The changing of activities and the expression of a new strategic intent—the shifting of enterprises, or primary purposeful activities of the organization, what Porter (1990, p. 37) calls positioning for competitive advantage—create a need for change in NAVSEA’s organizational structure. To accommodate changes in the enterprise so that the organization can focus on the activities that are central to the enterprise at a given time, NAVSEA must realign its organizational structure. Failing to achieve alignment, the organization will be ineffective in meeting its mission through its new enterprise. Inflexibility and rigidity—failure and inability to change—are the primary causes of an organization’s death (Katz and Kahn, 1978).

The analyses of activities and product centrality in Chapter Three can be used as the entry points for considering organizational design. They are particularly important for the size stage (not included in this report). Understanding NAVSEA markets, products, and activities is crucial to understanding the core businesses, the vertical and horizontal linkages, and the size for NAVSEA in 2007.

INTRODUCTION

We approached the third task in the project—the organizational design task—from the perspective of NAVSEA as a single, diverse “corporation” composed of all the organizational elements needed to design, acquire, produce, support, and dispose of naval platforms and systems in 2007. The underlying premise is that, in the role of corporate headquarters for this mega-organization, NAVSEA can add substantial value by managing the portfolio of these interrelated elements, or businesses, to achieve outcomes of importance, such as high levels of customer service or efficiency for customers and stakeholders, that could not be achieved by each separate business alone. We focused not on evolving the present organization to the planning time horizon, the year 2007 but, rather, on
determining an appropriate organization matched effectively to markets, products, and activities of that time period, as identified in Chapter Three.

With this in mind, we segmented this corporation into business units that can be employed to carry out the enterprise of the corporation, what Carl Builder in his essay “The American Military Enterprise in the Information Age” (1999, p. 28) clarified as “a deliberately different idea from the . . . objective, mission, role, or purpose of an institution. Enterprise tells us about the activities that preoccupy an organization.” The essay makes a distinction between an organization’s primary purpose and how it fulfills that purpose—its enterprise.

We use the term purpose in this section to describe an organization’s reason for existence and the essence of its objective. To show how these concepts work together, Builder provides IBM, a business organization, as an example. IBM’s purpose—to make a profit for its owners—has remained constant over time, but its enterprise has changed: from making office machines, primarily typewriters; to making large computers (Builder, 1999, p. 28); to making personal computers; to providing services. We borrow Builder’s conception of enterprise because it fits closely with the activities analysis described in Chapter Three and with the concept of strategic intent (industry structure and positioning) introduced in Chapter Three and elaborated below.

Because they are key to the achievement of NAVSEA’s mission and strategy, some businesses in this portfolio should be managed more intensively. We refer to these as core businesses. Core businesses serve as a primary focus of senior leadership attention.

Although we believe that NAVSEA’s purpose will remain unchanged in 2007 from what it is now—to ensure that the Department of the Navy has superior and operational ships and ship systems—some of the activities it undertakes to accomplish that purpose will change, as will centrality of those activities to the enterprise. Some activities are new, some disappear, some are higher in importance in 2007 than in 2000, and some are lower in importance than in 2000. Through our measures of importance and centrality, we capture how closely the activities align with NAVSEA 2007’s enterprise: The scorings tell us in which activities NAVSEA should be most engaged in 2007.

It is the changing of activities and the shifting of enterprise that expresses a new strategic intent—how NAVSEA deploys corporate resources to accomplish its mission and provide value to its stakeholders—and that creates a need for change in NAVSEA’s organizational structure. To accommodate changes in the enterprise so that the organization can focus on the activities that are central to the enterprise at a given time, NAVSEA must realign the organizational structure.
All organizations face the challenges of shifting enterprises. For example, in an interview with Sea Power (April 2000, p. 61), H. Lee Buchanan II, Assistant Secretary of the Navy (RD&A), expressed in the vision he calls “Keeping America’s Navy Number One in the World,” how the enterprise of the Naval Research Laboratory is shifting and how, as a result, the organization’s structure needs to be realigned:

Our job now is to learn how to adopt and adapt the results of others rather than to generate the results ourselves. So what we must do is learn how to bring technologies from outside the Navy to the inside. This is very different from what we’ve had to do before. The military, up until 10 to 15 years ago, was always in the forefront of every modern technology. . . . We are not set up right—organizationally or psychically—to go out and be more a consumer of technology rather than a producer of technology.

The Naval Sea Systems Command exists within, and serves, a larger organization—the Department of the Navy. Given NAVSEA’s consistent purpose, it is not surprising that we can trace the roots of a NAVSEA-like organization back to the creation of the Navy Department in 1798. When Benjamin Stoddert, Secretary of the Navy, designated Joshua Humphreys Principal Naval Constructor of the United States in May of that year, the concept of having an organization responsible for providing technical support for ships emerged (Wright, 1959).

Since 1798, the Navy has structured a number of organizations to fulfill the basic purpose that NAVSEA accomplishes today: ensuring that the Department of the Navy has superior and operational ships and ship systems. The primary responsibility for ensuring that the Department of the Navy has superior and operational ships and ship systems has been given to such organizations as the Board of Navy Commissioners, established in 1815; the Bureau of Construction, Equipment, and Repair, established in 1841; three bureaus—Engineering, Equipment and Recruiting, and Construction and Repair, established in 1861; the Bureau of Ships, established in 1940; and, finally, NAVSEA, established in 1974. Since 1974, various research and engineering functions and organizations have been added to NAVSEA. At present, NAVSEA has the organizational look and feel of a private-sector conglomerateur—a collection of related but separate (and often competing) enterprises that have accreted over time.

How the purpose was fulfilled—the enterprises undertaken by these various organizations—has changed over time, shifting from sails to steam engines, from wooden to steel ships, adding submarines, then adding nuclear-powered submarines. With the advent of automatic and computerized weapon systems, the enterprise of ship systems has also shifted dramatically. These examples depict how changes in technology influenced the enterprise, as what the Navy considered to be “superior” ships and ship systems changed. Moreover, the activities
of the enterprise as well as its technologies have also changed as, over time, the organization has transitioned from designing and building ships itself to contracting for these products and services.

Established on July 1, 1974, the Naval Sea Systems Command encompassed the existing functions of the Naval Ship Systems Command and the Naval Ordnance Systems Command, which were simultaneously disestablished. The two systems commands were merged to simplify and consolidate parts of the organizational structure within the Naval Material Command, which involved design, acquisition, and life-cycle support of total ships and ship systems. The merged activities are visible in Figure 4.1. Further, it was believed that the merger would improve the ability to deliver fully integrated and cost-effective ships in a timely manner (OPNAVNOTE 5450, Department of the Navy, June 11, 1974). The accumulation of these functions and organizations is seen in Figure 4.2, as is the emergence of acquisition support, which we discuss below.

Such enterprise shifts since NAVSEA’s establishment (even while NAVSEA’s purpose has remained constant) can be seen by examining NAVSEA’s 1974 mission statement and its most recent mission statement, for 2000:

To provide material support to the Navy and Marine Corps for ships and crafts, shipboard weapons systems and components thereof, ammunition, guided missiles, mines, torpedoes, and all other surface and underwater ordnance expendables. Coordinator of shipbuilding, conversion, and repair for DoD. Material support encompasses the complete life cycle—from research and design through test and evaluation to modification, maintenance, and fleet support (Department of the Navy, 1974).

We develop, acquire, modernize, and maintain affordable ships, ordnance, and systems that are operationally superior so our Sailors and Marines can protect and defend our national interests and, if necessary, fight and win (NAVSEA mission, 2000).

These mission statements reflect how NAVSEA’s purpose is being fulfilled; they reflect NAVSEA’s primary, purposeful activities. The various organization charts reflect the enterprises that encapsulate that purpose in various periods.

One major shift in enterprise emerges from these mission statements. In 1974, acquisition is not mentioned; in 2000, acquisition and acquisition support have become a major enterprise. NAVSEA certainly acquired items in 1974, but acquisition was not considered to be a primary enterprise of NAVSEA. Perhaps the most salient feature of Figure 4.1 is its product focus, with all activities relevant to those products located completely within the organizational boundaries of NAVSEA. Further, in these enterprises, the organization fostered a production mentality—"You can have any ship you want as long as it is now
available”—and an ownership mentality—“Our ships that you use.” Today, however, NAVSEA supports over 100 acquisition programs, which are assigned to the command’s seven affiliated Program Executive Officers (PEOs) and various Headquarters elements, as seen on the left-hand side of Figure 4.2. We refer to Figure 4.2 later to illustrate where important activities such as research, engineering, and logistics are located.

This shift in enterprise from make to buy, highlighted by Figure 4.2, predates DoD implementation of the Goldwater-Nichols Defense Reorganization Act of 1986 (Goldwater-Nichols, 1986). Before Goldwater-Nichols, NAVSEA and the organizations that preceded it

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1In July 1989, the Defense Management Review (DMR) directed certain DoD organizational changes to implement the Goldwater-Nichols DoD Reorganization Act of 1986 (Public Law 99-433), to streamline the acquisition process, and to enhance acquisition accountability. The DMR mandated designation of a single civilian official at the Assistant Secretary level within each military department as the Component Acquisition Executive (CAE). Within each service, the CAE manages all major acquisition programs through PEOs.
Figure 4.2—Organizational Chart for Naval Sea Systems Command, October 1999
• designed ships
• constructed ships (although this responsibility was shared with private entities)
• maintained, repaired, overhauled, and modernized ships
• disposed of ships.

This is the “life-cycle” referred to in OPNAVNOTE 5450.

Since 1989, the Assistant Secretary of the Navy for Research, Development and Acquisition (ASN [RDA]) has been the Navy Component Acquisition Executive and, as such, is responsible for all research, development, and acquisition. The PEOs,\(^2\) in the leftmost column of Figure 4.2, act for and exercise the authority of the ASN (RDA) to supervise directly the management of assigned programs. The Commander of NAVSEA (COMNAVSEA) acts for and exercises the authority of the ASN (RDA) to supervise directly the management of acquisition programs not assigned to PEOs. PEOs and COMNAVSEA are responsible for all aspects of life-cycle management for their assigned programs. The PEOs and COMNAVSEA report directly to the ASN (RDA) for all matters pertaining to research, development, and acquisition. For the execution of in-service support responsibilities, COMNAVSEA reports directly to the Chief of Naval Operations; PEOs report directly to the Chief of Naval Operations, through COMNAVSEA.

In this context, NAVSEA had shifted by 1999 from a manufacturing (goods-producing) set of enterprises to enterprises focused on services. In contrast to the product organization of Figure 4.1, Figure 4.2 presents an organization focused on customers and service activities.

COMNAVSEA has three roles in this latter organization:

• Managing acquisition programs other than those assigned to PEOs
• Providing for in-service support
• Providing support services to PEOs without duplicating their management functions.

A formal operating agreement elaborates COMNAVSEA’s role in providing support services for its affiliated PEOs. This operating agreement highlights the special relationship existing between NAVSEA and the PEOs. The PEOs are physically collocated with NAVSEA and are considered part of NAVSEA for the purposes of administrative space utilization. NAVSEA provides engineering,

\(^2\)The reference to PEOs in this section should be read to include a reference to Direct Reporting Program Managers (DRPMs), as well.
logistics, comptroller, contracting, legal, and small-business and disadvantaged-business utilization support through the various organizations shown in Figure 4.2. Such support, particularly research and engineering, is not readily observable in that figure. In addition, NAVSEA provides customary administrative and office support services, as well as communications support.

Thus, NAVSEA fulfills much of its purpose through support of the PEOs. NAVSEA ensures that the Department of the Navy has superior and operational ships and ship systems by

- ensuring that the PEOs and Fleet have access to the institutional knowledge of naval engineering needed to design, construct, modernize, and repair ships and ship systems
- ensuring that the total ship and shipboard systems are properly designed and developed
- maintaining, repairing, and modernizing ships and ship systems.

NAVSEA must make certain that each item and system works separately and together. This service enterprise requires a marketing mentality—“We will meet your schedules.”—and a service mentality—“We will meet your needs.” To capitalize on this marketing mentality and the shift in enterprises already under way, we have emphasized a customer perspective in this chapter, treating the PEOs and the Fleet as customers of NAVSEA.

PEOs are, indeed, special customers, stemming in part from the evolution of the enterprise and in part from the beneficial outcomes accruing to the closeness of the affiliation between a customer and its supplier of goods and services. We view the full range of support NAVSEA provides to the PEOs—from engineering and logistics to contracting and legal, from technical to administrative—as the goods and services in the supplier-customer relationship. The implications of this status permeate the perspective described in the remainder of this chapter, beginning with our approach to organizational design.

**APPROACH TO ORGANIZATIONAL DESIGN**

The organizational design approach we take has four stages, illustrated in Figure 4.3. We describe the content of the first three stages in detail in the following three sections. Importantly, although we describe the individual stages sequentially, we employed an iterative process in practice, moving back and forth between and among stages. The organizational design approach depicted in the figure places NAVSEA not only in the industry context but in the broader
As we proceed through the stages, the level of detail increases. For example, in the first stage, we employ a very broad classification scheme to characterize the *industry* in which the NAVSEA corporation operates. In the second and third stages, we *focus* on NAVSEA business units and divisions within and between those business units, *shaping* (aggregating) the units into business lines according to a selected strategic intent. Entering the fourth stage, the product perspective developed in Chapter Three would be employed as a basis for the future organizational structure.

**INDUSTRY INTEGRATION**

To provide the context in which the future NAVSEA corporation is intended to operate, we designed the first stage as a delineation of the scope and the struc-
ture of the overall industry in which the NAVSEA corporation exists and operates, rather than on specific companies, business units, or command elements.

We approached this stage by asking the question:

What industry is NAVSEA in?

We have already answered this question by looking at the mission/purpose of NAVSEA. Generally, we say the “industry” is in the business of providing, supporting, and disposing of naval platforms. As such, the industry consists of all organizational entities, public or private, that perform significant activities in support of the naval platform life cycle—from the earliest conceptual manifestations of a platform and its component technologies as a requirement to meet a future need through disposal of a vessel that has served the nation long and well. In more-specific terms, the industry is defined by enterprises that perform the activities contributing to the conceptualization, research, design, engineering, construction, in-service support, and disposal of naval vessels and systems. If anything, NAVSEA is unique, because no comparable single industry performing all these activities exists in the United States.

The NAVSEA corporation exists within an even larger sphere of industries in the United States, of which the shipbuilding/ship-repair industry is but one. We employed Standard Industrial Classification codes (SIC; http://www.census.gov/epcd/www.sic.html) as the basis for determining the scope of industrial participation of NAVSEA. The SIC system database delineates the structure of U.S. industry at various levels of aggregation, as well as the size of the industry, as a whole, and that of its participants. To determine the relative importance of the NAVSEA corporation within an industry, we analyzed the funding that flows to and through NAVSEA today. Overall, this funding analysis provided a proxy for the amount of competition available for carrying out the major activities of the corporation; it also identified where the potential for risk was highest, particularly in activities key to NAVSEA corporate operations.

We used several databases to develop the industrial context for NAVSEA. The Department of Defense DD350, or Contractor, database identifies how governmental contract dollars flow to businesses and industries, by product and service. We also used NAVSEA financial data to help relate the size of NAVSEA component organizations to comparable businesses in the private sector. The data available from these different sources were not completely compatible; sometimes, they were drawn from different time periods. Because we were seeking a general description, not specific conclusions, we could accommodate these potential inaccuracies. However, we emphasize that the reader should treat the information presented below cautiously.
Ultimately, we based four assessments on these data:

1. The types of industries within which NAVSEA participates.
2. The percentage of work within each of those industries that supports the Navy, largely through contract dollars that flow through NAVSEA.
3. The percentage of industry output the NAVSEA corporation performs in-house.
4. Competitors for NAVSEA’s in-house work (in other words, whether internal NAVSEA products are available in the private sector).

These assessments are summarized below.

**Industries Within Which NAVSEA Participates**

Money flows from NAVSEA into 46 different industries, identified at the two-digit SIC code level (for example, Transportation Equipment). However, 95 percent of NAVSEA contract dollars go into 10 industries at the four-digit SIC code level (for example, Ship Building and Repairing, a subset of Transportation Equipment). These 10 industries are as follows:

- Ship building and repairing
- Engineering services
- Guided missiles and parts
- Fabricated structural metal products
- Ordnance and accessories
- Research, development, and testing services
- Computer programming, data processing, services, and repair
- Engines and turbines
- Computer and office equipment
- Special industry machinery.

**Navy Share of Work and Role in Industries**

The significance of NAVSEA contract dollars varies across these 10 industries. For example, as Figure 4.4 shows, over 60 percent of the dollar value of the ship-building and ship-repairing industry in the United States flows through
NAVSEA. Thus, NAVSEA is a dominant player in some industries, such as shipbuilding and repairing, but not in others, such as engineering services.

**NAVSEA’s Industry Output**

Comparing the percentage of dollars NAVSEA’s own enterprises expend in performing tasks in a given industry with the dollars that flow through NAVSEA to the private sector in that industry is one way to view industry dominance. Figure 4.5 portrays the distribution of in-house and private-sector spending for each of the industries receiving the most NAVSEA dollars.

NAVSEA’s enterprises that directly build and repair ships are large within NAVSEA, but they are small when compared with the dollars that flow to the overall industry. Conversely, while NAVSEA dollars are a small part of the engineering services industry, about 25 percent of this overall enterprise is performed in-house. Other enterprises for which NAVSEA performs a large share of work internally rather than using contract dollars include research, management services, and computer services.
NAVSEA Competitors

We also identified the flow of contract dollars into specific firms in the private sector. Not surprisingly, firms such as Electric Boat, Newport News Shipbuilding, Ingalls Shipbuilding, Bath Iron Works, and Avondale Industries dominate the list. Using these data and data from other sources, we estimated that commercial sources can or could produce, in whole or in part, approximately 25 percent of the NAVSEA products (aggregated activities) identified in Chapter Three:

- Missile Simulators, Trainers, and Test/Diagnostic Equipment
- Navy Metrology Systems
• Aircraft Modeling and Simulation
• Packing, Handling, Storage, and Transport of Ordnance
• Physical Security Systems
• Ordnance Environmental Support
• Diving, Salvage, and Life Support Systems
• Surface and Undersea Vehicle Materials and Processing Technology
• Legacy Microwave Component Technology
• Legacy Microelectronic Technology
• Legacy Radar Engineering & Industrial Support
• Research on Semiconductors
• Legacy Battery Systems
• Logistics Systems
• Shipyard Activities–Non-nuclear
• Electrochemical Power System Development
• Cost Engineering Services
• Small Arms
• Submarine Combat Systems
• Torpedo Depot Management and Operations
• USW Range Management
• Navy Tactical Training Range (NTTR) Management
• Small Arms Ammunition Management Systems
• Information Technology Services
• Environmental/Pollution Abatement Systems
• Habitability and Hull Outfitting Systems and Components
• Night Vision/Electro-optics
• Infrared Sensor Systems
• Radar Sensor Systems

With this as the industrial context in which NAVSEA currently operates, we turn next to considerations of NAVSEA’s organizational structure in the future. In the next part of the organizational design task, we identified major business
units with common products, competitors, and other linkages to carry out the activities of NAVSEA in 2007—focus—then looked across these business units and reconfigured them—shape—to take advantage of combined actions and operations (i.e., synergies), economies of scale, and areas of desired emphasis. Practically, we accomplished these two tasks simultaneously. We describe our analysis sequentially.

FOCUS

In an organization as large and as diverse as the NAVSEA corporation, Alfred D. Chandler’s time-tested advice from his 1962 *Strategy and Structure: Chapters in the History of the American Industrial Enterprise* continues to hold important sway: structure follows strategy. Consequently, the structural outline is derived from the corporate strategic intent it is designed to execute.

The Core Businesses

In the second stage of the organizational design process, we define the major business units of the corporation by describing the structure that leads to most effectively carrying out their individual missions and strategies, by focusing the organization on the key outcomes it is intended to produce. Our primary objective in this stage is to provide the broad structural outlines of the organization immediately below the NAVSEA corporate headquarters.

In this stage of the analysis, we look at the NAVSEA described in the first stage—a diversified corporation producing a set of related products and services. We emphasize identifying those products and services and arranging the activities that produce them in an organizational structure that contributes best to achieving NAVSEA’s mission and overall strategic intent. *Structure*, what Porter (1990, pp. 40–41) calls the value system and value chain, is the formal allocation and ordering of activities to meet strategic intent.

The Role of Strategic Intent

Strategic intent states how NAVSEA, as a whole, will go about delivering value to its stakeholders. The statement of corporate strategic intent is a blueprint that can clarify organizational direction in different ways:

- How NAVSEA wants to position itself and its business units vis-à-vis the industry in which it exists.
- How the core competencies that set NAVSEA apart from other organizations can be developed and sustained.
• How NAVSEA wants its business units to view the customer.
• How NAVSEA wants to align itself with the structure of the market within which it competes (or how it wants to restructure that market to its own advantage).

We consider each of these perspectives and its implications for NAVSEA structure, in turn.

Strategic intent at the business-unit level is a statement of the value proposition—the competitive advantage—the business unit offers that will cause customers to prefer it to the competition. It may be cost, technological leadership, customer service, or some combination of these and other factors (e.g., innovation, flexibility, productivity, learning, and skill development). What differentiates the business unit from its competition? What do the business unit’s customers want? What can the business unit deliver cost-effectively? Working initially from the top down and then from the bottom up, and employing an iterative process, we used the perspective these questions offer, first to suggest the initial structural form of the business units, then to identify how the portfolio of business units can be modified in relation to the corporate strategic intent.

In a corporate context, leaders employ strategic intent as a competitive weapon, and often they are reluctant to share it widely. Frequently, annual reports and other public statements contain a sanitized version, lacking specifics. To gain internal commitment, the chief executive (COMNAVSEA) will be more specific with the senior management team in laying out strategic intent than he will be with the general public. However, it is not uncommon that real strategic intent is not explicitly stated, but exists only in the chief executive’s inner thoughts. To design the corporate structure for NAVSEA, we reviewed the most recent statement of corporate strategy and interviewed senior leaders in the Navy, seeking views of NAVSEA strategic intent for 2007.

**NAVSEA Corporate Strategic Intent**

From our review of the corporate-strategy statement and interviews with top NAVSEA managers, and from our multiple visits to existing NAVSEA business units, we concluded that NAVSEA has several potential manifestations of strategic intent available to it.3

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3A number of the business units themselves have an explicit statement of strategic intent for the business unit. These statements helped us identify potential statements of strategic intent in 2007. Integrating these business units’ statements with a corporate statement of strategic intent can enhance the synergy among these business units. (See NAVSEA, n.d., 1999b.)
From our interviews, we identified many assertions of what business NAVSEA is in or should be in—in other words, why NAVSEA exists as an organization in the Department of the Navy. NAVSEA leadership and external commentators variously espoused the following reasons for being:

- A high-quality service provider for high-technology products
- A low-cost provider for commodity services (i.e., services in broad use)
- A high-quality provider of complex systems
- The primary provider of leading-edge naval technology and solutions
- Supplier of last resort
- A knowledge repository
- A “Brilliant buyer”
- The Navy’s integrator
- Steward of naval technology and knowledge.

NAVSEA will exist, to some extent, for all of these reasons in 2007. However, what it considers most fundamental and how it organizes to execute that emphasis, or centrality, will largely influence how well it satisfies its stakeholders. An organization that chooses to do everything may do everything equally well: mediocre.

What is the essence of COMNAVSEA Strategic Intent 2007? Given the above variety of strategic intents from which to choose, we propose three variations of strategic intent that are most consistent with the recent corporate strategy and that highlight the impact of that strategy, to suggest how COMNAVSEA Strategic Intent 2007—when formally declared—could shape the NAVSEA organization. Later in this chapter, we outline four variations of strategic intent that lead to four alternative NAVSEA organizations. Here, we focus on components of those organizations.

Today, NAVSEA’s strategic intent implies three major missions around which businesses can be organized: technical authority to include science and engineering expertise, acquisition of naval platforms, and in-service support. We used NAVSEA corporate strategic intent to identify specific business units—the first level of division of labor (immediately below the corporate level) within the NAVSEA corporation. We assessed these three businesses and others during the course of our analysis.

Each of the businesses we identified in this stage contributes in important ways; however, NAVSEA corporate headquarters does not necessarily need to view all
of them as being *equally* important. Indeed, NAVSEA Headquarters' resources are limited; Headquarters can add the most value by focusing on the key, or core, businesses: those that have the greatest direct impact on the ability of NAVSEA to accomplish its strategic intent and, thereby, add value for NAVSEA stakeholders.

In this stage, we also outlined the structure of the individual business units, which follows from the *business-unit strategy*—how a specific business unit plans to carry out its mission and which leads to the fundamental structure and composition of the business unit. We investigated a variety of organizational templates that diverse businesses have used—product focus, process focus, customer focus, geographic focus, or a combination of two or more focuses, or structures—and assessed their effectiveness in carrying out the individual business-unit strategies. Each has advantages and disadvantages in how well it enables the business unit to carry out its strategy.

Our general approach to organizational design thus has two interdependent perspectives: a corporate perspective and a business-unit perspective. The broader perspective takes the view from corporate headquarters; the more-specific perspective takes the view from individual business units. Neither perspective is the “best” in terms of shaping corporate structure; both are important for a balanced organization. In the remainder of this chapter, we first describe a basic corporate portfolio of business units based on the activities we identified in Chapter Three and Appendix C. We then present four portfolios of business units, each based on a variation of NAVSEA strategic intent.

In this subsection, we first describe the importance of segmenting NAVSEA into business units; we then detail the differences between the corporate/Headquarters and business-unit perspectives. Finally, we describe different methods for segmenting a diverse organization.

**Why Segment into Business Units?** The private sector would consider NAVSEA a diversified corporation providing related products. To effectively provide these related, often intertwined, products requires significantly different business models—“ways in which a firm performs various activities and organizes its entire value chain” (Porter, 1990, p. 41). Different parts of NAVSEA face different operating environments. Different driving forces, such as technology and strategy (as discussed in Chapter Three), cause these environments to change in different directions at different rates. Different parts of NAVSEA produce different products, to satisfy different customers who have different kinds of needs. Finally, different parts of NAVSEA compete with alternate sources—competitors—to which customers can go to satisfy those needs. Such an organization in the private sector would organize itself into business units.
Business units provide a coherent framework that allows NAVSEA to respond to and capitalize on these differences. In particular, a business unit is an organizational mechanism for focusing attention on those aspects that have the greatest effect on the ability of the organization to satisfy customers; it allows for a tailored strategy that highlights the handful of key factors that determine success. A strategic business unit is a conceptual operating unit, or focus for planning, that provides a distinct set of products or services to a market—a set of customers with preferences and needs different from those of other customers—while facing a well-defined set of competitors and taking responsibility for fiscal soundness.

If the differences delineated above did not exist, an organization would not require business units; it could design a single effective strategy if it provides similar products to a single set of customers with common needs and preferences facing a well-defined set of competitors. However, faced with the types of differences delineated above, an organization’s leadership cannot be expected to create a single strategy that effectively addresses the full range of variability. For example, a strategy/business model for providing repair and maintenance would be expected to be substantially different from a strategy for providing technological innovation; similarly, a strategy for generating innovative technological solutions would be expected to be different from a strategy for managing and applying existing knowledge.

Consequently, by dividing NAVSEA into business units—each of which provides a distinct set of products for customers with similar needs and preferences facing a well-defined set of competitors—each business unit can tailor its particular strategy to its unique needs, rather than attempting to find a single strategy that addresses conflicting visions, missions, or objectives.

To narrow its focus, a business unit looks for the structure of its value chain in products, markets, customers, functions, processes, or geography, although other perspectives or a combination of perspectives may be more effective in some circumstances. The focus chosen establishes the framework for developing a strategy for effective management of the firm’s resources. The strategy specifies how the business unit will meet its customers’ needs. Business-unit strategy drives business-unit organizational structure.

Corporate Versus Business-Unit Perspective. The corporation as a whole and its business units have different and complementary responsibilities. On the one hand, the corporation is concerned with (1) accountability to its stakeholders, (2) the composition of its portfolio of business units (covered at the end of this chapter), (3) the allocation of resources across those business units (i.e.,
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sizing; not covered in this report), and (4) the source of capital with which to carry out its operations (also not covered in this report). For the purposes of this project, we focus primarily on the first two responsibilities.

A business unit, on the other hand, is concerned with a customer perspective, its value proposition—what it offers to its customers more effectively than any other source—the business scope, and the core competencies required to provide the value proposition. It incorporates these considerations in its unique business strategy.

The corporate task is to decide what businesses it should be in; the business-unit task is to decide how to carry out a particular business.

Importantly, we distinguish between stakeholders and customers. Stakeholders are the focus of the corporate leadership; the customers are the focus of the individual business units. Markets as defined above are one of the key considerations in segmenting NAVSEA into business units.

Stakeholders. NAVSEA is accountable to stakeholders, in the form of organizational entities, interest groups, and individuals who directly or indirectly accrue the benefits or sustain the costs of the operation of NAVSEA. The interests of the stakeholders are diverse and often conflicting. However, certain stakeholders directly influence whether NAVSEA will continue to exist in the future. To ensure its continued existence by maximizing the satisfaction of its stakeholders, NAVSEA seeks to satisfy the greatest number of interests or the highest-priority interests. One mechanism for doing so is the way it chooses to organize.

Who are NAVSEA’s stakeholders, what do these stakeholders value, and what are the implications for the NAVSEA organizational structure?

Who Are They?

Although NAVSEA is accountable in different ways to many interest groups, we identified two major stakeholders for NAVSEA: the Chief of Naval Operations and the Assistant Secretary of the Navy for Research, Development and Acquisition. NAVSEA’s ability to provide value to these two officials accounts largely for its continued existence.

In many organizational analyses, managers and workers are also recognized as stakeholders. In public-sector analyses, Congress or the taxpayers are frequently identified as stakeholders. However, we adopt the corporate-governance perspective of delivering value to the providers of ownership capital.
Source of Value

These stakeholders have, to a large extent, codified the nature of their interest in the form of mandates, reflected in Navy directives and instructions. Satisfying these mandates is one means of creating value for the stakeholders. In our description of business units later in this chapter, we indicate that such mandates may need to be revised to enable competition. Most of these mandates take the form of delineating the activities to be performed by NAVSEA. They are primarily inputs for NAVSEA: “Perform these tasks.”

Business units organize to carry out these mandates—ideally, as effectively as possible. COMNAVSEA believes that the future of NAVSEA resides on the waterfront, i.e., where the Fleet gets its direct support and services. Business units focused on the waterfront respond to stakeholder interest in Fleet readiness—which is where NAVSEA affects the core of the Navy.

Other senior leaders emphasized that, without an effective infrastructure—the larger complex of activities that design, acquire, and deliver materiel (to include systems and technology)—and human assets for the Fleet, the Navy would cease to be. Operating the infrastructure well takes special skills; it cannot be done as a secondary or tertiary duty. If this is a primary role for NAVSEA, a business unit devoted to this role focuses managerial attention and enables consistent and coherent application of resources.

In addition to mandates, the stakeholders are also interested in outcomes over which NAVSEA has influence, although not necessarily complete control. For one such outcome, Fleet readiness, the stakeholder, CNO, acts as the ombudsman for today’s Fleet, his interest focusing on such measures as repair and maintenance efficiency, interoperability, and operational availability. His interest also focuses on force structure, particularly on ensuring that platforms and systems reach the Fleet when expected.

Similarly, the Assistant Secretary of the Navy for Research, Development and Acquisition acts as the ombudsman for the future Fleet, his interest focusing on providing the Fleet with the needed systems that meet desired cost, schedule, and performance targets; in addition, as his title highlights, he must also balance the influence of research and development with the efficiency of the acquisition process. During interviews, senior leaders in the Office of the Assistant Secretary raised concerns that the integration between research and development, on the one hand, and acquisition, on the other, was not as robust as desired. They suggested that the acquisition process is driven by the available technology, not by what fits best in the context of mission and threat.
Therefore, leading-edge research and development products focused in the context of the operational environment do not get incorporated effectively in the acquisition process. The two functions need to be better integrated; they cannot be individually entrepreneurial and isolated from each other.

**Organizational Implications**

The mandates provide business units within NAVSEA with a minimum bound on the scope of activities that they must ensure get carried out (although not necessarily carried out by NAVSEA). As inputs, the mandates directly lead to organizational elements. For example, diving and salvage activities are a mandate, as are activities dealing with explosives safety and technical performance. Organizing around critical work is a generally accepted principle.

Stakeholder interest in a closer link between research and development and acquisition has three organizational implications for NAVSEA:

- NAVSEA provides much of the technology embedded in weapon systems; it must be in this business.
- To enhance the value to the stakeholder, NAVSEA needs to deliver research and development—derived from a deep understanding of the operational environment and naval engineering—to the PEOs in a timely manner.
- NAVSEA also delivers technical services to stakeholders. These services go beyond research and development and include enhanced readiness and technical performance.

Organizational structures provide varying degrees of assurance that Fleet needs are met. For example, a business unit formed around platforms (PEOs) may provide technologies better matched with platform needs than may a business unit formed around types of technologies. The latter could work—and has worked—using formal coordination and other communication mechanisms to supplement the organizational structure. However, to the degree that strengthening the linkage between platform and technology is deemed to be a priority, a platform-oriented organizational structure would be better suited to the objective. Alignment of organizational structure with the business units simplifies communication. That structure could be supplemented with mechanisms for ensuring that the requisite depth of technical capabilities is achieved; possibly a matrixed organization using types of technology as the organizing variable.

Several senior leaders averred that a primary NAVSEA role in the future is engineering discipline, review, and oversight. The Navy relies on interoperable systems; support cannot remain stovepiped in each system. If the concept of technical authority is essential, as with operating the infrastructure, a single organizational entity within NAVSEA should provide it. Products that ensure in-
Interoperability and applications of systems engineering provide value to both stakeholders.

**Customers.** Individual business units focus on customers. Customers are one of the means of segmenting NAVSEA into business units. Today, NAVSEA has elements that can be categorized as business units—for example, the warfare centers and the shipyards—which provide a distinct set of products or services to sets of customers with specific needs and preferences. However, without necessarily being codified as an identifiable business unit, parts of NAVSEA Headquarters—the logistics activities of SEA 04, the research activities of the warfare centers, or the engineering activity of SEA 05, shown in Figure 4.2—also provide products and services to customers external to NAVSEA. Although clearly feasible as a means of conducting the activities required, this structure potentially defuses customer focus and, consequently, the ability to develop a value proposition and strategy to meet the needs and preferences of a set of customers and the competencies to carry them out.

To enhance the ability to meet customer needs and preferences using the approach this chapter describes, we seek to assign to business units almost all those activities directed at providing products to external customers. Consequently, customers help to define business units.

**Who Are They?**

We identified three primary categories of NAVSEA external customers: PEOs, Type Commanders, and the Fleet. (Other U.S. government organizations and foreign nations are also customers.) These categories are not necessarily mutually exclusive. However, they receive different types of products and services, and they have different needs and preferences. The value NAVSEA provides to each type of customer differs.

**Source of Value**

One of the primary advantages NAVSEA has over competitors is its ability to enhance its products and services with detailed knowledge of the Fleet, the context in which its offerings will be used, and the effect of these offerings in an operational environment. NAVSEA also provides constancy—of people, skills, and relationships—which few, if any, external organizations can match. Knowledge of the Fleet benefits all three categories of customers.

The PEOs value innovation, particularly in the form of translation of basic and applied research into naval capabilities. Knowledge of the customer is essential.

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4However, recent reorganizations have had the effect of moving many of these activities into the existing business-unit structure of warfare centers and shipyards shown in Figure 4.2.
for ensuring that innovation is targeted appropriately. Moreover, NAVSEA provides a range of support services to its affiliated PEOs, including comptroller, contracting, and legal services. In this context, PEOs represent a special kind of customer, one with whom the supplier (NAVSEA) has established a close and trusted relationship.

Type Commanders value efficiency, which contributes to increased operational availability. This focus suggests a business unit that provides on-time, quality service: repairs and maintenance, modernization, and upgrades that are done right, on time, the first time, within budget.

The Fleet values outstanding customer service. Although all customers seek this product characteristic, the Fleet values it the most. Effective solutions, particularly while ships are under way, maintain Fleet capabilities and readiness.

**Organizational Implications**

NAVSEA provides different kinds of knowledge. Different customers value different subsets of the different kinds of knowledge NAVSEA provides. Therefore, NAVSEA can be segmented into business units organized around customers, and business units can be structured to ensure that the right data are available to the right parts of the business unit. We focus here on business units organized around customers.

- Providing value to the PEOs requires that NAVSEA have a complete understanding of the future environment, the threats, and the concepts of operations. To be most effective, this type of knowledge should permeate the business unit, informing all activities, to ensure that the technology being developed has the best chance of satisfying Fleet needs in the future.

- However, providing value to the Type Commanders and the Fleet requires a different kind of knowledge, largely related to the existing platforms.
  - For the Type Commanders, the required knowledge supports decisions regarding the scheduling and efficient completion of major maintenance availabilities in the face of uncertain operational requirements. Such knowledge leads to a business unit that can adapt to a changing customer demand while ensuring expeditious incorporation of upgrades and modifications, full interoperability, and increased operational availability.
  - For the Fleet, the required knowledge supports the ability to solve, rapidly and effectively, problems that arise while under way or during a scheduled maintenance availability.
Innovation, experimentation, adaptability, and creativity can be inhibited when near-term and long-term activities are mixed together. The tyranny of immediate needs drives out the ability to focus on new and unique means of accomplishing ends. Organizations often create and isolate “skunk works”—that part of the organization from which innovative ideas are sought—from other parts whose activities are more directly concerned with operations. This suggests that NAVSEA should locate activities directed at innovative outcomes in business units separate from activities directed at operations. If both kinds of activities are located in the same overall business unit, then NAVSEA should create separate divisions within the business unit to insulate the two kinds of activities.

Both efficiency and world-class customer service require organizations that are linked closely to the customer. A business unit responsible for a single type of customer can focus more effectively on meeting that customer’s needs than can one with many or diverse customers.

**Potential Means of Segmenting.** From the above considerations, we derived a variety of means for segmenting NAVSEA into business units. There is no one best way; each means has advantages and disadvantages. Below, we describe several means.

**Organizing by Function.** Most business entities organize themselves—create linkages—around functions first. Doing so has plentiful advantages: Workers in similar occupations or professions work together, sharing knowledge, practices, and contacts, creating synergies not available in other organizational structures. Having a larger number of workers among whom to spread the work means that specialization can increase. Similarly, the sharing of equipment, facilities, and other resources occurs more readily. Functional organizations also promote standardization and reduce the need to reinvent policies and practices in different parts of the organization. Historically, NAVSEA has been structured functionally (although not necessarily as business units), and, as we note below, NAVSEA continues to be influenced by this design.

NAVSEA’s activities cluster into functional categories related to the life cycle of an acquisition program: R&D, design, engineering, construction, operational test and evaluation, delivery and certification, maintenance and repair, and disposal, as discussed in Chapter Three. This is not unlike the segmentation seen in Figure 4.1. In addition, this structure is congruent with the value chain for the industry in which NAVSEA participates. Interestingly, the recent reorganization of the Naval Air Systems Command (NAVAIR) reflects a functional structure: program management, contracts, logistics, research and engineering, test and evaluation, industrial, corporate operations, and shore station management.
Synergy—combined action or operation—is captured within the function (which may be valuable to stakeholders and customers). However, the functional organization operates inefficiently when the organization offers a variety of products, through different channels, to different customers. Customer focus—the ability to remain focused on the customer—in particular, is difficult to establish and maintain. In addition, structuring by function tends to erect barriers between the functions, inhibiting cross-functional processes, such as new-product development. Rapid product development overwhelms a functional structure. The functional structure is declining in popularity because speed and innovation are becoming more important than scale.

In summary, NAVSEA would consider structuring around functions to support a strategy capitalizing on the need for

- common standards
- high levels of expertise
- economies of scale for products with long product-development times and life cycles in an undifferentiated market.

If NAVSEA overall is not a likely candidate for a functional structure, parts of NAVSEA (the shipyards, for example), to remain competitive, may require the advantage of economies of scale that a functional structure brings.

**Organizing Around Customers.** Partly because of shifts in power from the supplier to the buyer, service organizations have structured themselves around their customers or markets. Increased fiscal pressures and increased willingness to use other suppliers mean that NAVSEA’s customers have, in effect, captured more power: PEOs have internalized or outsourced many of the activities provided solely by NAVSEA in the past, and the Fleets have alternatives to public shipyards. To remain the provider, NAVSEA business units must offer superior value to their customers.

One means of providing this value is to capitalize on their knowledge of the customer—its needs and preferences—thereby enabling the organization to tailor activities to each type of customer rather than offering a more generalized, functional structure. In addition, the value of a functional structure (particularly one that captures economies of scale) has waned, because these economies can often be secured from other organizations who specialize in the function (FedEx in shipping, and IBM or EDS in computer services are good examples); economies of scale no longer provide a significant competitive advantage. NAVSEA has many unique capabilities. The trend toward contracting out non-unique capabilities and the willingness to do so have removed the need to
organize functionally, allowing NAVSEA to more easily align its unique capabilities with customers.

The three NAVSEA customer clusters—PEOs, Type Commanders, and operating Fleets—reside in different segments of the 15 separate market areas described in Chapter Three (Table 3.3), sometimes alone, sometimes sharing a market area. Depending on their mission, the PEOs make up a set of customers in the market area of Acquisition Support, Operational Availability, and one or more others. The Type Commanders make up a set of customers in the market areas of Operational Availability and Mobility. The operating Fleets make up a set of customers in all markets except for Acquisition Support.

Structuring around markets or customers is not without the disadvantage of duplicating activities across business units if the organization lacks (or fails to take advantage of) appropriate outsourcing or horizontal-integration opportunities. The business units may also find sharing common services across markets difficult.

In summary, NAVSEA should consider structuring around customers to support those strategies focused primarily on important market segments, particularly when

- a product or service is unique to the segment
- the customer exhibits significant buyer strength
- knowledge of the customer and rapid customer service and product cycles are particularly important
- the offerings can be produced efficiently in supporting functional areas or functions can be outsourced to capture the necessary scale. (The functional structure is declining in popularity because speed and innovation are becoming more important than scale.)

**Organizing Around Products.** Forming business units or divisions/departments around products can compress the product-development cycle. It is particularly useful for supporting strategies of product diversification and new-product development.

NAVSEA offers a wide range of products for 2007, listed in Table 3.5. To form product-related business units for NAVSEA, we attempted to aggregate those products into five to seven broad categories here by associating all NAVSEA products with the categories contained in the DD350 contractor database, a source already grouped by major product categories. This exercise produced a significantly larger number of business units than seven. We then aggregated to reflect certain linkages—common products, common competitors, similar re-
sponses to price changes, and a standard set of basic business-unit properties: type of strategy, importance of quality, type of workforce, etc. From these considerations, we identified seven basic business units aligned along major end products: submarines, surface ships, expeditionary platforms, weapons and energetics, management services, assessments, and analytic services. This represents a more macro-level aggregation of the product taxonomy used in Chapter Three.

Although focusing attention on the product, this method of segmentation poses risks of duplicating resources and not being able to recognize the opportunity for sharing those resources across business units that are similar to the risks in organizing by customer. In addition, dividing functional areas along product lines risks the loss of economies of scale. Centralizing and sharing some or most of the functional services can minimize this loss. Customers that rely on more than one business unit lose the ability to deal with a single organization. However, organizations in this situation can benefit from a front-end-oriented—outward-looking and market-driven—organization that is focused on customers and a back-end-oriented—inward-looking and production-driven—organization that is structured to focus on products. The interface between the two would be handled within the organization.

The front-end/back-end organization is a hybrid of the product and market structures. The front end focuses on customers/markets; the back end focuses on products and technologies. The products are organized as multifunctional businesses (generally including product marketing, but excluding sales); system integration, sales, and servicing are organized around markets. The front end is adding more value than in the past, through establishing closer ties to customers and more-intimate understanding of their needs.

In summary, NAVSEA should consider structuring around products to support those strategies focused primarily on product diversification and rapid development, particularly when

- the organization chooses to produce separate offerings for separate customers
- the offerings can be produced efficiently in functional areas or functions can be outsourced to capture the necessary scale.

Organizing by Product-Function. In a product-function organization, the products produced are the outputs of the separate functions. We view NAVSEA today as being organized along four major product-function areas—research, development, test, and evaluation (RDT&E), acquisition support professional services, in-service engineering, and repair and maintenance—an organization that is congruent with a generic life cycle.
**Organizing by Process.** A process structure is based on a complete flow of work. If NAVSEA produced only one product, functions organized in line with the product’s life cycle could also be viewed as a process structure—for example, all the activities associated with the repair and maintenance of a ship (the planning, scheduling, actual repair and maintenance, testing, delivery, etc.) would constitute a process, since the product moves through each stage. However, not all products move through all stages of the life cycle; in fact, products within NAVSEA are produced using significantly different processes. In a process structure, the organization forms around the process, bringing together the people from the necessary functional areas to work in a process team. This structure enables process improvements, because it identifies and highlights the elements of the process and relationships; it also allows greater accountability as individuals and groups focus on self-contained units of work. Cost reductions come about through reduced cycle times and improved quality.

The process structure creates its own barriers—between processes. If processes interface, the organization must manage that boundary as carefully as it does the boundaries between functions in an organization structured functionally. A process perspective appears to be more useful in structuring the business units themselves than in determining the portfolio of business units to begin with.

In summary, NAVSEA would consider structuring around processes to support a strategy of reducing cycle times, particularly in areas in which there is substantial potential for improving processes.

**Organizing by Work Activities.** Another means of segmenting into business units that is closely related to organizing by processes, and that shares its advantages and disadvantages, is to start with the work activities from Chapter Three and aggregate them. This is called generalizing the work activities. We developed and applied a work activity hierarchy to encompass all work that must be performed in a large organization such as NAVSEA.

We chose initially to segment on work activities. We judged that such a basis would be more in line with the time frame we are focused on: 2007. Businesses are moving from a focus on capital assets to a focus on the use of those assets—from a command and control functional hierarchy to a more modern activity concept. Other bases for organizing business units could have been chosen. It is our judgment that this activity focus is a useful starting point for understanding NAVSEA businesses in 2007 and, ultimately, their corporate structuring. We associated each NAVSEA activity with a cluster of work activities. Seven business units resulted, each centered on similar categories of activities:

- Managing ships
- Providing program-management and project-management services
• Resourcing science, engineering, and acquisition professionals
• Managing infrastructure
• Organizing and managing existing knowledge
• Creating and managing new knowledge
• Providing top-level systems engineering services.

Using a work activity structure, rather than the current NAVSEA functional structure, as the basis for the initial design of the NAVSEA organization of the future, affords the most flexibility in the design process itself.

We purposely avoided identifying and characterizing the existing NAVSEA business units. Some readers are likely to infer comparisons between the business units we identify and the existing organizational structure of NAVSEA, but that is not our intent. The extant NAVSEA business structure is a Headquarters-focused, command and control hierarchy that has evolved from the early part of the Industrial Revolution into an organization that can handle complexity and multiple business lines. While it is now flatter, larger, and more far-flung than the model in Figure 4.1, this traditional organization has been pushed to the extent of its useful life, especially as time becomes a critical factor, given the pace of operations in many areas: that pace accelerating beyond the hierarchy’s ability to adjust.

Now that we have described the potential/theoretical segmenting considerations for business units, we choose one, and describe the resulting business units in detail.

The Basic Corporate Portfolio

The following subsections describe each of these work-activity-structured business units in detail. For each business unit, we define its offering, its market, and its competitors; describe its value proposition—the set of benefits a business offers to convince customers to buy from it and to differentiate itself from its competitors; propose an appropriate business-unit strategy; and suggest the relevant business model—how a business sustains itself over time. We also suggest a private-sector business model to emulate.

In the private sector, a business must generate sufficient operating income (cash flow) to attract periodic infusions of long-term capital (equity and debt). To the extent that the business exceeds all costs, to include those of capital, it is creating value for shareholders. In the public sector, a business unit must also sustain itself over time, either through operating income—working capital fund—or through annual infusions of public resources—budget. In either case,
value must be provided to customers or stakeholders to prevent the sources of cash from drying up over time.

**Managing Ships.** This business unit provides two categories of services: (1) planning and scheduling of repairs, maintenance, and modernization, and (2) the actual repairs, maintenance, and modernization. Currently, its customers are the Type Commander and the Fleet. In the future, as total-life-cycle contracts receive greater emphasis, the business unit may see the weapon system platform contractor as the customer, establishing a partnership during the acquisition process that will carry over throughout the life of the platform or having to continually compete to provide repair and maintenance through the contractor. Private shipyards compete, today, with the public yards; in the future, foreign yards could enter the competition.

**Value Proposition.** The business unit competes primarily on the basis of cost and better understanding of the customer’s preferences. Customer service is a key component of the strategy.

**Business-Unit Strategy.** This business unit bases its strategy on being the least-cost provider of maintenance and repair services. To enhance the value it adds to the end consumer (the Fleet), the business unit could modify its market by vertically integrating the Type Commanders (its current customers), providing in the business unit the value currently provided by the Type Commanders, and dealing directly with the Fleet. To grow and sustain itself, this business unit in 2007 would be integrated backward toward the prime contractor and forward toward the Fleet. “Rolling up the water front”—disintermediation of all other waterfront competitors—would be the goal of this business unit.

**Business Model.** *Manufacturer* is the appropriate business model. The unit seeks cost savings through consolidations and vertical integration. The business operates as a working capital fund in that the customer has the resources and can choose to whom they go.

**Notional Business-Unit Structure.** The business unit divides into two major components along product lines: planning and scheduling, and repair and maintenance (Figure 4.6). Within planning and scheduling, the structure divides along product lines, focusing on the type of maintenance: organizational, intermediate, or depot. Within repair and maintenance, the structure divides geographically, reflecting the costs of moving ships far from home ports. Within the geographical areas, a functional structure to capture economies of scale or a process structure to implement a strategy of continuous process improvement is appropriate.
Providing Program- and Project-Management Services. This business unit provides program- and project-management services in the form of packaged expertise, including contract management, legal, financial, program-management, and administrative services (see Figure 4.7). This business unit sells these services to the PEOs and program managers, rather than providing the personnel to carry them out. SECNAV Instruction 5400.15A (see Appendix B) designates comptroller, legal, contracting, and administrative support services (among many others) as core processes and requires COMNAVSEA to provide these services to the PEOs. It also designates COMNAVSEA as the Head of Contracting Activity, both for assigned programs and for programs assigned to PEOs.

Numerous professional-services firms (e.g., temporary manpower firms, contracting agencies) provide many of these types of services. Potential competitors for comptroller, legal, and contracting services, in particular, include other Navy and Department of Defense organizations. Clearly, these kinds of services are inherently governmental. Of course, for these competitors to be effective, the mandates in the SECNAV Instruction would need to be revised.

Value Proposition. This business unit competes primarily on the bases of cost and a deep understanding of customer preferences. Therefore, regardless of organizational location, the people providing the services are collocated, working daily with the customer. For legal and contracting services, a balance of customer service and a high degree of autonomy is key to this strategy.
Business-Unit Strategy. This business unit bases its strategy on being the least-cost provider of these services. It seeks to capitalize on its niche of specialized experience, developing customer loyalty in a low-volume, well-defined customer base.

Business Model. Professional services is the appropriate business model: Focusing on transaction services, to include quality assurance, it may base its price on performance and offer price and other incentives to long-term customers. The administrative-services segment operates as a working capital fund; the other services are mission-funded.

Notional Business-Unit Structure. The business unit divides along product lines: legal services, contract management, program management, and administrative services. To achieve reduced cycle times and responsiveness to customer needs within the product lines, the divisions organize around process. Figure 4.7 portrays the notional structure of this business unit.

Resourcing Scientific, Engineering, Acquisition Professionals. In essence, this business unit is a human resource department profit center that focuses only on the core resources of NAVSEA; these resources are hired into, assigned, and developed within NAVSEA, as well as being managed by NAVSEA. It acquires, develops, and provides trained professionals—individual human capital—for temporary (although often lengthy) assignments to other organizations. Given
the complexity of contracting for naval ships and weapons, this business unit could include contracting professionals. (See Figure 4.8.)

The primary customer is the PEO and the program managers. The business unit identifies current and future needs and ensures that professionals with the right competencies are available. The market could also expand to include other business units within NAVSEA—for example, the business unit for managing ships described above or the business units focused on creating, organizing, and managing knowledge, described below. Other Navy and other government organizations requiring these trained professionals are potential customers. Competitors include professional-services firms that provide the services (not the people), much as for the preceding business unit; independent contractors/consultants (many with previous NAVSEA experience); and, potentially, temporary manpower firms that specialize in professionals.

**Value Proposition.** The business unit competes on the basis of developing and providing professional resources tailored to the needs of the customer. In particular, the professional resources possess a combination of naval expertise and technical competencies available from no other centralized source, and developed and tailored to the unique needs of the customer.

![Figure 4.8—Notional Business-Unit Structure of Resourcing Scientific, Engineering, and Acquisition Professionals](image-url)
**Business-Unit Strategy.** With a deep understanding of the requirements of the customer and the capability to dynamically align existing assets with changing customer needs, this business unit bases its strategy on providing a distinctive product. The business unit seeks to gain advantage through affiliation with the customer to assess future needs, develop the necessary competencies through education and assignments in other NAVSEA and naval organizations, and amortize the development costs over these assignments.

**Business Model.** *Broker* is part of the appropriate business model: The business unit brings the buyer of professional services together with the provider of professional services. *Developer* is another part of this business model: The supplied professional must constantly update/upgrade his or her technical skills to be easily brokered and periodically upgraded in skills to be re-marketed over time. The business operates as a working capital fund (although it could be partially mission-funded).

This is a difficult business to sustain. The customer is most likely to be willing to pay the going budget rate for a professional, but not the long-term cost of acquisition, development, and separation. Moreover, to achieve public funding for these long-term costs of human capital requires stakeholder understanding of and commitment to such workforce planning for the long term. “Who funds the needed annual investment in human capital for future capability?” is one of the critical questions public organizations are striving to answer. If customers do not pay full cost or if stakeholders do not make the needed sustained public investment, product inferiority will cause this business to fail.

**Notional Business-Unit Structure.** The business unit divides into two major divisions: marketing of the resources and managing of the assets. Marketing is a key function within the business unit; this division is responsible for identifying future needs, working with the other division to ensure that the resource is available, and convincing the customers that these resources are superior to those from any other source. Marketing divides further along functional lines: recruiting/selecting, developing/educating/experiencing, assigning, and rewarding. Figure 4.8 portrays the notional structure of this business unit.

**Managing Infrastructure.** This business unit provides services for managing the physical assets and material capabilities of NAVSEA. It provides for the acquisition, development, construction, and reuse or disposal of property, plant, and equipment, and for management of the properties. (See Figure 4.9.)
This business unit services all the other business units of NAVSEA. It could expand its reach into the other systems commands and even into other government organizations. Primary competitors include Real Estate Investment Trusts (REITs), the Naval Facilities Command, and private-sector property-management firms.

**Value Proposition.** This business unit competes on the basis of least-cost provision of its services, with a primary objective of fully utilizing capacity.

**Business-Unit Strategy.** The business unit follows a least-cost strategy. It employs a portfolio-management approach to the acquisition, development, and divestment of property, plant, and equipment. It leverages assets across markets so that even competitors may use them. *Dynamic alignment*—matching assets to market needs—is a core competency. In its pricing to customers, the business must also amortize investments or ensure that they are publicly funded.

**Business Model.** *Utility* or *REIT* is the appropriate business model: If operated as a utility, pricing is regulated and customers pay set rates; if operated under a REIT model, the business unit would charge users to amortize the cost of the
property, plant, and equipment, seeking premium prices for the best plant and equipment. It will use a revenue-management approach for property management, charging customers on a pay-as-you-go basis. The business operates as a working capital fund (although it could be partially mission-funded).

As with the Resourcing Scientific, Engineering, and Acquisition Professionals business unit, this is another difficult business because of its investment needs. Removing ownership of a facility from its users should allow for greater efficiencies, particularly in partnering with other governmental entities or the private sector, or in disposal of legacy or outmoded plant property and equipment. For example, the Air Force is in the process of transferring seven wind tunnels at Wright Patterson AFB to Ohio State University. Expected to save about $500,000 per year, the transfer is opening the facilities to other universities, as well as to nonmilitary, commercial industries that need to do aerodynamic research.

**Notional Business-Unit Structure.** The business unit divides along type of infrastructure: research, industrial, and office. Each of these divisions has a product-oriented subdivision that focuses on asset management and a division that focuses on property management. Figure 4.9 portrays the notional business-unit structure.

**Organizing and Managing Existing Knowledge.** This business unit provides engineering information and solutions in a form most useful to a diverse set of users, and it sets and enforces standards for ships and systems. Customers include the Fleet, the Type Commanders, and the PEOs; the other NAVSEA business units, particularly Managing Ships; contractors; other Navy organizations; and other government organizations. (See Figure 4.10.)

**Value Proposition.** This business unit competes by differentiation: It is the single comprehensive source of knowledge to its customers—knowledge ranging from information on legacy systems to information on the latest systems in the Fleet. The key elements of value are the depth of knowledge and the speed with which the business unit provides information in a form that meets the unique needs of the customer. In terms of setting and enforcing standards, the business unit provides the balance between maximum safety standards and minimum performance standards.

**Business-Unit Strategy.** The business unit bases its strategy on providing a distinctive product—immediate access to information in user-friendly form—available from no other source. It is the linchpin of naval engineering.

**Business Model.** Selling codification of knowledge, and sharing and use of knowledge, the engineering-solutions side of the business unit follows an info-mediated business model: The best of such businesses enhance client-customer
relations through an electronic push strategy focused on customer needs. The business unit forms a knowledge network based on professional expertise and specialized knowledge of the users and their needs. The business operates as a working capital fund (although it could be partially mission-funded).

In the private sector, an infomediary sustains itself through advertising that exists side by side with apparently free information. “Eyeballs” or traffic—keeping track of who has made use of the service—becomes critical to success. The high demand for this knowledge beyond the Navy indicates that a conscious decision could be made to provide the knowledge as a public service, with public budget. The standard-setting and -enforcing side follows a Federal Aviation Administration (FAA) business model. This part of the business unit is mission-funded.

**Notional Business-Unit Structure.** The business unit comprises three divisions: engineering solutions; standard setting and standard enforcement; and the capture, organization, and provision of access to explicit knowledge (Figure 4.10). The first two divisions are front-end, dealing directly with customers. Engineering solutions subdivides along product lines: one element that provides advice; one that assumes more risk and specializes in decisions; and one that provides the means of accessing and using tacit knowledge—knowledge about relationships and processes. Standard determination and enforcement subdivides along product lines, as well: one element that sets minimum performance standards, one that sets maximum safety standards,
and one that conducts certification inspections. The third division is largely a back-end organization, providing a user-friendly interface for customers to access explicit knowledge—facts or information about things. One subdivision focuses on the development and sustainment of an open database; the other subdivision provides the front-end component by focusing on customer service.

**Creating and Managing New Knowledge.** The business unit creates and sells new knowledge that is tailored to meet naval requirements—for example, knowledge about systems that are yet to be acquired or are still being developed. The PEOs are the primary customers; the Type Commanders and the Fleet are secondary customers. A multitude of competitors include the defense community, independent research institutions, and universities. (See Figure 4.11.)

**Value Proposition.** The business unit competes through differentiation: It provides knowledge unavailable from other sources, based on sustained expertise and on intimate understanding of a customer’s current and future needs.

**Business-Unit Strategy.** The business unit bases its competitive advantage on providing a distinctive product, particularly one that can deliver cutting-edge innovation and technological know-how in a timely manner. The business unit provides high value-added content on a regular basis. It seeks to establish and maintain high levels of customer loyalty.

![Figure 4.11—Notional Business-Unit Structure of Creating and Managing New Knowledge](image-url)
Business Model. Professional services is the relevant business model: This business unit embraces a network, or consortium, of professional expertise. The business operates as a working capital fund (although it could be partially mission-funded).

Notional Business-Unit Structure. This business unit organizes along customer lines (see Figure 4.11) that reflect the composition of the PEO structure in Figure 4.2. This structure should change as its customers change (for example, a change from DD21 as a customer to surface strike as a customer has implications for the business unit’s organization). Alternatively, this business unit might organize along the lines of technologies—sensors, computers, etc.—to foster communication among technical specialists. More so than any of the other business units, this business unit would operate as flexible, somewhat temporary (although long-lived) teams. The ability of the business unit to respond to customer needs is critical.

Providing Systems-Engineering Services. This business unit provides systems engineering services. The primary customer for these services is the CNO. Other customers include the PEOs, commanders in chief and/or Joint Chiefs of Staff (CINCs/JCS), the Department of Defense, and other government organizations. (See Figure 4.12.)

Defense contractors, particularly prime contractors, provide these services for platforms. Other potential competitors include professional-services firms, and other Navy and Department of Defense organizations.

Value Proposition. This business unit competes by differentiation: It is the single, comprehensive repository of knowledge and professional expertise on
naval systems engineering, spanning both platforms and missions. This business unit provides realism and candor across platforms, missions, and services. The core expertise is sustainable because it can be expanded beyond ships/platforms and missions to battle-group and joint activities.

**Business-Unit Strategy.** The business unit bases its competitive advantage on providing a unique service by developing, demonstrating, and sustaining unequaled knowledge of naval systems and of the discipline of systems engineering.

**Business Model.** Professional services is the business model. The business operates as a working capital fund (although it could be partially mission-funded).

**Notional Business-Unit Structure.** The business unit divides along product lines: systems engineering policy, systems architecture, and component systems engineering products that work on or with ships—gun systems, sonars, etc. Figure 4.12 portrays the notional business-unit structure.

Table 4.1 summarizes the elements of the seven business units described above.

From the perspective of the generalized work activities that make up NAVSEA, the complete corporate structure comprises all of the business units described above, with no organizational strategic priority/hierarchy. Figure 4.13 portrays this overall business-unit structure, aligned simply under a NAVSEA Headquarters.

**SHAPE—THE ROAD TO EFFECTIVE CORPORATE OPERATION**

Unfortunately, designing the business units independently can lead to sub-optimization. In the third stage, we identify major **leverage points**—potential areas of synergy and areas in which NAVSEA can achieve economies of scope and scale by restructuring the business units or by centralizing processes, functions, and/or activities that are common across business units—for increasing the effectiveness of the NAVSEA corporation. We then use those leverage points to modify the design of the organization suggested in the second stage. Similarly, we identify critical interrelationships—linkages—among business units that require leadership attention to ensure that transactions between them are smooth and effective. Understanding these interrelationships is especially important if the business units span the boundary of the NAVSEA organization proper—relying on outsourced activities as well as in-house activities—an assessment that would be addressed during the fourth stage of our organizational design process.
### Table 4.1
Summary Description of Business Units

<table>
<thead>
<tr>
<th>Element of Business Unit</th>
<th>Manage Ships</th>
<th>Provide Services</th>
<th>Resource Professional People</th>
<th>Organize and Manage Existing Knowledge</th>
<th>Create and Manage New Knowledge</th>
<th>Provide Systems Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
<td>Maintenance Repair Modernization</td>
<td>Packaged functional expertise</td>
<td>Individual human capital</td>
<td>Physical infrastructure</td>
<td>Information Solutions Standards</td>
<td>Ideas Innovation Technology</td>
</tr>
<tr>
<td><strong>Customers</strong></td>
<td>Type Commander (TYCOM) Fleet</td>
<td>PEOs</td>
<td>Other NAVSEA Other Navy Other government</td>
<td>Navy funded</td>
<td>PEOs TYCOM Fleet</td>
<td>CNO CINCs/JCS PEOS DoD Other government</td>
</tr>
<tr>
<td><strong>Competitors</strong></td>
<td>Private and foreign yards</td>
<td>Professional-services firm PEOs Other Navy Other DoD</td>
<td>Professional-services firm Temporary-manpower firm Other NAVSEA</td>
<td>NAFB</td>
<td>Prime contractor Associations</td>
<td>Other Navy, defense Private sector</td>
</tr>
<tr>
<td><strong>Value</strong></td>
<td>Low cost Customer service</td>
<td>Low cost Customer service</td>
<td>Naval expertise &amp; technical competency</td>
<td>Low cost High utilization</td>
<td>Deep, timely knowledge Balance safety and performance</td>
<td>Sustained expertise Customer loyalty</td>
</tr>
<tr>
<td><strong>Strategy</strong></td>
<td>Least cost Customer service</td>
<td>Customer loyalty</td>
<td>Dynamically align Amortize or subsidize costs</td>
<td>Dynamically align Amortize or subsidize costs</td>
<td>Differentiate Linchpin of naval engineering</td>
<td>Timely, cutting-edge know-how High value-added</td>
</tr>
<tr>
<td><strong>Structure</strong></td>
<td>Product Functional Geographical</td>
<td>Functional</td>
<td>Marketing and managing</td>
<td>Ownership Management Property type</td>
<td>Functional Product</td>
<td>Functional</td>
</tr>
</tbody>
</table>
Figure 4.13—Corporate Structure of NAVSEA for the Activities Portfolio
We reviewed best business practices (Hax and Majluf, 1996; Porter, 1990; Sethi and King, 1998; Levine and Luck, 1994; and Quinn, 1992) to highlight the relationships among important organizational elements and to suggest promising areas in which economies of scope and scale can be found. The result of this stage of our analysis is to improve the effectiveness of the operation of NAVSEA as a whole, perhaps—but not necessarily—at the expense of the effectiveness of the individual business units.

We now examine four portfolios reflecting four variations of strategic intent for competitive advantage: an industry-positioning portfolio, a market/customer portfolio, a competency portfolio, and a product-life-cycle portfolio. In these portfolios, the business units are regrouped from a purely lateral structure under NAVSEA Headquarters to under business lines under or within Headquarters. What is now a business unit or an activity within a business unit may itself become a business line. Each of the several forms of strategic intent we suggest is relatively narrow. Indeed, the scope of strategic intent should be focused to maintain attention to the key aspects. A strategic intent should serve to focus leaders’ attention, not to spread that attention evenly over a vast array of good things to do. (Strategic intent must come from the leaders of the organization—NAVSEA, in this case. It is an inherent function that cannot be delegated or imposed from outside the organization.)

As with the business units, the discussion of each business line begins with a general description, then gives value proposition and business-line strategy.

**Industry-Positioning Portfolio**

By definition, each business unit faces unique markets or competitors. Consequently, each business unit benefits from a strategy tailored to its particular environment. We first examine dimensions of size, cost, and product/service differentiation for each of the business units as they were derived from the analysis of generalized work activities, to determine whether a common strategy emerges for the NAVSEA corporation.

Figure 4.14 portrays a strategic map of NAVSEA as we characterized the initial business units along the three dimensions of size, cost, and product/service differentiation. Space near the bottom of the box denotes business units with lower unit costs; space near the top of the box denotes business units with higher unit costs. Space toward the left of the box represents commodity-like offerings that are not otherwise differentiated from competitors’ offerings. Space toward the right of the box represents products and services that can be differentiated according to qualities important to the customer, such as product
innovation, remarkable customer service, or extraordinary quality. Relative size of the business unit is denoted by the size of the oval.

The lower-left-hand corner contains the business unit focused on managing ships; the upper-right-hand corner contains the six smaller business units focused on the other major types of activities in which NAVSEA engages. An ideal corporate portfolio for the future would contain business units that compete on the basis of low-cost, highly differentiated products and services, all located in the lower-right-hand corner. However, such a portfolio appears unlikely, for two reasons.

First, the overall industry for the commodity service of managing ships operates well below capacity today—a situation that is likely to continue. As a result, competition will continue on cost and other dimensions, such as time to complete maintenance and repair, and modernization availabilities. NAVSEA has been in this position for a number of years, and has seen both public- and private-sector shipyard contractions, consolidations, and closures. Continuing competition will require successful execution of a least-cost strategy for survival. Differentiation along other dimensions (for example, time to complete
scheduled availabilities) may be possible, but such efforts would tend to drive up the costs (through capital investment in technology and automation) without a significantly commensurate increase in value to the customer to offset them. Consolidation or closure in favor of a lower-cost competitor could result from erosion of quality or responsiveness and, particularly, from increases in cost.

Second, the smaller business units—which represent small niches of expertise and appeal to specialized markets—will strive to differentiate themselves from the private sector and from each other. Providing these specialized services drives up costs but leads to narrowly branded products and services. If the business unit cannot differentiate itself sufficiently (that is, if it moves to the left side of the box) and fails to provide valued specialized services, absent any other compelling rationale (for example, the need to preserve one or more government suppliers in order to foster competition), the business unit should compete with the private sector on a cost basis or merge with other business units.

It appears unlikely that all business units can move toward the ideal corporate strategy of being low cost and highly differentiated. However, by viewing NAVSEA from an industry perspective, we can suggest three fundamental business lines for NAVSEA: Enhancing Readiness, Managing [Naval] Knowledge, and Managing [Critical] Resources. The synergy among the units (sometimes many units) within a business line derives from grouping together business units that employ a particular linkage, such as a common form of strategy—for example, least cost or unique service. Enhancing Readiness provides stakeholder value to the CNO; Managing [Naval] Knowledge provides stakeholder value to the ASN (RDA); Managing [Critical] Resources provides to the other two lines of business or key customer groups (in this case, the PEOs) resources that are unique or too critical to rely on from other sources.

Enhancing Readiness. This business line comprises the Managing Ships business unit, which is composed of a division for planning and scheduling and a division for repair and maintenance.

Value Proposition. It offers its customers (Type Commanders and the Fleet) a unique understanding and appreciation for their needs and preferences. It is also uniquely positioned to establish guaranteed long-term relationships.

5A related question is whether higher-value services (for example, planning and scheduling) now bundled within the Managing Ships business unit could be separated from the lower-value activities and merged with other, more-differentiated business units. We address this question below in the Managing Resources business-line section.
**Business-Line Strategy.** The business line and its divisions employ a strategy of least cost.

**Managing Knowledge.** This business line comprises three business units: Creating and Managing New Knowledge, Organizing and Managing Existing Knowledge, and Providing Systems-Engineering Services.

**Value Proposition.** This business line adds unique value by being able to offer and leverage the largest, most comprehensive, central repository of explicit and tacit knowledge relevant to its customers’ needs. As with the Enhancing Readiness business line, it is also uniquely positioned to establish guaranteed long-term relationships.

**Business-Line Strategy.** The strategy of this business line and its business units is *customer specialization*—providing high-value, well-differentiated knowledge-based services; and identifying and satisfying customer needs and preferences for data, information, and knowledge—for the Navy: specifically, for the PEO, the Type Commander, and the operating Fleet. Each business unit serves different customers and meets different customer needs and preferences; consequently, each should remain a separate business unit.

**Managing Resources.** This business line comprises three separate business units: Resourcing Science, Engineering, and Acquisition Professionals; Providing [general] Program- and Project-Management Services; and Managing Infrastructure. The customers of the first two business units are the PEOs; the customers of the third business unit are the other two business lines.

**Value Proposition.** This business line ensures the efficient and effective availability of critical resources necessary to provide value to both major stakeholders. It requires strong mechanisms for forecasting future requirements and the capability to develop resources and products that meet those requirements in a timely manner.

**Business-Line Strategy.** These individual business units can differentiate themselves somewhat on the basis of intimate customer knowledge; however, by itself, such a strategy will not be sufficient to ensure viability in the future. Many competitors provide the basic kinds of services offered by these business units; differentiation occurs at the margin. Consequently, the business units employ a strategy balanced between customer specialization and least cost.

Further inspection of the business units can identify differences, particularly among divisions, that suggest further realignments of the structure. Within the Managing Ships business unit, for example, the planning and scheduling division conducts high-value activities different in type (i.e., business model) from the activities of the division for repair and maintenance. The planning and
scheduling division, in fact, has much in common with the business units in the Managing Resources business line and could benefit from the balanced strategy (customer specialization and least cost) being employed in that line. An alternative corporate structure would include this division as a separate business unit in the Managing Resources business line.

A possible focal point/structuring mechanism for evaluating component parts of the organization is the decision on whether to outsource activities to other government or private-sector organizations. This corporate structure, for example, permits the continual review of the viability of the business units associated with the Managing Resources business line. A separate business unit facing well-defined and numerous competitors can be the focus of NAVSEA corporate headquarters, which can maintain the pressure on the business unit (or its divisions) to perform. When the activities of business units are distributed throughout the greater organization, it is much more difficult, if not impossible, to evaluate the situation effectively. The balanced strategy (i.e., customer specialization and low cost) highlights the necessity for these business units to look for cost savings (through process improvements, quality-control programs, creative sourcing arrangements, etc.).

We reconfigured the initial seven business units, arranged in Figure 4.13 according to the type of strategy appropriate to a business unit, into a NAVSEA corporation of three major business lines. We illustrate these business lines in this and succeeding figures; however, we are not suggesting that this layer of management needs to be operationalized. If it is added, it needs to be kept thin. Figure 4.15 portrays this corporate structure.

**Market/Customer Portfolio**

The customer—important to the continued viability of NAVSEA—can be viewed as the second structuring mechanism for business lines. Organizing business units around the customer is a growing trend, reflecting the success of this mechanism in creating stakeholder value.

NAVSEA can provide stakeholder value by structuring business lines to focus on what matters to the stakeholders. In particular, the CNO is interested in meeting current needs—which center on readiness—and the ASN (RDA) is interested in supplying future capabilities—which center on the efficient and effective acquisition of weapon systems. Through various business units, NAVSEA provides the Type Commanders and the Fleets with services for keeping the Fleet operational; through various business units, NAVSEA provides the PEOs with services critical to the acquisition process. Consequently, the interests of NAVSEA’s stakeholders and the business-unit customers are highly congruent: A strong relationship exists between customer value and stakeholder value.
Figure 4.15—Industry-Positioning Portfolio
Structuring business lines around stakeholders sets the stage for holding NAVSEA business units accountable for providing customer—and, therefore, stakeholder—value.

From this perspective, the answer to the corporate question, “What businesses should NAVSEA be in?” is, “NAVSEA is in the business of meeting current and future naval needs.” Two NAVSEA business lines are needed: Enhancing Readiness and Developing Future Capabilities.

**Enhancing Readiness.** This business line includes the Managing Ships business unit, and the Organizing and Managing Existing Knowledge business unit. Its divisions capture, organize, and provide access to explicit knowledge; provide engineering solutions; and set and enforce standards.

**Value Proposition.** This business line, with a complete set of offerings to meet the complete readiness needs of the Fleet, focuses on being the full-service provider of readiness.

**Business-Line Strategy.** Customer service is the overall strategy, with a heavy emphasis on a least-cost strategy for the Perform Repair and Maintenance business unit.

**Developing Future Capabilities.** The Developing Future Capabilities business line comprises four business units: Providing [general] Program- and Project-Management Services; Resourcing Science, Engineering, and Acquisition Professionals; Creating and Managing New Knowledge; and Providing [top-level] Systems-Engineering Services. Therefore, it is in four separate but related businesses of providing the PEO with management services, professional people, knowledge management, and integration services.

**Value Proposition.** The business line captures the value of a full-service provider having long-term relationships with affiliated organizations and deep understanding of the PEO’s needs. This portfolio preserves the special relationship existing today between the PEOs and NAVSEA. However, that relationship is made even more explicit in this portfolio by placing all elements of NAVSEA that meet PEO needs under a single line of business—PEO Support—unlike the dispersed and intermingled placement today.

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6The business unit responsible for resourcing science, engineering, and acquisition professionals takes on the form of a functional integrator in several corporate structures described in this section. Lateral processes (holding functions together) facilitate a move from a functional structure to a product or market structure. These processes, in turn, can be structured into the form of a functional integrator. Then, near-term operating decisions move to the product or market segments; long-term capability-building activities move to the functional integrators.
**Business-Line Strategy.** The business line employs an overall strategy of customer service. As well, in the Creating and Managing New Knowledge and the Providing Systems-Engineering Services business units, there is heavy emphasis on innovation.

Each business line is integrated vertically, gathering together the critical activities in a chain that produces products and services of value to its customers. To ensure seamless, one-stop shopping for the Type Commanders and the Fleet, on the one hand, and for the PEOs, on the other hand, both business lines will benefit from organizing as a front-end/back-end structure, with customer-service teams assigned to all major customer groupings.

The Managing Infrastructure business unit becomes a Headquarters function, managing the critical infrastructure resources needed by the two lines of business. It has no customers external to NAVSEA and, consequently, is best considered a cost center. It employs a least-cost strategy and can be continually evaluated for outsourcing.7

Given the customer aggregation, we reconfigured the initial seven business units into a NAVSEA corporation comprising two major business lines and a separate Headquarters function, portrayed in Figure 4.16.

**Competency Portfolio**

An important role for NAVSEA corporate headquarters is to identify, develop, and sustain core organizational competencies—the collections of skills, knowledge, and technology that provide a key benefit to customers. The core competencies, which set NAVSEA apart from other organizations, are the primary reason customers choose the offerings of NAVSEA. If these competencies are viewed as a critical element of strategic intent, the organization can be structured to develop and sustain them. We formulate such a structure here.

Engineering is the competency that has commonality in the value NAVSEA’s stakeholders assign to NAVSEA’s products and services. Historically, although NAVSEA’s role has changed, engineering and engineering support have been the mainstay of NAVSEA and its predecessors. Some NAVSEA leaders view engineering as the key to the future.

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7Alternatively, this unit could take the form of a distributed organization, which moves corporate-wide activities to an operating unit; the operating unit then provides products or services to the whole corporation. This form is a compromise between a centralized headquarters structure and a decentralized fragmented structure (conducted independently by each business unit). This form allows the maintenance of core competencies supporting core products, even though the activities cross business units. Placing the activities in an operating unit moves them closer to the action/customer.
Figure 4.16—Market/Customer Portfolio
From this perspective, the answer to the corporate question, “What businesses should NAVSEA be in?” is, “NAVSEA should be in the business it is in—providing world-class naval engineering and in-service engineering support. Two NAVSEA business lines are needed: Providing Engineering Services and Managing Ships. The first provides stakeholder value to both the ASN (RDA) and CNO; the second provides stakeholder value to the CNO.

**Providing Engineering Services.** This business line comprises five business units: Engineering New Products (formerly Creating and Managing New Knowledge); Providing Systems-Engineering Services; Providing Engineering Solutions; Determining and Enforcing Standards; and Resourcing Science, Engineering, and Acquisition Professionals. The Providing Engineering Solutions activity and the Determining and Enforcing Standards activity are elevated from divisions of the Organizing and Managing Existing Knowledge business unit to become separate business units in this business line.

**Value Proposition.** This business line adds particular value by specializing in naval engineering, thereby developing and sustaining unparalleled depth compared with its competitors.

**Business-Line Strategy.** This business line employs an overall strategy of functional excellence, which is achieved, in part, by structuring the organization so that all the engineering resources (including the management of the engineering professionals themselves) are located together.

**Managing Ships.** This business line is composed of three business units: Planning and Scheduling; Performing Repair and Maintenance; and Capturing, Organizing, and Providing Access to Explicit Knowledge. The third business unit was the remaining activity of the Organizing and Managing Existing Knowledge business unit, now elevated to the business-unit level.

**Value Proposition.** This business line affords learning opportunities for the professional resources being developed in the other business line. However, if this business line provides little in the way of value in the context of the overarching strategic intent—engineering excellence—and becomes uncompetitive in cost, it should be divested.

**Business-Line Strategy.** This business line employs an overall strategy of customer service. For the Performing Repair and Maintenance business unit, it places heavy emphasis on a least-cost strategy.

As with the previous portfolio, the Managing Infrastructure business unit becomes a Headquarters function and cost center. It employs a least-cost strategy and can be continually evaluated for outsourcing.
The Providing [general] Program- and Project-Management Services business unit can be retained as a business unit (it serves customers external to NAVSEA); however, as with Managing Ships, it is an unrelated business unit and unnecessary, given the focus of the strategic intent. Consequently, it also employs a least-cost strategy and can be continually evaluated for outsourcing to another government entity or to the private sector.

Given the premise that engineering is a core competency for NAVSEA, we reconfigured the initial seven business units into a NAVSEA corporation consisting of two major business lines, an unrelated business unit, and a separate Headquarters function, portrayed in Figure 4.17.

### Product-Life-Cycle Portfolio

*Product life cycle* is the paradigm that most influences the structure of the overall market within which NAVSEA competes: From this perspective, the answer to the corporate question, “What businesses should NAVSEA be in?” is, “NAVSEA should be in the business of providing full-spectrum life-cycle support.” Strategically, NAVSEA can choose to participate in those areas in which it can have the greatest influence on the outcomes of particular interest to its stakeholders.

Three NAVSEA business lines are needed: Creating and Managing New Knowledge; Supporting Acquisition; and Providing In-Service Support. The first two business lines provide stakeholder value to the ASN (RDA); the third business line provides stakeholder value to the CNO. Value is derived specifically from the understanding of the overall life-cycle process and NAVSEA’s ability to leverage its capabilities in that context.

**Creating and Managing New Knowledge.** This business line is organized around the PEOs as customers, as in the previous portfolios. Here, however, it stands alone as a separate business line.

**Value Proposition.** Customers of this business line attach particular value to the Navy-specific expertise and the depth of understanding of the Fleet’s future needs.

**Business-Line Strategy.** The business line employs an overall strategy of innovation.

**Supporting Acquisition.** This business line comprises four business units: Providing [top-level] Systems-Engineering Services; Determining and Enforcing Standards (formerly an activity within the Organizing and Managing Existing Knowledge business unit); Providing [general] Program- and Project-
Figure 4.17—Competency Portfolio
Management Services; and Resourcing Science, Engineering, and Acquisition Professionals. *The first and fourth business units do not produce products or services that are part of the product life cycle; however, they do provide resources that are critical to the success of the life-cycle process.*

**Value Proposition.** The value proposition of this business line centers on specialized knowledge of the life-cycle process and the unique Navy context within which it operates.

**Business-Line Strategy.** This business line and its business units employ a strategy of customer service.

**Providing In-Service Support.** This business line is made up of three business units: Planning and Scheduling; Performing Repair and Maintenance; and Organizing and Managing Existing Knowledge. The third, an activity of the Capturing, Organizing, and Providing Access to Explicit Knowledge business unit and of the Providing Engineering Solutions business unit, is now a business unit in its own right.

**Value Proposition.** This business line offers particular value as a full-service provider of in-service support.

**Business-Line Strategy.** This business line employs an overall strategy of customer service. For the Performing Repair and Maintenance business unit, it places heavy emphasis on a least-cost strategy.

As with the previous two portfolios, the Managing Infrastructure business unit becomes a Headquarters function and a cost center. It employs a least-cost strategy and can be continually evaluated for outsourcing.

Looking for congruity in the core process that pervades the industry within which NAVSEA operates, we have reconfigured the initial seven business units into a NAVSEA corporation of three major business lines and a separate Headquarters function, portrayed in Figure 4.18.

**Selecting the Portfolio of Businesses**

Each of the four portfolios of business units described above—four variations of strategic intent manifested in NAVSEA corporate structure—has advantages. It would be convenient if a single structure captured all or most of these advantages. However, not all the advantages are equally important. The choice of organizational design should be based on what best accomplishes the desired organizational strategic intent.
Figure 4.18—Product-Life-Cycle Portfolio
THE PROPER SIZE FOR NAVSEA

In the fourth and concluding stage of our organizational design process, NAVSEA can identify an efficient organization to achieve the NAVSEA strategic intent. This organization, which does not exist today, is not something we can supply in this report. It will be the target for NAVSEA action in the future.

To this point, we have talked in terms of those general functions that the parts of the organization perform but not to particular activities executed within these organizations. The objective of the fourth stage, sizing NAVSEA for efficiency, is to link activities to a specific organizational structure, to further refine the corporate structure according to the importance of the activities, and to delineate what might be inside and what might be outside the formal boundaries of the Department of the Navy organization called NAVSEA. Here, we describe a framework NAVSEA can use to carry out the fourth stage.

Sizing Framework

This stage begins by linking activities and products to the corporate structure suggested in stage three, Shape. It then identifies those activities and products that are central to the accomplishment of the NAVSEA mission and overall strategic intent for competitive advantage and/or that can substantially improve corporate effectiveness if managed specifically toward that end. It also identifies and evaluates those activities and products that cut across multiple business units.

The suggested framework assumes the perspective that NAVSEA does not necessarily need to produce every product that is important to NAVSEA customers and stakeholders, nor to perform internally every activity making up such products. Either other organizations (inside or outside of government) may be able to provide products more efficiently than can NAVSEA or having NAVSEA develop and/or sustain the requisite capabilities to be the best provider may not be cost-effective. However, even if there are organizations that can better provide products currently provided by NAVSEA, NAVSEA’s responsibility includes recommending governing arrangements for ensuring value to the customers and stakeholders—i.e., NAVSEA must remain a smart buyer. Therefore, the Size stage also asks the question, “For those business units or parts of business units outside of NAVSEA, what is the most appropriate level of NAVSEA involvement?”

The results of our current research 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. In
addition, NAVSEA business units have been described and evaluated individually and within a corporate-portfolio context.

We suggest approaching the above task by assessing the NAVSEA organization at three levels. Although described sequentially, it is expected that the planner will move back and forth among the levels of analysis:

First, that NAVSEA view the decision from the perspective of the overall corporation by asking the question, “What is the appropriate set of business units to retain in the corporate portfolio?” This consideration was addressed in the second and third stages of the organizational design approach, through the use of NAVSEA strategic intent.

Second, that NAVSEA view the decision from the perspective of the business unit by asking the question, “Which business units or parts of business units can be provided efficiently elsewhere while maintaining control and meeting customer needs?” In addition to the business units’ contribution to corporate strategic intent, we recommend that NAVSEA evaluate business units on the basis of their sustainability (as public or private entities), the cost of divesting or acquiring the capability, the ability to provide world-class products or services, the basis of control, and the nature of the work required to be performed.

Third, that NAVSEA view the decision from the perspective of the products by asking the question, “Which business units have high concentrations of central products such that they should reside within NAVSEA?” We recommend that NAVSEA consider the effect on management’s ability to focus on business-unit success, access to world-class capabilities, risk sharing, surge capacity, smart buyers’ expertise, freeing resources for other purposes, and controlling operating costs.

Of particular importance for the Size stage is the product-centrality analysis described in Chapter Three. That analysis can be used as the entry point for considering organizational design. Understanding NAVSEA’s markets, products, and activities will be crucial to understanding the core businesses, the vertical and horizontal linkages, and the proper size for NAVSEA in 2007.

RAND would be pleased to work with NAVSEA to implement this framework or a modified version of it.