideration of organizational design. Understanding NAVSEA markets, products, and activities will be crucial to understanding the core businesses, the vertical and horizontal linkages, and the proper size of NAVSEA in 2007.

RAND would be pleased to work with NAVSEA to implement this framework or a modified version of it.
Figure S.8—Organizational Structure for the Product-Life-Cycle Strategic Intent