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PRESIDENT'S QUALITY AWARD APPLICATION

2001

Naval Undersea Warfare Center Division Newport
Newport, Rhode Island
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BUSINESS OVERVIEW

Description of the Division

The Naval Undersea Warfare Center Division Newport was established in 1992 by the Secretary of the Navy (SECNAV) Instruction 5400.16 to "operate the Navy's full-spectrum research, development, test and evaluation, engineering, and Fleet support center for submarines, autonomous underwater systems, and offensive and defensive weapons systems associated with undersea warfare (USW)." Our charter reflects our history in USW, which extends back through our predecessor organizations to experimental torpedo work begun in the 1860s and sonar developmental efforts initiated in the 1940s.

Division Newport is located in Middletown, RI. We have a major facility, the Atlantic Undersea Test and Evaluation Center (AUTEC), on Andros Island, Bahamas, and other sites in Florida, Connecticut, New York and Virginia. Approximately 95% of our 2700 employees work in Middletown, and most of the others work in West Palm Beach, FL, where they manage and coordinate AUTEC operations.

The Division provides research and engineering services focused on the creation of USW knowledge across three core equity areas, which are broken down into 13 core equity product elements (shown in table I). Core equities are the capabilities and capacities needed to perform our mission and to support the three Navies we serve: today's Navy with emphasis on integrated product support; tomorrow's Navy with emphasis on the total engineering of systems in the acquisition and modernization pipeline; and the Navy-After-Next, which will be shaped by advanced concepts and technology development and transition.

Table I. Division Newport's Top Eight Customers, Mapped to Core Equity Product Elements

Core Equity Areas		**USW Command & Control Systems**					**USW Weapons & Vehicle Systems**					**USW Analysis & Assessment**		
Core Equity Product Elements / *Customer*	FY99 Division Newport Funding	Submarine Combat Systems	Submarine Sonar Systems	Submarine Imaging/EW Systems	Submarine Communications Systems	Surface USW Systems	Torpedoes	Unmanned Undersea Vehicles	Submarine Defensive Systems	USW Launchers	Submarine Missile Launchers Integration	USW Ranges	USW Analysis	USW Operational Assessment
PEO - Submarines	**26.3%**	4	4	4						4			4	4
PEO - Undersea Warfare	**25.6%**	4	4			4	4	4	4	4		4		
Naval Sea Systems Command	**13.1%**	4	4	4	4	4	4			4	4	4	4	4
Naval Air Systems Command	**10.0%**					4		4			4	4	4	
Space and Naval Warfare Systems Command	**8.4%**	4	4		4	4						4	4	4
Office of Naval Research (ONR)	**6.7%**	4	4		4	4	4	4	4			4	4	
PEO - Cruise Missiles	**4.1%**	4									4			
Office of Naval Intelligence	**2.5%**	4	4	4	4	4	4	4	4	4			4	

4 *Denotes that the customer provides significant tasking and funding for the core equity product element.* *(1 October 1999)*

Our core equities are our people, their knowledge, their skills, our corporate expertise, and our facilities; they allow us to cultivate and sustain the USW knowledge necessary for satisfying our customers' requirements. Our services span all USW systems life-cycle phases (science and technology, advanced development, technical agent for acquisition, and in-service engineering (ISE) and Fleet support). In the aggregate, these services comprise total systems engineering that spans our customers'

acquisition processes; this comprehensive involvement permits us to make significant contributions to the Navy's ability to be a "smart buyer" of USW products and services.

We are a Navy Working Capital Fund (NWCF) activity with a business-like accounting system similar to that used in private industry. We are not a line-item in the Federal budget. Instead, like a commercial enterprise, we receive tasks from our customers and subsequently bill them for the performance of those tasks. This system requires us to operate much like a business, carefully managing to meet a mandated Net Operating Result (NOR) or "bottom line." Our total revenues in FY99 were $635M.

The Commander (CO) and Executive Director (ED), supported by a senior leadership team composed of senior executives and key staff, lead the Division. The staff includes legal, strategy, planning, and field team functions. We are organized into product lines and a Business Resources Directorate (BRD) as shown in figure I. Our product lines, which serve as repositories for USW knowledge, by providing products and services that meet their leadership area responsibilities, are closely aligned with our 13 core equity product elements. The product lines (and codes) are the Submarine Combat Systems Directorate (20); the Surface USW Department (31); the Submarine Electromagnetic Systems Department (34); Missiles and Platform Systems Department (40); the Engineering, Test and Evaluation Department (70); and the Weapons Systems Directorate (80). Each product line has full life-cycle responsibility in its product area. Our Science and Technology (S&T) (10) and USW Analysis Departments (60) provide key technical support to the product lines, while the Business Resources Directorate (50) provides information technology, communications, financial, human resources, security, safety, environmental, contracts, and other business process support that enable technical program execution.

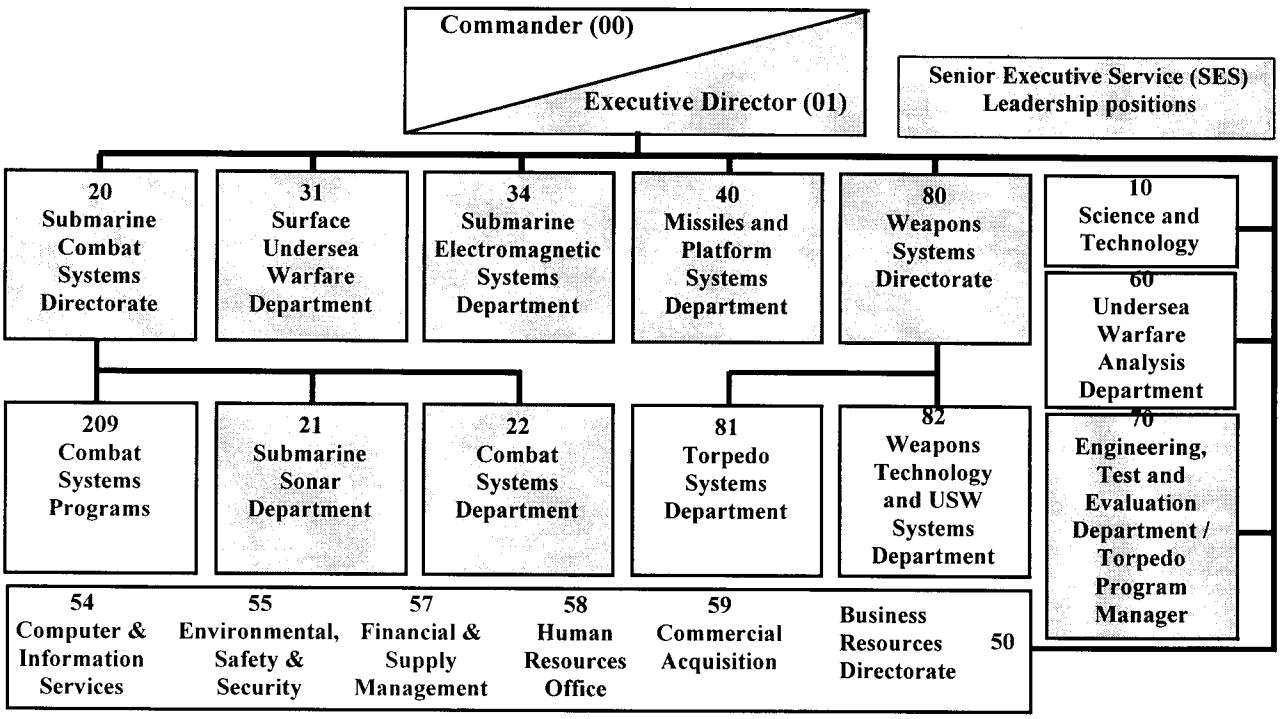
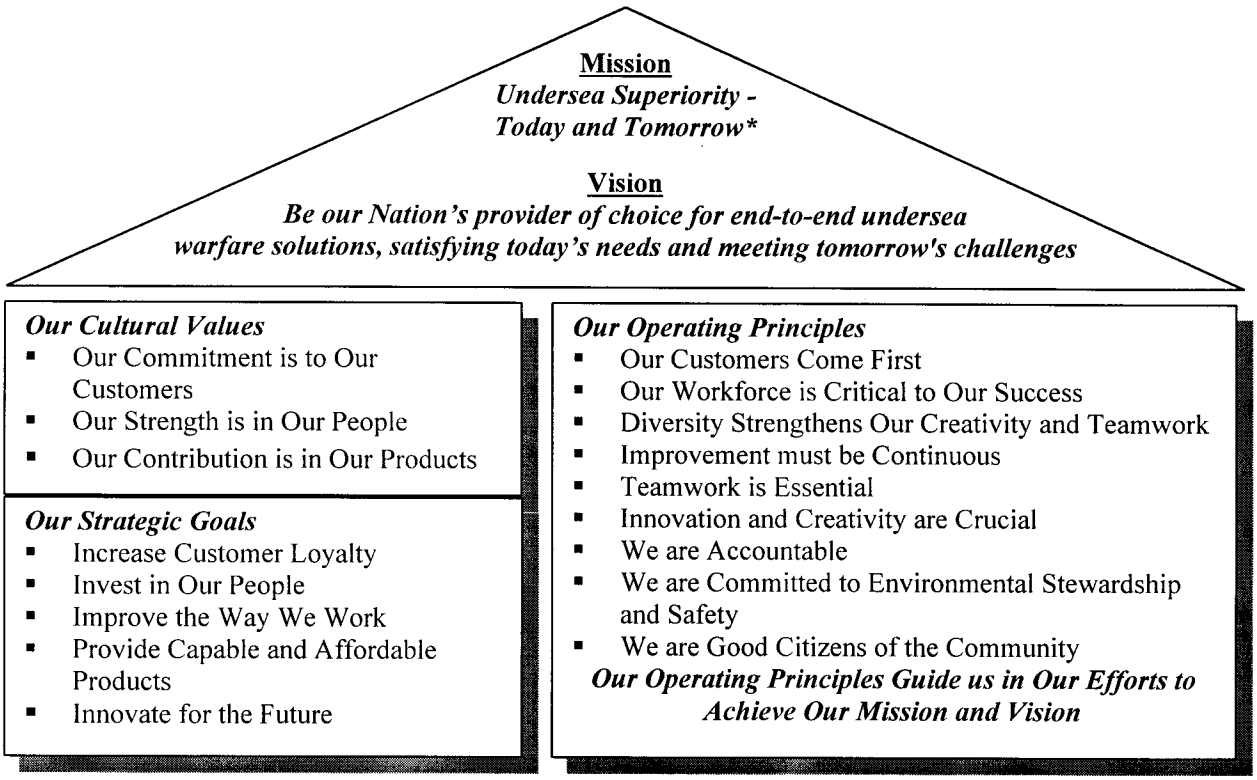


Figure I. Division Newport Organization

Our corporate values are formed by and flow from our mission, vision, cultural values, strategic goals, and operating principles, as depicted in figure II. These guide leadership decisions that impact groups that have an interest in our success–our employees, unions, the communities we live in, sponsors and the Fleet, and our customers. We have thoroughly communicated these values across the organization and employees at all levels understand what we do, how we do it, and why we do it.



* *This is an abbreviated mission statement that resonates strongly with our employees.*

Figure II. Division Newport Corporate Culture

Our Workforce

Our primary strength is our workforce. Over two-thirds of our employees are scientists and engineers (S&Es) and 42% of them have advanced degrees. We are one of the largest Federal government employers in RI. Two bargaining units represent our nonmanagement employees: National Association of Government Employees (NAGE Local R1-134) and Federal Union of Scientists and Engineers (FUSE) (NAGE Local R1-144). Table II presents key workforce demographics.

Table II. Key Workforce Demographics

Key Demographic	Number	Percentage of Civilian Employees	Number w/Assoc. Degree	% with Assoc. Degree	Number w/BS/BA Degree	% with BS/BA Degree	Number w/Grad. Degree	% with Graduate Degree
Engineers/Scientists	1819	67.4%	5	0.3%	1056	58.1%	758	41.7%
Administrative Professionals	421	15.6%	59	14.0%	127	30.2%	82	19.5%
Technicians	240	8.9%	60	25.0%	22	9.2%	1	0.4%
Clerical Employees	102	3.8%	17	16.7%	6	5.9%	0	0%
Administrative Support	90	3.3%	13	14.4%	5	5.6%	0	0%
Craftsmen/Wage Grade	27	1.0%	1	3.7%	0	0	0	0%
Total Civilians On Board	**2699**	**100%**	**155**	**5.7%**	**1216**	**45.1%**	**841**	**30.9%**
Military Personnel	29		3	10.0%	2	6.9%	2	6.9%
Total Population	**2728**							

Demographic Group	Number	Percentage of Division Employees
Female	605	22.4%
Minority	194	7.2%

(*Data current as of 30 June 2000*)

Our Major Market Areas

Our market is composed of the customers who fund us and the Fleet, which uses the products and systems we help to develop or improve. Because of our Navy charter, most of our work is related to USW systems that are sponsored by various Program Executive Officers (PEOs) and organizations in the Navy's systems commands. Our strong customer focus has enabled the creation and maintenance of

close working relationships with over 177 customer organizations across our 13 core equity product elements.

Our Major Equipment/Facilities/Technology

The Division has a physical plant of 2.6 million square feet with a replacement cost of more than $800M located on over 900 acres. Our facilities include unique testing ranges and many one-of-a-kind laboratories and test facilities that have been designed to drive down USW system development cost and cycle time. Our facilities provide unmatched capabilities, often at significant savings, and are supported by advanced information technology systems, such as the Wide Area Integration Facility (WAIF) (see section 7.5), which networks us with key industry partners, and an award-winning Intranet that has set the Department of Defense (DoD) standard for effectiveness. From simulation-based design to propulsion testing; from synthetic battlespace to open-ocean ranges; we have the best facilities of their kind in the world.

Our Regulatory Environment

Federal and Navy directives and regulations pertaining to safety, occupational, environmental, acquisition, financial management, and acquisition reform govern our operations. We are also governed by state and local environmental laws and regulations. The Division is an NWCF activity, which means that it is funded by customers rather than directly out of appropriated funds. This factor is the overriding consideration in our financial management and requires a set of guidelines substantially different from those used by institutionally funded organizations. We are a Department of the Navy (DoN) Reinvention Laboratory, which provides us the opportunity, subject to the approval of our parent organization, to waive Naval Sea Systems Command (NAVSEA), DoN, and SECNAV non-statutory regulations (see section 1.1.a(2)). We are also a Science and Technology Demonstration Laboratory and as a result have been able to implement a new personnel system (see section 5.1).

Our Parent Organization

Division Newport is one of two divisions within the Naval Undersea Warfare Center (NUWC), a business unit of NAVSEA, which is led by a U.S. Navy Rear Admiral. Division Newport accounts for approximately two-thirds of NUWC's employees and almost three-quarters of its funding. NAVSEA, which is led by a U.S. Navy Vice Admiral, reports to the Chief of Naval Operations.

Our Customer and Market Requirements

Our customers rely on us to develop affordable and effective USW products and solutions that will keep their systems at the forefront of undersea technology. We support the Navy's warfare systems acquisition process by providing scientific and technical services in support of pre-acquisition activities, engineering-related services in support of acquisition processes, and ISE and legacy system upgrades in support of post-acquisition activities. As shown in table I, in FY99, eight customer groups provided approximately 96% of our funding. Our relationship with this customer set significantly influences what we do and how we do it, and most of our process improvement efforts focus on addressing the current and future needs of these eight customer groups. And, because we consider the end-users in the Fleet to be the most important judges of our services and products, we also work closely with them—in conjunction with the customers who task and fund us—to know and understand their requirements. We have established a tasking process that is tailored to be responsive to each customer's performance, cost, and schedule requirements. We document customer requirements in customer Task Books that are maintained by our product lines and updated as their customers' programs evolve and new requirements emerge. These documents form the basis for implementing, adapting, or replacing product line processes, and they serve as a focal point for our leadership's involvement in program reviews. These processes are described in section 6. Customer requirements and expectations received through specific tasking documents shape our near-term activities, planned initiatives, resource allocation, and investment strategies. Our senior leadership interacts with key customers and Fleet users on a regular

basis (discussed in section 1.1a(3)). Annual customer surveys, which include surveys of our sponsors and Fleet end-users, and reliable, comprehensive, continuous communications with our customers, build customer loyalty. Our strong product focus ensures that customer requirements and stakeholder interests are fully supported from concept development through the entire product life cycle.

Our Supplier and Partnering Relationships

Our suppliers are vitally important to our success, and we consider them partners. We have a significant impact on the local economy through our small business and outsourcing initiatives. These include an annual Business Opportunities Conference and periodic meetings with our major suppliers. We team with our suppliers in integrated product teams (IPTs) and other coordinated efforts to develop affordable solutions to USW issues. We rely on our suppliers to augment and leverage our capabilities, and we apply the optimum in-house/out-of-house workyear mix to keep our services and products affordable. We have introduced "*e*-business" methods to leverage our partnerships with suppliers, including a networked IntraMart capability that allows employees to purchase most supplies directly from the vendor, electronic posting of solicitations, and electronic proposal submissions. In FY99, our suppliers performed roughly 3280 contract service workyears, which constitutes approximately 53% of the Division's total workyears. Table III lists our top 10 FY99 suppliers. All are primarily engineering service providers, except for Litton Guidance & Control Systems and Mercury Computer Systems, Inc., which are hardware providers.

Table III. Top 10 Suppliers to Division Newport

Supplier	FY99 Funding Level
Analysis & Technology, Inc.	$40.5M
Aquidneck Management Associates, Ltd.	$14.4M
McLaughlin Research Corporation	$11.2M
Systems Engineering Associates Corporation	$ 9.7M
Raytheon Service Corporation	$ 9.3M
TTS Joint Venture	$ 8.0M
Sonalysts	$ 7.4M
Signal Communication Systems & Support,	$ 6.4M
Litton Guidance & Control Systems	$ 6.2M
Mercury Computer Systems, Inc.	$ 6.0M

Our Competitive Situation

The Navy's FY99 USW market was approximately $9.2 billion, about 22% of the total Navy budget. As a government laboratory, we are an authorized source for competitive system design concepts, and our ideas, concepts, and technology can be made available to private industry as well as to government customers. Our wide involvement across USW systems life-cycle activities makes us a key participant within our market community.

The competitive USW market space is strongly niched. Our mission requires our work to span USW research, development, and ISE market segments. Navy University Affiliated Research Centers (UARCs) and Federally Funded Research and Development Centers (FFRDCs) are predominantly niched in the USW research segment. Shipyards and defense system prime contractors are focused in the development, design, and construction segments. ISE is provided by a variety of vendors but has recently been more actively pursued by prime contractors. The Naval War College/Navy Warfare Development Command is the predominant participant in new capability requirements and concepts of operation.

Key determinants for success include technical knowledge and skills, service/product effectiveness, affordability, innovation, and speed to market. Factors that continue to shape the marketplace include acquisition and defense reform, revolution in business affairs, vertical integration of defense contractors, and budgetary pressures.

Our Business Directions

The Division's strategic and business-planning process addresses and prioritizes evolving and competing future USW requirements. Our process is refined down to the product line level, and each product line has established its technical vision for meeting emerging and future requirements. As a result of this process, we have pursued initiatives that have produced competitive advantages, and we are implementing additional thrusts to extend our advantage. As mentioned above, we have implemented a variety of *e*-business initiatives that enhance and simplify our contracting and purchasing processes and enhance customer and user connectivity with technical product expertise. We have also established a simulation-based design program that supports our simulation-based acquisition efforts. Our FY00 Business Plan established the seven major initiative areas listed in table IV.

Table IV. FY00 Business Plan Initiatives Areas

- Shape the Navy-After-Next
- Promote Technical Efficiency
- Support Fleet Needs–Today's Navy
- Promote Business/Support Efficiency
- Increase Customer Loyalty
- Sustain the Workforce
- Enhance Core Equities

We are also pursuing two new core equity product elements: Network-Centric Warfare from a USW perspective, which addresses the Navy-wide migration to network-centric warfare; and Supercavitating Weapons, which will leverage our progress in research on supercavitating high-speed bodies to explore future weapon systems.

Our New Alliances

We have initiated a proactive approach to expand our market through dual-use technologies and our technology transfer program and to develop new business with allied navies. We are building on our history of productive partnerships, which include innovative cooperative efforts with prime contractors (e.g., Electric Boat), 20 Cooperative Research and Development Agreements (CRADAs) in force with industry, and 9 Education Partnership Agreements (EPAs) with academic institutions. These initiatives include participating in trade shows such as Technology 2009, working with the State of Rhode Island Economic Development Corporation and the RI Technology Council, participating in Venture '99 and other intellectual property forums, and working with the RI Technology Transfer Center, a National Aeronautics and Space Administration (NASA)-supported office. These partnering and cooperative initiatives provide the opportunity to develop new business ventures, share technology, investigate dual-use applications of technology, and lead to better support for our traditional market segments. Under the direction of NUWC, we have initiated a collaboration with the Naval Surface Warfare Center and other members of the technology community, the Partnership Working Group, to better support the Office of Naval Research Future Navy Capabilities (FNCs) process. Additionally, we are teaming with other members of the USW technology community to support the U.S. Navy/Defense Advanced Research Projects Agency (DARPA) submarine payload project. The Division is also working with the British Navy and with the Royal Australian Navy to develop mutually beneficial USW technology advancement projects. The Division is an active participant in the Technical Cooperation Program (TTCP); TTCP is a joint U.S., United Kingdom, Canada, Australia, and New Zealand technical exchange program.

Changes in Our Strategy

The Division's business strategy is flexible, agile, and constantly evolving to capture opportunities and to leverage process improvements for the benefit of customers and stakeholders. For example, we have recently changed from seeking customer satisfaction to seeking customer loyalty. We are in the process of strengthening and expanding our connectivity with operational Fleet support processes. Additional anticipated changes include:

- Developing new relationships with prime contractors
- Leading the NAVSEA corporate science and technology effort
- Creating simulation-based acquisition toolsets to support new warfare systems development.

As we modify and improve our business strategies, we are vigilant in preserving USW core equities for the Navy in support of our nation's defense.

SECTION 1. LEADERSHIP

1.1 Organizational Leadership

Division Newport uses a leadership system that considers and balances the interests of all those who have an interest in our success–Fleet users, customers, employees, unions, and the communities we live and work in–to ensure present and future performance excellence, to communicate corporate values, to create value throughout the Division, and to foster innovation. The Division strives to deliver quality services and products to our customers by maintaining close ties with Fleet customers, building cooperative partnerships with business and industry, empowering our employees, and being a good, responsible citizen and neighbor. The unifying framework used to guide the Division in pursuit of our strategic, business, and leadership goals is shown in table 1-1. These are the principal tools used to lead the Division and to set the course for the future through continuous performance assessment and process improvement. Each of the listed items is described in detail in the appropriate section of this application, but they are listed together in table 1-1 to emphasize that they constitute parts of an overall leadership planning, measurement, and assessment process that systematically informs leadership about the health of the Division and provides the information needed to manage.

Table 1-1. Leadership Framework

- Strategic Plan
- Business Plan
- Core Equity Assessment Process
- External Scan
- 5-Year Planning Process
- Resource Allocation Process
- Quarterly Performance Reviews
- Financial Performance Reviews
- Customer Loyalty Surveys
- Employee Opinion Survey
- Balanced Performance Measures
- Executive Business Information System

1.1.a Senior Leadership Direction

1.1.a(1) Communication and Deployment of Organizational Values, Performance Expectations, and Value for Customers/Stakeholders. The Division's senior leaders use a variety of means to set, communicate, and deploy organizational values and performance expectations, and to focus on creating value throughout the organization. They maintain a balance in responding to all stakeholders by drawing on customer- and employee-focused processes. These processes, the drivers on which they are based, and their results are documented in a series of plans that are deployed throughout the Division. The Strategic Plan is the cornerstone of these plans.

The Strategic Plan provides a comprehensive statement of the Division's mission, vision, strategic goals, cultural values, and operating principles (listed in table I in the Business Overview) that define the Division's purpose and direction. The Strategic Plan specifically describes the relationship between the customers we serve and the employees who provide the service. It also provides the framework of the balanced performance measurement system used at the Division. The Strategic Plan has been distributed and briefed to all employees, and its principles are regularly addressed and reinforced (1) at meetings and open forums with managers, employees, and contractors; (2) by our awards and recognition program; and (3) in articles and columns in NUWSCOPE, the Division newspaper. Leadership and management's annual performance objectives are linked to our strategic goals.

Other important plans and policies that implement our Strategic Plan include the Business Plan, which serves as the roadmap for assessing and sustaining core equities and identifying key strategies and actions for the future; the 5-Year Plans, which are prepared by each of our departments and serve as ongoing operations plans; and organizational policy statements for Diversity, Sexual Harassment, Honest Broker, Network Access, Safety and Health, Environmental Stewardship, Communications, Equal Employment Opportunity, and Employee Recognition.

The CO and ED make the decisions that guide the Division, empower employees, and ensure that information is available and widely disseminated. They provide linkage to the NAVSEA corporate

leadership and strategies. They work closely with senior leaders in various forums and settings that include the Quality Council (QC), Team SES, the Department Head Team, specially chartered teams, management off-site meetings, strategic conversations, Quarterly Performance Reviews (QPRs), 5-year planning sessions, meetings with first- and second- line supervisors, and financial and program reviews. These processes provide valuable input to the CO and ED in support of their strategic and operational decision making.

1.1.a(2) Establishment and Reinforcement of Environment for Empowerment and Innovation and Encouragement and Support of Organizational and Employee Learning. The Division's senior leaders believe that trust and integrity are essential elements of empowerment that add significant value to an organization, and they have created and actively support processes that work to give a voice to employees. The Employee Opinion Survey (EOS) is a continuous process that involves a survey and extensive follow-on activity. It gives employees (1) an opportunity to identify areas in which there is room for improvement and (2) a role in designing the management response plans. The EOS has made employees partners in the process that has shaped the Division for the 21st century. Establishment of the annual Supervisory Performance Feedback Survey (SPFS) in 1998 made employees partners in the growth and development of their supervisors.

Creating an entrepreneurial environment that encourages people to focus on innovation first, without worrying about the details of concept implementation, is an important Division goal. The Division annually invests to foster the development of innovative concepts. Resources are allocated to cross-product line teams and individuals to support investigation and development of ideas and concepts submitted by employees. An indication of the success of this focus is the number of invention disclosures filed over the past four years: almost 25% of the Navy total. Another indication is the cost savings realized through the Division Waiver Program, which encourages employees to suggest process improvements. This National Partnership for Reinventing Government (NPRG)-based program has resulted in the submission of over 356 waivers by Division employees since 1995. Eighty-one of these have been implemented, resulting in a cost savings of $2.3M. Division leaders have also fostered innovation through CRADAs, Division and product line innovation teams, strong relationships with academia, and our Bid and Proposal program.

The MANTA initiative is a recent Division innovation success story. MANTA is an autonomous, re-usable vehicle that has the potential to revolutionize USW, and its development has inspired a new and innovative approach and process for doing business. A cross-departmental team working in collaboration with Draper Laboratory, Boeing North America, Reson Corporation, the University of Massachusetts, and Electric Boat is now developing the MANTA system.

To further advance innovation, the Division encourages employee and organizational learning through an array of training programs (listed in section 7.3). The Training Office offers an extensive list of development courses and routinely arranges to have courses conducted on site. Our training strategy includes the Long-Term Training Program, two MBA programs, and an on-site MS in Computer Science program. One of our MBA programs, which uses distance learning, was designed specifically for the Division and incorporates actual Division organizational and business experience into the curriculum. Other programs include Division-level and product-line sponsored technical forums, the Mentoring Program, and annual Division-sponsored conferences (e.g., the Employee Enrichment Conference, International Day).

1.1.a(3) Setting Directions and Seeking Future Opportunities. Senior leadership sets directions and seeks future opportunities by taking actions that keep them aware of and conversant with the needs of Fleet customers and the USW industry. The Division uses information from four primary sources in defining its future directions: (1) frequent senior leader face-to-face interactions with Washington and Fleet customers to explore current and future requirements; (2) a global field team consisting of senior technical personnel assigned at key stakeholder sites, including sponsor and customer offices in

Washington and Fleet commands at Pearl Harbor, HI, Norfolk, VA, Groton, CT, and Naples, Italy; (3) a dedicated waterfront liaison office and communications network; and (4) the assignment of a senior manager at NAVSEA, our corporate headquarters, who anchors our Washington-area presence. In addition to the Fleet commands listed, we also maintain contact with other Fleet concentration areas, including Kings Bay, GA and Bangor, WA. Additionally, our leadership gains information and insight from interaction with attendees at technical conferences that we host during the year and from participation in national and international technical symposia and forums. These include the National Defense Industrial Association and Acoustic Superiority conferences. We also gain insight into future business opportunities from the information collected by our customer survey process.

1.1.b Organizational Performance Review

1.1.b(1) Review of Organizational Performance and Capabilities. Leadership uses the processes shown in table 1-2 to collect information and data for reviewing and assessing organizational health, capabilities, and performance. Results are accumulated in a portfolio of balanced performance measures that are used to appraise the organization from the perspectives of customer, employee, learning and growth, internal business, and financial results. Balanced performance measures in the form of a Balanced Scorecard (BSC) are reviewed and updated quarterly with results accumulated from our (1) Executive Business Information System (EBIS), an *e*-business application that comprises the Division's Enterprise Resource Planning (ERP) tool; (2) EOS process; and (3) customer survey database. Each department provides results from its respective measurement systems to support Division-level performance assessments.

Table 1-2. Leadership Data Collection and Review Processes

- ***Weekly highlights:*** reports on topics such as program performance, management issues, rewards/recognition, new business initiatives, cost savings initiatives, patent status, CRADA status, new hires, and communication initiatives.
- ***Weekly financial snapshot:*** reports to CO, ED, and department heads on the status of business base, overhead expenditures, and unallocated labor workyears.
- ***Financial performance reviews:*** conducted monthly with the CO, ED, comptroller, Financial and Supply Management Department head, Deputy ED, and Strategy Development staff to assess the current Net Operating Results estimate, direct workyear performance, efficiency ratio, Service Cost Center performance, overhead expenditure rate, business base received to date and projected to year end, and investment project fiscal performance.
- ***Technical performance reviews of key programs:*** conducted by the CO and ED to assess program technical challenges/risks, schedule, and cost, and compliance with customer requirements.
- ***Quarterly Performance Reviews (QPRs):*** directorates/departments briefs to the CO and ED on fiscal performance, including planned versus actual data from the 5-Year Plan, technical and management issues, resource utilization, and performance. The QPR Roll Call addresses Balanced Performance Measures, Key Current and Overall Program Evaluation, Investments, Installation Support, Cost Savings Initiatives, Key Operation Metrics, Technical and Business Issues and Highlights including EOS action and Diversity plans.
- ***External scan:*** supports the 5-year planning process by identifying trends in the external environment that have significant impact on the Division.

1.1.b(2) Translating Organizational Performance Review Findings into Priorities for Improvement and Opportunities for Innovation/Reinvention. Our improvement process is articulated in our Strategic Plan and reinforced in our Business Plan and annual 5-year planning guidance. The 5-year planning process involves the External Scan, Planning Guidance, Annual Plan Review Meeting, Plan Analysis, Resource Allocation, and Performance Measures (an overview of the planning process is presented in table 2-1). Targets for improvement are established after synthesis of NAVSEA guidance, External Scan results, customer expectations, benchmarks, and organizational needs. Improvement priorities are articulated in resource allocation decisions, the Business Plan, and investment briefings to stakeholders including our primary customers (as listed in table I in the Business Overview).

1.1.b(3) Key Performance Review Findings, Priorities for Improvement, and Opportunities for Innovation. FY99 BSC findings constitute key recent performance review findings and are shown in section 7. The BSC results are published as a brochure and posted on our Intranet. Overhead

allocations and business base targets are established during the resource allocation process, and these are used to benchmark performance throughout the year. QPRs focus on department progress toward the 5-Year Plan goals. When QPRs show that there are problems, leadership requires development of an improvement plan and, when the need arises, intervenes to ensure that required improvement occurs.

1.1.b(4) Using Organizational Performance Review Findings and Employee Feedback to Improve Leadership/Management Effectiveness. Division senior leaders have implemented several measures for leveraging performance review findings and employee feedback to improve effectiveness. Among the processes used are open forums conducted by the CO and ED, EOS, and SPFS. The EOS process includes an extensive survey that addresses a wide array of organizational and employee issues, analysis of survey results, development of a detailed action plan, assignment of actions, and quarterly progress assessments as an integral part of the QPR process. The SPFS provides employees an opportunity to provide feedback to their supervisors in areas of interest to employees. Supervisors use the feedback received as a basis for creating Personal Development Plans. As a result of the insights gained from the 1996 EOS, the Division established a Communications Model that comprises a process and framework for guiding robust 360° communications throughout the Division. The model was revised in 1999 to incorporate improvements defined during the 1998 EOS process. These included emphasizing the role and importance of regular employee/leadership meetings, which are used by all levels of leadership as opportunities to keep the workforce informed about Division activity and to learn about employee concerns. The CO and ED regularly participate in meetings of working-level employees, which gives them the opportunity to explore and address a variety of employee issues. The 1998 EOS also showed that management and leadership systems were areas that needed attention. In response to those findings, the CO and ED established two senior leadership-led teams to investigate issues related to Integrity and Management Teaming and Commitment and to make recommendations to address improvement opportunities.

1.2 Organization Responsibility and Citizenship

1.2.a Responsibilities to the Public

1.2.a(1) Addressing Impacts of Products, Services, and Operations. Leadership recognizes that the Division has a major impact on the region, and senior leaders strive to ensure that the Division is a responsible corporate citizen. The Division has a substantial economic impact on local businesses. We have achieved considerable success in small and local business outsourcing. The Division participates in the RI economic development groups and the small business exposition. We also are members of the RI Federal Executive Council, which promotes employee issues such as pay and benefits and conducts the annual Combined Federal Campaign (CFC) charity drive.

Our societal responsibility to be prudent stewards of the environment is one of our operating principles. To emphasize the importance of safety and environmental performance, these items were added to our BSC in 2000 as stakeholder metrics. To systematically integrate our business processes with environmental requirements, we adopted an Environmental Management System based on International Organization for Standardization (ISO) 14001 in 1999 and became ISO 14001 registered in 2000. Periodic audits evaluate conformance and identify progress and areas for improvement. Employees and contractors are instructed in their roles and responsibilities through environmental awareness and site-specific training. Our successes have been recognized through numerous safety and environmental awards, including the White House Closing the Circle Award, and are evident in our partnerships throughout the local and regional community.

1.2.a(2) Anticipating Public Concerns with Current/ Future Products, Services, and Operations. Division leadership closely follows public concerns regarding the safety and environmental impacts of our products (e.g., public concerns regarding the effects of active transmissions on marine mammals). To that end, the Division has Environmental and Safety boards that formally review all plans and

projects. We have successfully written high-quality biological documentation in accordance with statutory requirements for a wide variety of our programs to ensure our compliance with those statutes. Division environmental initiatives are listed in table 1-3. Table 1-4 lists additional examples of our interest in and commitment to the environment.

Table 1-3. FY00 Environmental Initiatives

- Update the hazardous material tracking system to automate the purchase of hazardous material and the disposal of hazardous waste.
- Develop a Marine Mammal Acoustic Impact Center of Excellence.
- Integrate environmental compliance self-evaluations into the Environmental Management System (EMS) inspection process.
- Include environmental metrics in the Division's FY00 Balanced Scorecard.

Table 1-4. Other Environmental Initiatives

- Pollution Prevention Partnership with the University of RI, our educational partner, in support of air pollution prevention.
- Joint production of a marine mammal observer training video titled "Right Whales and the Prudent Mariner", with regional Fish and Wildlife Service, the New England Aquarium, Woods Hole Oceanographic Institution, the Coastal Marine Resources Council, and the local fishing community.
- Teaming with the NASA Langley Research Center and with Portsmouth Naval Shipyard to establish hazardous material control and management benchmarks.
- Partnership with Naval Station Newport to recycle used oil and to hold a Recycled Products Awareness Exhibit.

1.2.a(3) Ensuring Ethical Business Practices. To ensure ethical business practices, Division leadership is committed to being an "honest broker," that is, doing the right thing for our customers and the Navy regardless of the source of the technology, and has established standards and expectations in our Honest Broker Policy statement. All employees have access to the Command telephone and fax hotlines to report alleged instances of unethical behavior or suspected waste, fraud, and abuse. The availability of the hotlines is publicized in the weekly bulletin. Command Evaluation reviews are conducted in various areas to help ensure that ethical behavior is being practiced in the management of Division programs and processes. Our Network Access Policy statement establishes standards for information privacy, confidentiality, and integrity. Employees involved in the procurement/contracts process attend yearly Standards of Conduct Training and Procurement Integrity Training or receive Contracting Officer's Representative Training that teaches ethical standards and proper procedures. The Division complies with all Federal mandates regulating our human resources, business practices, and contracting.

1.2.b Support of Key Communities

In addition to its pledge to preserve and protect the environment, the Division believes in drawing on its highly educated, technically oriented employees to support educational needs in the community. Because 96% of our employees live in southeastern New England, our "key communities" are the hometowns of our employees. Over 8,000 workhours are volunteered in key communities' educational institutions, which has an impact on over 1100 teachers and students.

Our Environmental Outreach Program provides an avenue to foster good community relations with our surrounding neighbors and with Federal, state, local, DoD, and DoN regulators, and to provide environmental education to local youth.

One of many notable examples is the Division's involvement in the For Inspiration and Recognition of Science and Technology (FIRST) robotics program for the last five years. FIRST is a national engineering contest that teams our engineers with students from Middletown High School to design, prototype, build, and test a robot. This team has competed successfully at the national level, which speaks well of the commitment of our volunteers.

In addition to FIRST, our employees make substantial contributions through a broad spectrum of community outreach and support programs such as To Improve Mathematics Education and Science Studies (TIMES^2) (a high-school outreach program), CFC, Needy Families (providing food, clothing, household items to local families throughout the year), blood drives, and RI Earth Day Beach Clean-Up. During the last four years, our employees pledged over $600K to a variety of local and national charities through participation in CFC and donated over 2100 pints of blood through our blood drives.

SECTION 2. STRATEGIC PLANNING

2.1 Strategy Development

2.1.a Strategy Development Process

2.1.a(1) Strategic Planning Process. The Division has a structured strategic planning process led by the CO and ED, facilitated by the Corporate Strategy Staff, with strong commitment and participation by senior leadership across the entire Division. The Strategic Plan is the foundation, setting the long-term course for the Division and driving the development of the Business Plan and the directorate/department annual 5-Year Plans. Strategies are developed and integrated to position the organization for near-term operational success in such areas as technical program execution, customer connectivity, responsiveness to the stakeholder, fiscal management, future leader development, diversity, training, recruitment, and knowledge management. These strategies ensure the Division's capacity to meet current and future Navy needs in our mission areas. All near- and mid-term strategies are aligned with the strategic framework, focusing on achievement of the Division's strategic goals and vision. Major elements of the strategic management process document our progress and guide us toward our vision to be the provider of choice for end-to-end USW technology solutions. These elements include: the Strategic Plan; annual directorate and department 5-Year Plans; annual Business Plan; annual External Scan; annual resource allocation; and Quarterly Balanced Performance Assessment using the BSC and Roll Call tools. The voice of the customer and voice of the employee are reflected throughout the strategic management process.

The strategic management process is aligned with the tenets of the Government Performance Results Act of 1993 and includes a formal External Scan to identify opportunities and threats (challenges); an internal scan to identify strengths and weaknesses; articulation of the mission, vision, and operating principles; development of goals, objectives, and initiatives; and performance measures to assess progress toward goals (both tactical and strategic). Both scans are led by the Corporate Strategy Staff, with input from subject matter experts within the Division. The Strategic Plan is reviewed during the first quarter of each fiscal year to assess currency and focus, with the rewrite cycle occurring every three to four years. The Strategic Plan and results of its annual review are incorporated into the annual 5-year planning guidance issued by the CO and ED, who establish the mission, vision, and operating principles. A cross-organizational team develops the supporting objectives and initiatives, which are briefed to directorate/department heads and approved by the CO and ED. Employee input is gained through cross-organizational team participation and focus group involvement. The Division's performance measurement system is based on the objectives identified in the Strategic Plan, which provide leading and lagging indicators of progress toward strategic goals.

The Division's annual 5-year planning process, in place since 1981, is systematic, repeatable, and focused on the development of comprehensive directorate and department plans. The guidance and procedures for developing the plans are detailed annually in the preparation instructions (paper and Web versions). The guidance is a synthesis of the high-level direction from the CO and ED; specific guidance derived from results of the external and internal scans; guidance related to specific technical, financial, human resource and diversity plans, facility asset, environmental, and information technology initiatives identified in the Strategic and Business Plans. Plans are prepared within the context of guidance provided and reflect both anticipated customer requirements (current and future) and operational performance requirements. Operational performance issues and/or improvements are identified during the annual review of plans and considered for possible implementation during the subsequent resource allocation process. The Division Strategy Staff facilitates a formal peer review of plans, documents plan results, deploys resource allocation results derived from the planning process, and facilitates the conduct of a quarterly review of performance against the plans.

All Division directorates/departments prepare annual 5-Year Plans, which are responsive to the Strategic Plan and to annual planning guidance issued by the CO and ED. The 5-Year Plans are comprehensive and address mission, goals, objectives, direction, issues, technical/functional programs, high-level milestones, resource trends for five years, human resource management strategies, environmental initiatives, and proposed investment project information. Plans articulate senior leaders' direction, program plans and requisite resource levels, formulated with a deep understanding of market, customer, supplier, and constrained resource environments.

The Division's Business Plan highlights core equity sustainment strategies and support of NAVSEA's corporate initiatives as well as the Division's focused action strategies for the planning period. The Division Strategy Staff develops the Business Plan using input from the individual directorate and department annual 5-Year Plans, aligned with the Corporate Strategic Plan.

Our planning process is described in table 2-1 (items in bold type represent the action plans associated with our strategic management process).

Table 2-1. Division Newport Planning Process

Phase	Planning Component	Key Participants	Timeframe
I. Develop/Validate Strategic Plan	**Strategic Plan**	CO, ED, Staff	1st Quarter
II. Develop and Issue Guidance	**External Scan**	ED, Staff	1st Quarter
	Customer Needs	Departments	Various
	Voice of the Customer (Customer Survey)	CO, ED, Staff	4th Quarter Activity
	Voice of the Employee (EOS)	CO, ED, Staff, Departments	Triennial survey process
	Mission, Vision, Goals, Values Validation	CO, ED	Reviewed annually, 1st Quarter
II. Develop Plans	**Dept/Directorate Annual 5-Year Plans**	Entire Division	Feb-May
	Core Equity Assessment/Internal Scan	CO, ED, Departments	
	Division Business Plan	CO, ED, Staff	Apr-Jul
	Review Plans	CO, ED, Staff, Departments	May
III. Resource Allocation	Balance Resource Requirements with Available Resource Levels-**Resource Allocation Memo**	CO, ED, Staff, BRD	Jul-Sep
IV. Execution and Assessment	Periodic Assessment of Performance Against Plan **-Quarterly Performance Reviews and Balanced Scorecard (BSC)**	CO, ED, Staff, BRD, Departments	Quarterly
	Communication	CO, ED, Departments	Per Communication Model

2.1.a(2) Key Factors in Our Process. The Division uses a set of processes to collect, synthesize, and utilize customer/market information. The customer survey, senior customer briefings/interviews, analysis of current and future Navy warfare requirements, emerging technology scans, and field representative, department, and directorate feedback all provide information that brings the customer perspective into the strategic planning process.

The Strategy Staff and the USW Analysis Department provide an assessment of Navy needs and technical requirements used to synthesize Fleet and Navy priorities (articulated as FNCs) and Command Capabilities Issues (CCI)) and NAVSEA corporate priorities, and to perform budget analyses to identify market needs and expectations. Directorates and departments factor this information into their respective 5-Year Plans and use identified opportunities to define "new start" programs. Market analysis results are documented in the Business Plan. The transition from stated customer need to funded program is exemplified by the stated Fleet need for network-centric warfare and interoperability leading, to a funded Division investment project in FY96 and direct-funded project in FY00, after the customer saw a coherent proposal with demonstrated capability.

The Division's External Scan assesses the external environment and the impact of new technologies on systems and products within our mission areas. The Business Plan includes a scan of the USW market environment, highlighting capabilities of all USW community members. The S&T Department issues the Office of Naval Research (ONR) top technology priorities to the directorates/departments for use in the development of their plans. Examples of new technology areas that are being "spun on" to support future Navy needs include smart-skin technology, fiber-optic technology, and component miniaturization.

The Strategic Management Information Center (SMIC) scans for events with potential impact on Division planning scenarios. The SMIC staff issues a biweekly report, "Flash Brief," that identifies risk areas, including threats and opportunities. The long-term outlook of the societal and mission area risks and policy/regulatory shifts are addressed in the External Scan. While some socioeconomic trends are identified, the focus is on those trends that have potential direct impact on the Division. Departments and directorates receive both the biweekly briefs and the annual External Scan.

The Division monitors human resource needs as a vital component of Division strengths. Each department/directorate has a hiring plan (derived from its 5-Year Plan) that documents the need and the strategies to recruit and retain highly qualified employees. These inputs are used to set our strategies and action plans (with requisite resource allocation). Initiatives include training and development plans, hiring plans, individual development plans, and rebalancing of the workforce initiatives. The Business Plan sets tactical human resources initiatives that are planned for implementation.

The annual planning guidance estimates available overhead, staff, high grade, and investment funds, derived from Navy and Office of the Secretary of Defense (OSD) comptroller guidance and documents. Directorates/departments use these estimates in the development of their 5-Year Plans. The CO and ED adjudicate all requests for resources after reviewing the plans and prior to fiscal year start-up.

We identify our supplier and partner capabilities and needs through their interaction with the Commercial Acquisition Department. With procurement vehicles such as Broad Agency Announcements (BAAs), Small Business Innovation Research (SBIR) actions, and responses to technical/management/information technology (IT) requests for proposals, the Division has broad access to its suppliers and potential partners' capabilities. We also strengthen partnering through participation in symposia, dual-use technologies, and CRADAs.

2.1.b Strategic Objectives. Our mission statement, "Undersea Superiority—Today and Tomorrow," is embraced by the organization and is broadly communicated to our customers. To ensure we are the provider of choice for end-to-end USW solutions, leadership has set five goals that convey our direction and priorities: (1) increase customer loyalty, (2) invest in our people, (3) improve the way we work, (4) provide capable and affordable products, and (5) innovate for the future. (Table 4-1 associates these goals with key perspectives, objectives, measures, and targets.)

2.2 Strategy Deployment

2.2.a Action Plan Development and Deployment

2.2.a(1) Addressing Key Strategic Objectives. With the establishment of the key strategic objectives as identified in 2.1.b, we use our planning process elements to define, develop, and track the action plans that address our strategic objectives. The CO and ED, through a series of joint meetings with the Corporate Strategy Staff, establish the Division-level initiatives and actions and document them in the Business Plan. Table 2-2 provides examples of actions, detailed more thoroughly in the Division's Business Plan, that are aligned with the objectives defined in the Strategic Plan. The milestones and technical/management initiatives identified in the directorate/department plans provide greater detail and demonstrate the deployment of strategies through the line and staff organizations to ensure implementation. The annual business plan updating process includes an action plan assessment, gauging the progress made on each of the action strategies identified in the plan.

2.2.a(2) Key Human Resource Requirements and Plans. Our core equity assessment process, implemented in FY98 and now institutionalized through our business planning process, defines the skill and knowledge areas required to sustain our 13 core equity product element areas. The quantification of need and the strategies to achieve the right balance of skills in the workforce are then identified through the directorate and department annual 5-Year Plans. These requirements are then synthesized into core equity sustainment strategies (which include hiring, training, and retraining aspects) and documented in the Business Plan. The following initiatives summarize the Division's human resource action plans for FY00-01:

- Continue to improve practices of awarding and recognizing employee contributions
- Improve pay comparability
- Improve promotional opportunities
- Balance and refresh the workforce
- Continue to improve the evaluation process
- Improve internal communications
- Increase advanced skills set
- Improve diversity
- Improve quality of work life
- Ease the impact of regionalization
- Develop Training Strategy Plan

A complete breakout of actions associated with each Human Resource (HR) initiative is detailed in the Business Plan and documented in the EOS Action Plan (progress against which is reviewed at the QPR meetings with the CO and ED). (Section 5 provides greater detail for the HR focus.)

2.2.a(3) Resource Allocation to Ensure Accomplishment of the Overall Action Plan. The annual resource allocation process is an element of the Division's strategic management process. The resource allocation process ensures that resources are provided to advance both the strategic and tactical requirements for the Division. It addresses the following resource elements: staffing, overhead budget, Capital Purchase Plan (CPP), investment, training, and facility maintenance and repair. The strategic objectives drive the near-term intermediate strategies/initiatives, which in turn require annual action plans to begin or sustain action to meet the mid- and long-range Division goals. As an example, the Division has a strategic goal to Innovate for the Future, which is given more near-term relevance with the actions defined in the Business Plan to Shape the Navy-After-Next. Table 2-2 indicates that in FY00, the Division will focus action in the following four areas: innovation thrust, technical vision development, the Naval War College connection, and strengthening warfare analysis.

2.2.a(4) Key Performance Measures. At the foundation of the Division's performance measurement system is the BSC, which is aligned with the strategic objectives and included in the Strategic Plan. The measurement system is deployed and cascaded through the Division through inclusion in each directorate's and department's annual 5-Year Plan. Progress is assessed quarterly, with adjustment decisions made by Division leadership based on performance feedback. The specific Division measures are detailed in section 4, and results are shown in section 7. The review of each of the line and major staff BSC is conducted quarterly during the QPR meetings, led by the CO or ED. These meetings focus on the BSC, key operating metrics, technical program assessment, issues, and accomplishments. The QPRs, currently in their fifth year, use a highly effective template to focus discussion.

2.2.a(5) Communication and Deployment of Strategic Objectives. Our Strategic Plan (details are listed in figure II in the Business Overview) was deployed in 1998 with (a) an all-hands presentation by the CO and ED, (b) distribution of the complete plan and a summary card to all employees, and (c) briefings by managers and supervisors to personnel in their respective organizations. Tenets of the plan are reinforced in planning guidance objectives and directorate and department plans. Alignment is achieved through the annual Plan Review Meeting and resource allocation, both of which are components of the 5-year planning process. Performance data are collected through the QPR process. Our Intranet is used to communicate objectives, plans, and performance results. Our BSC, discussed in section 4, is our primary results reporting instrument; it is available on the Intranet. The Division newspaper reports on Business and Strategic Plans and other related issues such as the 5-wyear planning and budget processes.

Table 2-2. Summary of FY00 Business Plan Actions

Strategic Objective Area	Action	Owner
Shape Navy-After-Next	Fund projects under the Innovation Thrust	Director, Science & Technology
	Integrate Product Line Technical Visions	Head, USW Analysis Department
	Strengthen Warfare Analysis Corporate Core Capability	Head, USW Analysis Department
	Strengthen Division connection with NWC	Head, Field Team Program
Promote Technical Efficiency	Identify and implement technical process and cost efficiencies through the Common Product Development Program	Head, Simulation-Based Design/Simulation-Based Acquisition Initiative
	Secure Level II Software Engineering Certification	Head, Software Improvement Process Initiative Team
	Fully implement and utilize Virtual Submarine linked capability	Director, Analysis and Assessment Core Equity
Support Fleet Needs – Today's Navy	Utilize the Virtual Submarine Capability/WAIF to ensure quality systems for today's Navy	Director, USW Command and Control Systems Core Equity
	Capitalize on lessons learned to strengthen installation management process	Chief Staff Officer
	Improve connectivity with the Field Team	Head, Field Team Program
	Ensure Interoperability of USW systems	Director, USW Command and Control Systems Core Equity
	Expand CPRS utilization	Chief Staff Officer
Promote Business/ Support Efficiencies	Formalize and Implement Facility Asset Management Plan	Deputy Executive Director
	Implement results of Range BPR Study	Director, USW Analysis and Assessment Core Equity
	Expand scope of EBIS	Head, Business Resources Directorate
	Fully implement eCraft in FY01	Head, Commercial Acquisition Department
	Expand IntraMart scope	Head, Commercial Acquisition Department
	Utilize selective SIP/VERA authority to rebalance workforce	Executive Director
Achieve Greater Customer Loyalty	Design and implement an improved customer survey, reflecting customer segment needs	Head, Corporate Strategy Development
	Develop key links with customer business planning processes	Head, Corporate Strategy Staff
Workforce Sustainment	Fully implement improvement actions emanating from FY98 EOS process	Employee Advocate Staff
	Revitalize S&T through dual career ladder, focused training, revitalized Chair positions	Director, Science and Technology
	Utilize available training resources to ensure core equity sustainment	Head, Workforce Effectiveness
	Execute a robust hiring program in FY00	Head, Human Resources Department
	Implement new Rewards and Recognition Policy and Program	Deputy Executive Director
	Ensure implementation of deployed Communications Model within each line and staff organization	Commander and Executive Director
Sustain Core Equities	Articulate and execute elements of the Core Equity Sustainment Plan for people, skills, and facilities	Director, USW Command and Control Systems Director, USW Weapons and Vehicles Systems Director, USW Analysis and Assessment
	Link Investment Program to near- and long-term Navy needs	Commander and Executive Director

2.2b Performance Projection

2.2.b(1) Performance Measures Projection. Figures 2-1 through 2-4 show core equity business base, core equity workyear (WY), staffing, and overhead trends/projections, respectively from the 5-Year Plan and Business Plan. From a baseline of 74%, Newport projects an increased efficiency ratio of 77% sustained for FY00-FY04.

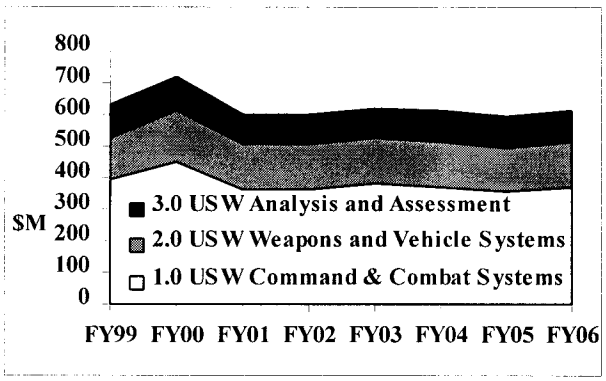


Figure 2-1. Core Equity Business Base Summary

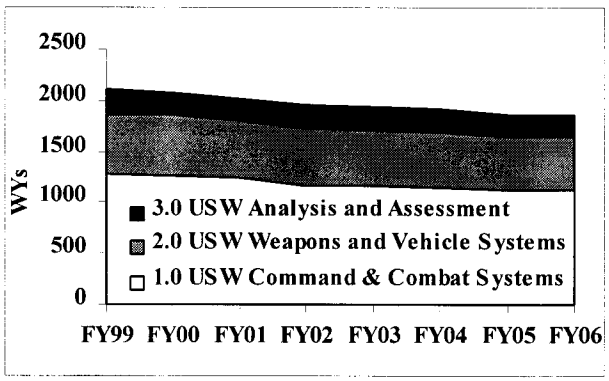


Figure 2-2. Core Equity Workyear Summary

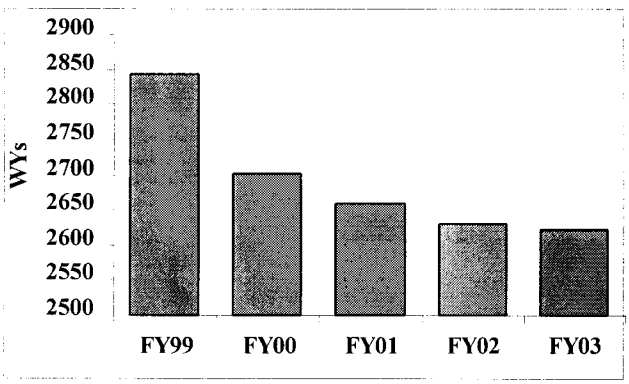


Figure 2-3. Staffing Projection

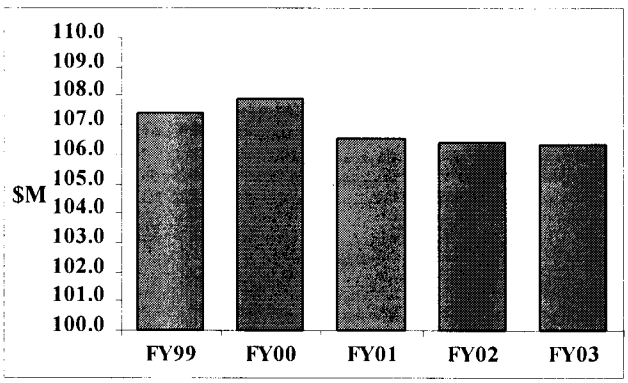


Figure 2-4. Overhead Projection

2.2.b(2) Performance Projections Comparisons. We use comparative assessment as well as formal benchmarking to deepen our understanding of the real and relative progress that has been made and of how we set challenging goals for future performance. We have assessed performance in the key business areas that support achievement of near- and long-term strategies, with performance of large industry groups involved in similar business sectors (aerospace, defense, business, and computer equipment). The areas we have examined include overhead-to-net total sales ratio, workload per employee metric, supervisor-to-employee ratio, training hours per employee, annual employee turnover, and workforce composition (FY99 position results are shown in section 7). Indications from the comparative analysis are that we have achieved industry-like sector parity through initiatives to increase organizational efficiency and to sustain workforce effectiveness.

Within the Warfare Center community, the Division assesses its relative performance and projected performance on key measures, again to gain understanding of strategic position and opportunities for continuing improvement. Here, the focus is on comparative financial metrics for FY99, both for the Division and for other Navy warfare centers. (Trend findings are presented in section 7.) The Division participated in a formal benchmarking study on IT services and a global benchmarking study of knowledge management. In the IT study, we were found to be a low-cost, high-quality group leader in IT service areas, which influences our strategies concerning the risk/benefit of outsourcing IT functions.

SECTION 3. CUSTOMER FOCUS

3.1 Customer and Market Knowledge

3.1a Customer and Market Knowledge

3.1.a(1) Customer Groups and Market Segments. We have three types of customers: sponsors who provide tasks with funding; end-users of our products, test ranges, and test facilities; and stakeholders. Our sponsors include Navy and DoD program offices, defense industry contractors and allied navies. The Fleet is the primary user of our products and services. Our stakeholders are senior Naval leadership, the local community, members of Congress, the U.S. taxpayers, and other groups that have an interest in our success. Table 3-1 presents examples of our customer types.

Table 3-1. Customer Types

Sponsors	End Users	Stakeholders
Navy Program Sponsors (e.g., NAVSEA, PEOs, NAVAIR, SPAWAR, ONI, ONR (see Business Overview)	Fleet commands located at Norfolk, Pearl Harbor, New London, Bangor, Kings Bay, etc.	Fleet (e.g., senior leadership including Flag officers and Captains)
Other DoD (e.g., DARPA, Army, Coast Guard)	Private parties who use our test facilities	Resource Sponsors (e.g., Chief of Naval Operations)
Defense Industry (e.g., Electric Boat, Boeing)	Allied Navies	Members of Congress
Allied Navies		Community / U.S. Taxpayer
Non-Defense Industry		Employee unions

We define our market segments based on common customer requirements and the type of product or service required and provided; our market segments are the U.S. Navy, DoD and other government, allied governments and navies, private industry, and university laboratories.

Our competitors for work in our 13 core equity product elements include industry, FFRDCs, and Navy UARCs. We performed a market-share analysis to calculate our share of the budget defined by the Defense Budget Appropriations categories that are linked to USW. The analysis showed our funded share of each USW category, as well as the levels of funding received by other government agencies, industry, or academia. As part of the annual 5-year planning process, departments determine projected customer funding for each market segment. As a result of the flat overall trend in traditional customer funding, we have initiated new business development activities with our allies and allied navies and have begun efforts to expand our markets through dual-use technologies and our technology transfer program. To stimulate the creation of new programs, we use our in-depth knowledge of the undersea environment, technological challenges and opportunities, and future Fleet requirements to develop technical visions in each of our core equity product elements to ensure that undersea superiority is sustained for the Navy-After-Next. These technical visions stimulate and shape future Navy programs and program Master Plans.

3.1.a(2) Determining Customer Requirements. Our relationships with our customers and the Fleet significantly influence what we do and how we do it, and our process improvement efforts focus on addressing their current and future needs. We have identified, and continuously update, the requirements and expectations unique to each of the customer types through a variety of "listening posts"—methods established to determine customer requirements and assess customer satisfaction. These have enabled us to define the requirements and expectations for each of our market segments. Our sponsors fund and task us because they have a requirement for innovation, risk reduction (including performance, cost, and schedule), total systems engineering, and technical expertise in our 13 core equity product elements. For each task, an employee is designated as the principal investigator (PI) to maintain the customer relationship and manage the technical, financial, and schedule aspects of the customer's task. For our most important sponsors, a technical or program manager is assigned to manage all tasks and to ensure that customer requirements and feedback are addressed.

3.1.a(3) Determining Key Features. Through our listening posts, we have established 16 different methods of customer interaction to determine and project key product and service features and their importance to the customers. Some methods are customer-driven, such as task workbooks and program reviews. Others, such as Field Team Representatives and the USW Analysis Department, are either customer-driven or have become standard business practices at the Division. They include our program-specific task workbooks, field representatives, and participation in other activities including Integrated Product Teams (IPTs). Additionally, our customer survey and satisfaction feedback mechanisms frequently provide specific customer requirements and comments relative to product and service features, especially during direct contact/follow-up by the CO and ED.

Other Division-level information—such as the number of new and lost customers, number of new program starts, and customer complaints and compliments gathered as part of the Division's BSC—is used to project key product/service features and their value to customers. Annually, our USW Analysis Department evaluates FNCs and CCIs, which are generated by major submarine force commands, to determine what key strategic investments are needed to meet future customer needs.

We use various types of market research to determine future customer requirements; these include participation in national and international technical symposia and conferences, technology exchanges, and Fleet battle experiments; maintaining a close relationship with the Naval War College, the Naval Postgraduate School, and the Naval Warfare Development Command; our warfare analysis processes; and our industrial outreach programs. This market research, together with Fleet requirements (provided by Critical Technology Initiatives) and program and resource sponsor requirements, is used to identify and determine key product and service features.

We share information on evolving customer requirements and new business opportunities across the Division. Methods used include weekly highlights and technical reports, which are sent to all directorates/departments, SMIC Flash Briefs, cross-department action teams, technical "brown bag" lunches, and weekly knowledge management seminars conducted by our USW Analysis Department.

3.1.a(4) Keeping Listening Methods Current. The Division actively works to keep listening and learning methods current with business needs and directions. At the corporate level, the annual customer survey (in use since FY96) measures customer satisfaction and determines factors (e.g., cost, technical performance) that are important to our customers. The Customer Satisfaction and Loyalty Team (CSLT), composed of representatives from every department/directorate, was established in 1996 to provide ongoing assessment and improvement of the customer survey process, and to develop new initiatives to achieve customer loyalty. In 2000, the Division established a Fleet support office to provide a formal path for two-way communication with Fleet users of our products and services. We have engaged a customer survey consultant to gain an independent evaluation of our survey process and have made improvements to our process based on their recommendations.

Our participation in workshops, conferences, symposia, and technology exchanges provides opportunities to focus on future customer expectations. For example, in 2000 we hosted the first international Unmanned Undersea Vehicle (UUV) symposium, which was attended by program sponsors, senior Navy leadership, industry, and academia. The symposium was an important source of, and an opportunity to share information on, innovative UUV technologies and critical Navy missions.

3.2 Customer Satisfaction and Relations

3.2a Customer Relationships

3.2.a(1) Key Access Mechanisms. We use a variety of processes and systems to ensure that we can determine and improve our relationships with and the satisfaction of our customers, stakeholders, and end-users. We have established mechanisms to ensure that (1) the processes are easy and accessible to

all customers and (2) the customer has the opportunity to provide Division-level feedback as well as specific product/service feedback.

Our listening posts ensure our customers' access to us. Extensive and continuous interaction by our senior leaders, program managers, and PIs with our customers ensures that their requirements and feedback are sought, collected, understood, and acted upon. Through our financial system, all customers are assigned a PI as their primary contact.

The Division has a field team of 112 representatives who work at various sites around the world, many of whom are co-located with our significant customers. These on-site representatives are integrated into the customer organization and as a result can collect reliable and timely customer feedback and information about changing requirements.

The Division has a toll-free number that provides Fleet customers easy access for reporting problems and registering complaints. The toll-fr0ee number is manned 24 hours a day, 7 days a week. Calls are logged as they occur, the appropriate personnel are notified of the problem or complaint, and follow-ups are conducted to ensure that the issues have been addressed.

3.2a(2) Customer Contact Requirements. For our Fleet customers, a systematic process is in place to validate customer service standards via the Common Problem Reporting System (CPRS). CPRS is a consolidated reporting system that provides the Fleet the capability to report all submarine Non-Propulsion Electronic System problems using an Internet-based site available to all shore-based activities. CPRS provides 24 hours a day, 7 days a week Internet access to its users and provides them with the ability to enter new problems, search for problem status, submit updates, and generate reports. Problems are assigned a priority from 1 to 5 based on DoD Software Standard 2167 and Hardware Standard 1629A. Required response times are assigned based on the priority of the problem. Our Torpedo Fleet Engineering Branch has a standard of responding to 75% of Fleet customer trouble call questions in less than 24 hours. During the first half of 2000, they achieved a 24-hour response rate of 71%.

As noted, the Division assigns a PI to each funded task. PIs are in contact with sponsors as often as their program or project requires, frequently on a daily basis. As a result, each sponsor knows who his or her point-of-contact is and can communicate with him or her as needed. To establish customer contact standards for PIs, the "Principal Investigators Guidebook" was developed. It documents the practices and comments of PIs who have received outstanding ratings from their customers. All PIs and senior leaders received copies of the document, and it is also available on the CSLT web-site on the Division's Intranet.

3.2.a(3) Complaint Management Process. We receive complaints and feedback via many different mechanisms, and many processes are in place to ensure that the complaints and feedback are shared horizontally (i.e., cross-departmentally) throughout the Division as well as vertically, up or down, throughout the product lines. An example of this is the systematic process used for documenting, summarizing, and reporting complaints received through the Division customer survey process. This process includes evaluation of the complaints relative to those from the same or similar customers in previous years to determine the effectiveness of implemented corrective actions. The CO and ED review the complaints, feedback, and follow-up corrective actions at each QPR. Division leadership also evaluates customer feedback to determine tactical and strategic actions to effect organizational change and improvement. In FY99, the CSLT reviewed customer feedback to find common themes and made recommendations on how we could improve our honest-broker and team-player performance. As previously discussed, the CPRS provides an automated method for Fleet customers to report problems with our products in use on submarines.

3.2.a(4) Building Customer Relationships. We have developed partnerships with our customers, and these partnerships allow us to gain insight into customer requirements, service standards, goals, and limitations, enabling us to tailor our approach to meeting customer needs. In addition to the strong relationships that PIs establish with their customers, our mid-level and senior leaders develop strong customer relationships as well. They meet frequently with our customers, at the Division or at customer sites, to ensure that our communication is maintained and our relationships are strengthened. Customer retention, an indicator of customer loyalty, is calculated as part of our BSC (discussed in section 4). In the FY00 sponsor survey two questions have been added to better measure customer loyalty; these address the likelihood to repurchase and the likelihood to refer.

We recognize that there are several additional components inherent in developing customer loyalty that go beyond delivering quality products and services. These include building relationships and continuous customer communication. Recognizing the importance of retaining our present customers, the CSLT has developed a systematic approach to achieve customer loyalty. In recognition of the importance of training, the team has provided customer-focused training sessions for Division employees. In August 1997, the Division hosted an NPRG conference and coordinated two workshops on customer satisfaction and loyalty with panelists from government and industry who shared best-practices. In 1998, the Division provided customer communication training to Division employees, and most recently customer loyalty training was provided to Division employees by a "world-class" consultant.

3.2.a(5) Keeping Processes Current. The Division's CSLT is the primary mechanism for keeping our processes current. The team develops customer satisfaction improvement concepts, survey design modifications, and improvements to our customer survey. Examples of this have been the addition of questions about innovation and leadership in solving critical USW problems. Other changes to the process include expansion of the surveyed customer base, modifications to the follow-up action item process, and distribution of the survey results to customers.

One of the initiatives for updating the process is a questionnaire that asks customers to evaluate and recommend improvements to our current customer satisfaction survey process. Building on their recommendations and those of our survey consultant, major improvements have been incorporated into the survey process for FY00. They include separate surveys for each of our customer types (sponsors, the Fleet, and stakeholders), questions to provide indications of customer loyalty, and open-ended questions to obtain more customer feedback.

3.2.b. Customer Satisfaction Determination

3.2.b(1) Customer Satisfaction Process. The Division uses a variety of methods to determine customer satisfaction; the primary method is the annual customer survey, which has been used since FY95. The survey was sent to 332 customers in FY98. We have developed a two-tiered survey process that provides a systematic tool for gathering data on customer satisfaction annually. The first tier is composed of processes and methods to capture customer satisfaction at the Division level. Second-tier processes are used within our product lines to follow-up on specific product- and program-related feedback.

The survey is mailed or hand-delivered to current sponsors, key stakeholders, and end-users. The customer list is based on sponsor information obtained from our financial system and enhanced by our departments to add, as appropriate, end-users, stakeholders, and past or potential future customers. The two-page survey provides us with customer feedback about specific products and services for the previous fiscal year, as well as customers' opinions of the Division as an organization.

At the department level, our individual product lines employ customer satisfaction processes and techniques that they deem appropriate for their customers and their products or services. These include:

- Voice of the Customer Interviews
- Product Survey Cards
- Department-specific customer surveys
- Electronic Mail/Telephone Contact
- On-site Visits to/from Customers

3.2b(2) Customer Survey Follow-up. All returned surveys are analyzed, entered into our database, and reviewed by the CO and ED before being forwarded to the department working on a specific program for which feedback has been provided. Any survey with a Fair or Poor rating in any category, or a negative comment, results in a follow-up call to the customer from either the CO or ED to determine the reason. This also serves to express our commitment to our customers to improve our performance and satisfaction with our support to them. At this point, the second-tier customer survey process begins. Information and recommended follow-up action that result from the phone call are forwarded to the appropriate department head and specific technical department personnel. The follow-up action may include customer meetings, site visits, or a more in-depth analysis or interview method that specifically investigates customer requirements or complaints. This action is tracked in the Division's formal Action Item Tracking System and discussed by the CO and ED during the QPRs to ensure that follow-up action is completed.

Surveys with scores that are all Good, Very Good, and Excellent and contain no negative comments are sent to the PI via his supervisory chain of command with a letter from the CO and ED requesting that the customer be contacted to discuss the survey and identify ways to further improve the relationship. The customer also receives a letter from the CO and ED thanking them for taking the time to fill out the survey. A copy of the survey is also sent (via their chain of command) to other personnel who have been complimented by the customer.

3.2.b(3) Customer Satisfaction Relative to Competitors. We obtain information about our competitors via our annual customer survey, formal and informal meetings held with customers and competitors, customer interviews, and market research. In 1996, we completed a benchmarking analysis of our parent organization, NAVSEA, and data from world-class organizations (see figure 7-1-a). During follow-up phone calls by the CO and ED, customers frequently discuss their comparisons of our performance relative to our competitors' performance and we capture that information. Additionally, the Customer Survey has a question that asks our customers to rate us relative to similar organizations.

3.2.b(4) Keeping Processes Current. The annual customer survey, its measurement methods, and data collected are under constant review by our CSLT. The data obtained from our many measurement methods are analyzed for trends and performance improvement and the analyses are used to establish new performance factors and measurement methods. For example, new performance factors regarding innovation were added to the customer survey in FY98 as a result of this systematic process. In addition, we have built on lessons learned, feedback from our customers, and guidance provided by the survey consultant who assists us. These have all contributed to the improved surveys that are being used in 2000.

SECTION 4. INFORMATION AND ANALYSIS

4.1 Measurement of Organizational Performance

4.1.a(1) Addressing Major Components of an Effective Performance Measurement System. Since 1997, the Division has used a BSC as its primary tool for measuring organizational performance. Our FY99 BSC was divided into five perspectives: Customer, Employee, Financial, Internal Business, and Learning and Growth. The BSC aligns with the organizational goals as outlined in our Strategic Plan and also aligns with many of the core values and concepts underlying the President's Quality Award Performance Excellence Criteria. Table 4-1 shows the FY99 BSC measures and illustrates their relationship to the Division Strategic Plan goals. Our FY00 scorecard combined the (a) Learning and Growth and (b) Employee perspectives into a single perspective and added a perspective that addresses our performance with stakeholders, including the Fleet and local community. The BSC provides a framework for translating strategy into operational terms with defined targets. Although its primary purpose is to measure organizational performance, senior leaders also utilize the BSC to communicate expectations to employees, support management by fact, and maintain a systems perspective.

A cross-organizational, multilevel team worked with senior leaders to develop the Division BSC by starting with the Strategic Plan goals, determining and defining the major objectives for each goal, and selecting key metrics to measure progress toward the objectives. This top-down design approach ensured that the performance measurement system aligned with the Division mission, vision, and goals. The team scrutinized each candidate metric to eliminate those that were unnecessary by asking (1) "If the CO or ED see a negative result in this measure, would they take immediate action to address it?" and (2) "Is the objective tightly connected to the organizational goals, objectives, and critical success factors?" If the answer to either question was "no," the metric was removed.

The BSC performance measurement system is used by all departments and directorates, and some Division organizations have deployed it down to the branch or employee level. The annual update process results in a high degree of consistency between the department/directorate scorecards and the Division-level scorecard. While the focus of the BSC is to measure overall performance, a subset of the BSC measures (i.e., retention rate, safety, net operating result, efficiency, business base, and leverage ratio of in-house to out-of-house work) are more tactical in nature and are therefore utilized to evaluate daily/weekly operational performance.

The Division's scorecard has several measures for each perspective and in this way is balanced among the perspectives to effectively measure progress in all five areas. The scorecard contains both leading (e.g., reduce infrastructure costs, hours non-mandatory training) indicators and lagging (e.g., EOS Quality of Work Life index, percent customers retained) measures. It also contains both hard measures of customer behavior (e.g., customer retention and business base shown as dollars/business per direct workyear) and soft measures (e.g., customer satisfaction surveys) and both micro-measures (e.g., funds on board) and macro-measures (e.g., indices built from numerous data sources). Because of the Division's size and complexity, we have a large BSC (table 4-1). The FY00 BSC revision reduced the number of metrics by 30%.

The BSC assessment uses a *red/yellow/green* identifier to allow senior leadership to review all the metrics quickly and to concentrate on those areas that do not meet performance goals. Items that are meeting or exceeding targets are assessed *green*, those that may not meet targets are assessed *yellow*, and those that are not on track are assessed *red*.

The 5-year planning process, External Scan, and Business Plan development activities identify areas in which benchmarking and comparative data are needed. The areas for comparative assessment are selected in alignment with Division strategies. Benchmarking is often used in areas where assistance is needed to define the desired end-state. For example, in alignment with our strategy to reduce overhead,

we selected measures and ratios used in the private and public sector to assess our relative progress and to identify best practices that might be applicable to us. As a Navy laboratory, we most frequently use comparative data from other government laboratories and industry research and development (R&D) organizations because they perform functions and processes similar to ours, often in environments that are similar to ours. The EOS is another source of extensive benchmarking data.

Table 4-1. FY99 Balanced Scorecard

Goal	Perspective	Objective	Measure/Indicator	FY99 Target
Customer Loyalty	Customer	Customer retention	Customer base assessment	>90%
		Customer satisfaction	Customer survey overall satisfaction index	≥ 4.03
		Value added	Relative value index	> 3.88
		Increase customer base	Number of new customers	> 6
Invest in Our People	Employee	Recruit, develop, and retain world-class workforce	Recruiting metric	116 hires
			EOS Satisfaction index	≥ -4.25
			Retention rate	95%
			Non-mandatory training hrs/person	40 hours
		Provide a work environment that enhances job performance, product/service quality, and encourages innovation	EOS QOWL index	> 2.5
			Safety deficiencies trend	< 246.5
			Environmental findings	< 88.5
		Provide leadership, direction, and communication	EOS leadership index	≥ -4.0
			Supervisory feedback results	Improved baseline
		Reward and recognize in consonance with our goals	EOS recognition index	≥ -1.25
Improve the Way We Work	Internal Business	Increase S&T funding	6.1 & 6.2 FOB/total FOB	> 4.3%
		Increase 6.3, 6.4 funding	6.3 & 6.4 FOB/total FOB	> 10.9%
		Reduce cost of doing business	Infrastructure cost	< $53M
		Achieve cost savings	Total cost savings/total funds	4%
		Manage NOR	Achieve NOR target	-1.56
	Financial	Sustain business base	$K/DWY	> 250
		Sustain high productivity	Productive ratio (DWY/Total WY)	> 65.8%
		Manage leverage ratio	Leverage ratio	> 60%
	Learning & Growth	Increase innovation/patent activity	Number of disclosures per scientist and engineer	> .087
		Non-mandatory training	Non-mandatory training hrs/person	40
	Internal Business	Achieve seamless information flow	Employees with IT access	> 98%
Provide Capable & Affordable Products	Internal Business	Reduce number of latent Fleet defects	Number of post-delivery priority 1 PTRs	< 8
		Bring technical processes under process management	Number of processes under process management	7
		Sustain full life-cycle involvement	Post-acquisition involvement	> 56.4%
Innovate for the Future	Learning & Growth	Improve teamwork	Customer survey team player index	> 3.81
			EOS teaming index	≥ -5
		Increase innovation	Total waivers submitted	> 348
		Increase capability of workforce	Special focus training program participation	> 7%
			Percentage Ph.D.	> 5.1%
			Percentage Masters	> 24.4%
		Increase partnering with industry & academia	Number of EPAs / CRADAs	9 / 20
			Number of MOAs	7
			Workshop/symposia days	> 3132

For most BSC measures, the data source is an official Division information system (e.g., the financial management, safety, environmental, and human resources databases) where the data and supporting information technology systems are managed as part of an overall business process. The data are timely and are reviewed for accuracy. In many areas, the data are available on the Division Intranet via EBIS and individual department web-sites. The EBIS data source is the same official business system that feeds the BSC. EBIS provides a "drill down" capability that allows individuals to look at underlying data and also provides periodic updates (daily, weekly, monthly) for many measures.

Senior management uses the BSC to assess the potential benefits and risks of various scenarios. When making a resource allocation decision, senior managers consider both the financial and non-financial metrics. For example, they watch the learning and growth metrics to ensure that the reduced overhead budget is sufficient to support the educational opportunities that employees need to remain technically current and to maintain our core equities.

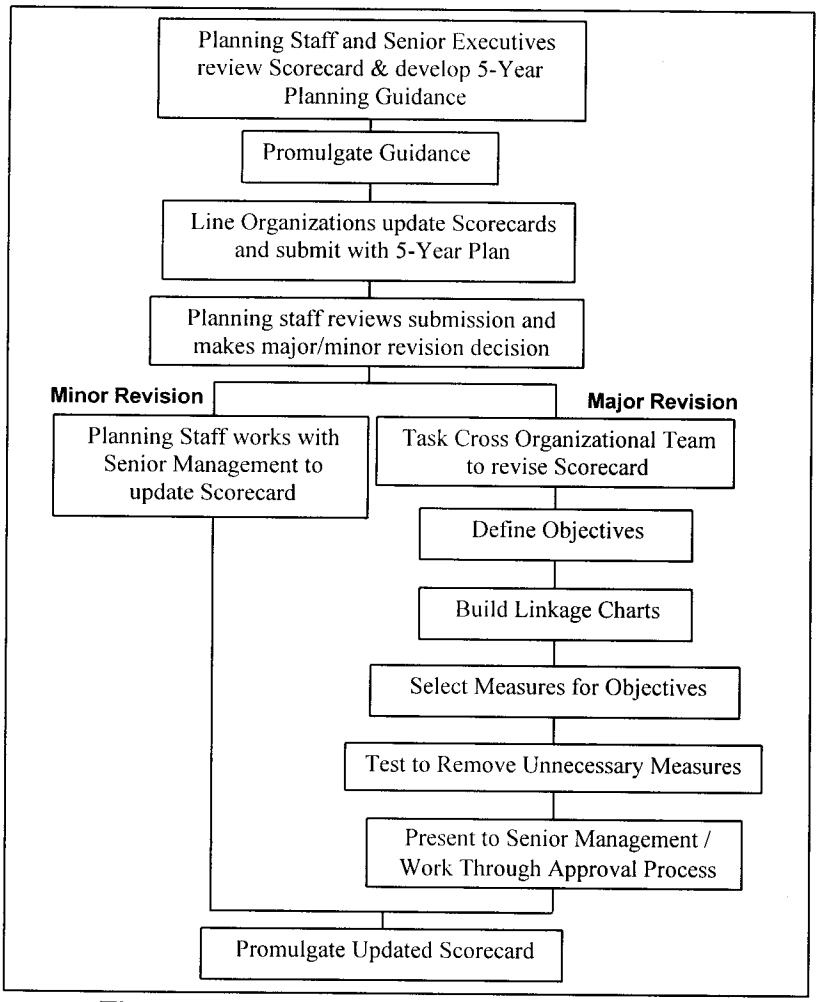


Figure 4-1. Major/Minor Revision Decision Process

4.1.a(2) Keeping the Performance Measurement System Current with Business Needs and Directions. The performance measurement system is kept current with business needs and directions via an annual review. The major/minor revision decision process (figure 4-1) begins by reviewing the objectives to assess how well they match the organization's updated goals and whether they best support changes in the external environment. Significant changes to the objectives requiring a major revision are the responsibility of the cross-departmental team. The first major revision to the Division scorecard was in FY00 and the team responsible for the update received assistance from a BSC consultant, who added the linkage chart methodology to our process. The linkage charts provide insight into the cause-and-effect relationships between the objectives. Understanding the linkages allows senior management to better assess the impact of a change in one perspective on other areas.

The BSC is made available to all employees on the Division Intranet. The plan for the future is to display not only the scorecard but also information about initiatives that have been undertaken to achieve the scorecard targets and the status of those initiatives. The end goal is to share knowledge and create a personal alignment in which individual employees can see the connection between their individual performance and Division success.

4.2 Analysis of Organizational Performance

4.2.a(1) Analyses to Support Performance Review and Planning. When the cross-departmental team revised our scorecard for FY00, they analyzed the cause-and-effect relationships between the objectives to determine the interconnections and correlation between them. Analysis of the linkage charts showed three major themes (Innovation, Affordability, and Customer First) that run through the BSC. Management uses the linkages to analyze and predict how a change in one area may affect another. The linkage charts show which objectives form the foundation for accomplishing the Division's overall goals. When problems arise, management can use the linkage insight to find the root cause for non-

optimum performance and to determine how various improvement initiatives will affect the entire system.

The BSC data is analyzed quarterly by comparing performance to targets, comparing performance to available benchmarking data, looking at trend data, and performing root cause analysis. A *red/yellow/green* assessment is provided to senior management. For example, early in FY99 the financial metric of Sustaining High Productivity was not on track to meet the target and was assessed as *red.* After the data was analyzed, a number of initiatives (e.g., overhead expenditure reductions and monetary incentives for achieving DWY targets) were undertaken to address the issue. The end-of-year DWYs improved, thus improving the productivity and exceeding early FY99 projections.

4.2.a(2) Linking Analysis to Decision Making. The results of the management analysis and the accompanying initiatives are communicated to employees in a variety of ways (outlined in the Division's Communication Model). The methods include open forum discussions, all-hands e-mails, bulletins, brochures, NUWSCOPE articles, web pages, and small group meetings. Table 4-2 presents some initiative examples, desired results, and the analyses the initiatives link to.

Table 4-2. Initiatives from the BSC Analysis

Analysis	Initiative	Desired Results
• Employee Opinion Survey recognition index • Retention Rate	• Personnel Demonstration Project • Boston locality pay • New recognition process	• Pay for performance • Improve morale • Increase retention
• Employee Opinion Survey Indices • Retention rate • Recruiting Metric	• Enhance workforce effectiveness and sustainment	• Improve morale • Improve EOS results • Improve retention
• Customer Survey Indices • Customer Retention	• Strengthen connections to customers • Align technical initiatives with Navy needs • Enhance external communications	• Improve customer relations • Improve customer survey results • Improve customer retention

While the BSC is the overarching performance measurement system, other mechanisms are used to track performance. The Division has deployed an information-rich Intranet that provides access to a variety of databases to support the Division's daily operations. Included in these databases are daily/weekly updates of many Division/department/directorate BSC measures and many other measures (e.g., financial, safety, environmental deficiencies, quality/calibration reports) that are tactical in nature and therefore absent from the scorecard. As discussed in section 1.1.b(1), weekly highlights, QPRs, and program reviews are other tools used to communicate performance.

4.2.a(3) Using Analysis to Support Daily Operations. The linkage charts enhance the use of analyses of performance metrics to generate the information needed to support decision-making. An example is the resource allocation process. The linkage chart for the innovation theme showed that the foundation for achieving this goal is to enhance support for innovative initiatives and maintain a flexible workforce that can innovate. Recognizing how critical these items are to our ability to meet innovation goals increases the importance of strategic investments and personnel training in the resource allocation process. These items form the foundation of innovation and therefore require strong support. The strategic investment and CPP investment decisions are also based on performance data analysis, the External Scan, and a need to maintain core equity expertise. Performance measures analysis also affects operational planning and process management. For example, the Combat Systems Directorate BSC contains a metric on the number of post-delivery high-priority program trouble reports (PTRs). This metric is assessed *red* whenever there is a high-priority program trouble report. When this happened in the first quarter of FY00, an analysis was conducted to determine and address the root cause(s) of the problem. The analysis identified weaknesses in the testing process, and process improvements were made to address them.

SECTION 5. HUMAN RESOURCE FOCUS

The Division believes our strength is our employees, and the Division human resources strategy supports the strategic goal: "Invest in Our People." The continued development of our employees is integral to our success and is a critical part of our structure and support system.

5.1 Work Systems

5.1.a Work Systems and Job Design

The dynamic nature of science and engineering demands work systems that are flexible, creative, and that encourage high performance and excellence. The Federal personnel system provides the basic regulatory and administrative framework for personnel management, and within the constraints of this system we have implemented local programs to make maximum use of its flexibility. We implemented a Personnel Demonstration Project (DEMO) for 74% of our population in 1999, including all personnel covered by one of our unions (FUSE), and we plan to negotiate implementation of DEMO for the rest of our workforce with our other union (NAGE).

5.1.a(1) Organizing Work. Departments and directorates structure their organizations within broad guidelines (e.g., span of control, size of work units) established by the Position Management Committee, based on Division objectives and priorities. In our product line matrix, project managers and teams have substantial latitude to manage their programs across formal organizational boundaries.

For the 26% of employees not covered by DEMO, managers have position establishment and classification authority. DEMO replaced the traditional system with pay-banding that uses generic, pre-classified, broad-banded position descriptions. These generic position descriptions allow more flexibility in job assignment and give employees more opportunity to define their own jobs.

Approximately 10% of our workforce telecommute; working at home has allowed employees to achieve greater efficiency. Our NPRG-based waiver program empowers employees to make changes to procedures that are required by DoN, SECNAV, and NAVSEA non-statutory regulations but which they feel are inefficient. Since 1996, 81 non-statutory regulations have been waived, resulting in savings of approximately $2.3M.

The Division uses a variety of process management and improvement techniques, including AT&T's Process Quality Management and Improvement (PQMI) methodology. Process action teams (PATs) have applied PQMI to various processes: two Hammer Award-winning examples are the Classified Material Destruction and the Travel PATs.

5.1.a(2) Motivating Employees. One of our strategic goals is to "Invest in Our People," which includes supporting professional development and providing tools necessary for workforce effectiveness. The DEMO acceptable/unacceptable performance rating system, which has replaced a contentious 5-level system, concentrates on development of employees' skills needed to enhance personal performance and to achieve career objectives. Supervisors provide continuous feedback on performance; this includes identification of action needed to improve performance and may include creation of Individual Development Plans (IDPs). Employee IDPs are supported by a generous training budget (figure 7-3-e), which has been maintained even during difficult financial times. Formal programs (table 5-1) are available to employees to enhance performance in their current positions as well as preparing for the future.

5.1.a(3) Supporting High Performance. For DEMO employees, performance development directly supports high performance by requiring changes in the supervisor/employee relationship. DEMO performance development redefines the supervisory role as *coaching* rather than *judging*. DEMO has also changed the performance rating system from five to two levels (acceptable/unacceptable). If an employee is acceptable, the supervisor focuses exclusively on helping the employee to improve current performance and achieve career goals. DEMO requires supervisors to articulate performance

expectations in relation to Division strategic and business goals. The employee and the supervisor decide on the level of documentation, and written documentation is not necessary in many cases.

Table 5-1. Training Programs and Categories

Technical Training		Leadership	Regulatory Required and Safety	Nontechnical	Job-Specific	New Employee
Long-Term	**Short-Term**					
• Long-Term Training (Masters and Ph.D.) • Masters Degree in Software Engineering • Masters Degree in Electrical Engineering (Acoustics) • Naval War College Programs • Masters in Systems Engineering	• Conferences • Workshops • Symposia • On-site courses • Off-site courses • Web-based courses • Satellite courses • URI Bay Campus Courses	• MIT Sloan Fellows Program • NAVSEA Executive Education Program (EEP) Public Management Certificate • NAVSEA EEP Master of Public Affairs Program • Commander's Development Program • Executive Leadership Program • Bryant Distance Learning MBA • URI/EBI Intensive Min-MBA Program	• Standards of Conduct • ISO 14001 Awareness • Personal Protective Equipment • New Employee Safety • Safety Update for Managers • Sexual Harassment • Bankcard Cardholder • Bankcard Approving Official • Personnel DEMO • Environmental Awareness • Back Injury Prevention • Lead Hazard • New Supervisory (Safety, etc.) • Supervisory Briefing • Information Awareness • Diversity • Bankcard Cardholder Refresher • Sub-Safe	• Roger Williams College Program in Business Management • Community College of Rhode Island Associate's Degree in Business Administration Program • Employee Enrichment Conference • New Program Starts	• On-site short courses • Off-site short courses	• Employee Orientation Online • Employee Handbook • Lifelong Learning & Professional Development Opportunities Handbook • Technical Presentations • Mentoring Program • Accelerated Training and Promotion Program • Co-Operative (CO-OP) Student Program

5.1.a(4) Compensation and Recognition. In response to improvement opportunities identified by the EOS, the Division created an Employee Recognition policy in 1999 and mandated the creation of recognition processes in each major Division organization. The purpose of these processes is to focus attention on the importance of employee recognition. Division practices of awarding and recognizing employee contributions are incorporated as a workforce initiative in the FY00 Business Plan.

DEMO provides a new compensation and recognition system. A proportion of the basic salaries of all employees under DEMO makes up an incentive pay pool that is disbursed to employees in two ways: approximately half as permanent salary increases (continuing pay) and half as cash awards (bonus pay). The continuing pay component of incentive pay links pay to performance and puts money traditionally paid as longevity increases "at risk." Incentive pay money is distributed based on supervisory determination of employee performance contribution in up to eight standard dimensions (areas of contribution), which are aligned with our mission and strategic goals. Incentive pay, up to 6% of salary, is paid to employees whose contributions exceed what is expected at their salary level. Employees whose contributions are commensurate with or less than salary-based expectations get no continuing pay increase. Bonus pay replaces performance awards and most special act awards of the traditional system.

Exceptional performers are recognized at the Division Annual Awards ceremony, which honors individual employees and teams for significant contributions. Our unions are integral participants in the annual award nomination and selection process. Award winners include industry partners. The Division also conducts periodic ceremonies at which recipients of awards made by outside activities are recognized. The Division has received six NPRG Hammer Awards and these are cited in the appropriate sections of this application and listed in table 7-5-d. Data on recognition and awards is presented in table 6-4, section 7.3 and table 7-3-a.

5.1.a(5) Cross-Organizational Cooperation. By extending lines of project control horizontally across hierarchical organizational lines, our product line matrix facilitates communication and coordination across work units. Directorate organizations formally link departments in critical interrelationships. Regularly scheduled department head meetings and periodic off-site meetings of Division leaders encourage sharing of critical information between organizations. Within departments, various approaches are employed to ensure that work efforts are coordinated and complementary.

The Division promotes teamwork, both externally and internally, to improve organizational effectiveness. During the annual resource allocation process (discussed in section 2.2.a(3)), the CO and ED allocate funding for cross-directorate/department Division-level investment projects that promote internal collaboration and cooperation. Recent collaborative projects include the Common Product Development (simulation-based design/simulation-based acquisition), Software Process Improvement, Network-Centric Warfare, and Multistatics. We assess the effectiveness of teaming initiatives through the EOS-based BSC teaming index. External teaming is fostered through CRADAs, participation in industry/government consortia, and partnering with other government activities. Our customer survey process also measures Division performance as a team player.

Skill imbalances have occurred as a result of Base Realignment and Closure (BRAC) downsizing. To address these, the 5-year planning process gathers information from departments that is used to identify workforce skill surpluses and deficiencies. This data is used to identify opportunities for better utilization of existing resources across organizational lines, as well as to guide hiring goals and training requirements. Section 2.2.a(2) discusses related key human resource requirements and plans.

Development of our Communications Model in 1997 responded to issues raised by the EOS process. Its implementation, and improvement in 1999 following the 1998 survey, have enhanced both horizontal and vertical communications between all levels of leaders, managers, supervisors, and employees.

5.1.a(6) Recruiting Process. The Division annually develops a recruitment strategy for the intake of between 50 and 100 graduating S&E students. The Division hiring plan flows from the Division-level 5-year planning, which identifies skill requirements for each department/directorate, and resource allocation processes. The hiring baseline is adjusted during the recruitment year based on workload change (loss of work, new projects, unplanned attrition).

The Division re-engineered its recruitment and hiring process to better compete for S&Es in the current competitive market. A "tiger team" formed in 1997 worked in concert with the HR staff to improve the entire recruitment and hiring process. The new recruitment process shortened the time from campus interview to job offer by approximately 50%. It is also credited with achievement of our hiring goals for entry-level S&E students. In 1999, the retention rate for newly hired S&E students dropped. We took steps to identify the reasons why and have intervened with new hires by addressing issues that were identified.

Our diversity hiring has not fared as well and there have been substantially fewer campus contacts, offers, and acceptances. To counter this, we have intensified our efforts to attract Hispanic and African-American S&E students. As part of our efforts to recruit and retain diversity employees, the Division developed an Affirmative Employment Plan (AEP) in 2000 and re-instituted an S&E co-operative education program (CO-OP) with three historically black and/or minority institutions.

5.2 Employee Education, Training, and Development

5.2.a(1) Determining the Training Approach. The Division uses a variety of training methods to meet its technical goals and customer needs, and to retain a skilled, motivated workforce (see table 5-1). The 5-year planning process gathers data from each of the departments, and this data is used to formulate the Division Training Strategy Plan (TSP) and make associated resource allocations. Department training plans are incorporated in the Business Plan. As appropriate for an R&D organization, the emphasis is on technical and developmental training.

5.2.a(2) The Training Strategy Plan. The annual 5-year planning process highlights department-specific training needs to meet employee and customer requirements and provides the context within which the TSP is formulated. The TSP and the Business Plan are integrated to ensure that design and conduct of training meets the challenges of the competitive global environment. The BSC evaluates key training metrics as part of the learning and growth perspective.

5.2.a(3) Incorporating Individual Input. Using input from individual employees, the Division makes real-time decisions to supplement the TSP. Employees and supervisors provide input on training needs in the ways listed in the box to the right.

- The "Wish List," which allows employees to post on the Intranet training they need or want. Other interested employees can "piggy-back" on the request until a minimum class size is reached.
- Formal surveys of managers (from time to time, also meet with leaders).
- Informal contacts with key customers (e.g., project managers, principal investigators, administrative officers, deputy department heads, etc.)
- "Ask the Training Officer" column on the Intranet, with feedback provided by the Training Officer.
- Survey results (EOS, SPFS, and others) and focus group recommendations.
- Performance development discussions between employees and supervisors to identify individual training needs and establish IDPs

5.2.a(4) Delivering and Evaluating Education and Training. The delivery medium used to provide education and training is the one most effective for the subject. Selection is based on the target audience, subject matter, cost effectiveness, and urgency. New media, particularly Intranet web-based and satellite instruction, is used when appropriate. Since FY98, the majority of mandatory training has been administered via our Intranet. Our goal is to use the Intranet for all suitable mandatory training (about 85%). Use of online training has substantially increased the number of employees completing mandatory training and has significantly reduced its cost.

Degree and developmental training programs are evaluated with pre- and post-delivery surveys. The data is used to make training vendor selections and to determine training return on investment. Surveys are sent to a sample of the population six to nine months after they complete training to assess how they have applied the knowledge and skills learned to their jobs, to see if behavior changes have occurred, and if productivity has increased. Formal programs, such as long-term training, upward mobility, CO-OP, and accelerated promotion, were designed with integrated schedules.

5.2.a(5) Addressing Key Developmental and Training Needs. The key training needs and results are shown in table 5-2.

5.2.a(6) Performance Excellence. The Division's culture includes striving for performance excellence using performance measurement methodologies, skill standards, benchmarking, and other methods to assess performance and to identify areas for improvement. Our managers and supervisors have received training in process management and improvement techniques; these include AT&T PQMI, ISO 9001, ISO 14001, Center for Quality of Management (CQM), and the Software Engineering Institute Capability Maturity Model (SEI-CMM). Process management initiatives have been instituted throughout the Division using the appropriate processes and tools. A manager's guide to process management and improvement was distributed in 1999 to provide guidance on deploying process management and improvement and an Intranet site serves as a repository for guidance and information. Formal training in this area is tied to management/employee identification of need; it is generally conducted just-in-time. Many departments used on-the-job training, supported with departmental resources, to accomplish performance improvement. Section 6.2.a(2) provides additional information concerning process management efforts.

5.2.a(7) Reinforcing Knowledge and Skills on the Job. Many of our training courses and degree programs are customized to Division work efforts so that information and skills learned can be reinforced when the employee returns to the job. Immediate and long-term feedback from supervisors and employees is used to determine the extent of on-the-job utilization of new knowledge. Post-training

surveys are sent to supervisors of trained employees six to nine months after completion of the training. They assess the application of the training to the employee's job, focusing on performance improvement results. One outcome of this feedback is a new initiative to teach "coaching" skills to supervisors of employees in high-priority training assignments, such as developmental programs and on-site degree programs, to reinforce on-the-job use of newly acquired employee knowledge. Feedback is also used to redesign course material to improve the relevance of the training. A link on the Training and Development Intranet web site also provides employees the opportunity to provide feedback on, and suggestions for, training.

5.3 Employee Well Being and Satisfaction

5.3.a Work Environment

Workplace health and safety is addressed by the Safety and Health Policy and Division instructions, and enforced by individual managers, supervisors, and Safety and Occupational Health personnel. Our goal is to eliminate all mishaps and work-related injuries and illnesses through a proactive, prevention-based safety program.

Navy Safety and Occupational Health inspections of all work sites are conducted annually, and high hazard areas are inspected semiannually. Employees contribute to the improvement of safety and health practices through surveys and organizational feedback. Ergonomic assessments are made when requested or when a need is identified during an inspection. These interrelationships have enhanced the mishap/injury/illness prevention efforts by both the employees and the Safety and Occupational Health Division. Other areas where preventive efforts are sponsored include campaigns for smoking cessation, CPR, and back health. Our success in this area is illustrated in figures 7-3-g and 7-3-h.

5.3.b Employee Support Climate

5.3.b(1) Enhancing Employee Work Climate. The Division places great emphasis on creating and maintaining a work environment that is conducive to helping employees balance their professional and personal needs. Our employees are our most important resource; employees who are treated with concern, respect and understanding of the stresses in their lives are more loyal, dedicated, and productive and, consequently, more valuable to the organization. To that end, we have instituted Family Friendly Workplace policies and programs listed in table 5-3 to address the needs of our workforce. The overall objectives of these initiatives are the recruitment, motivation, and retention of a highly qualified and dedicated workforce. In addition, we offer many unique services/benefits that attract new employees and provide a supportive work climate for existing employees. The Personnel Management Advisor (PMA) and PMA Assistant team assists employees in the areas of benefits and policies.

Table 5-3. Family Friendly Workplace Initiatives

- Alternative Work Schedules
- Part-Time Employment
- Telecommuting
- Family and Medical Leave
- Leave Sharing
- Mentoring
- Wellness Program (including a fitness center)
- Employee Assistance Program
- Lunch and Learning Seminars

Two key programs, Wellness and Employee Assistance, were established with the direct involvement of employees and union leadership. The overall goal of these programs is to increase employee awareness of lifestyle factors that impact their physical and mental health and to provide counseling and referral services for family and personal issues ranging from substance abuse to mental health to traumatic events.

5.3.b(2) Encouraging and Motivating Employees in a Diverse Workforce. The Division is an equal employment opportunity workplace and our leadership recognizes that achievement of diversity goals requires vigilant monitoring of organizational performance. The Division has an Affirmative Employment Plan (AEP) that identifies and supports organizational objectives related to recruitment and retention of a diverse workforce. Diversity targets include hiring and retention focus and incorporate equitable treatment with respect to work assignment, training, and advancement. The Diversity and

Cultural Sensitivity Team (DCST), created in response to the first EOS, serves as an important advisory body to the CO and ED in identifying areas for improvement and monitoring of performance to plan.

5.3.c Employee Satisfaction

5.3.c(1) Key Factors. Key factors that affect employee well-being, satisfaction, and motivation were determined during creation of the EOS by a joint effort of the Division and an internationally recognized employee survey firm (International Survey Research (ISR)). ISR assisted and guided us in survey category and item selection, and data organization, segmentation, and analysis.

5.3.c(2) Assessment Methods. The EOS process is the cornerstone of our assessment process and has been the genesis of many other tools that support leadership assessment of our organizational climate. These include the Communications Model, which has resulted in management/supervisor/employee meetings (including regularly scheduled branch meetings, open forums, and CO/ED call plan sessions), the Supervisory Performance Feedback Survey, and the DCST. EOS focus group results provide the basis for Division improvement actions. The EOS and SPFS are reviewed prior to each use to ensure their currency, and they are changed as needed to address new and emerging issues.

To augment existing surveys, the Division plans to establish a Monthly Climate Survey that each month will ask a segment of the population to assess important cultural issues. The Employee Advocate monitors survey and focus group results and provides periodic reports to the CO, ED, QC, and senior leaders. These reports are used as the basis for status reports to employees that are reported in briefings, the NUWSCOPE, and on the EOS Intranet web page.

5.3.c(3) Identifying Improvement Priorities. The deployment of the Strategic Plan and the adoption of the EOS as the principal measure of employee opinion were important steps in creating an organizational culture that routinely and automatically asks for and considers the employee perspective in business decisions. The EOS process includes extensive use of focus groups that involve a large number of employees and employee/leadership interactions that contribute to leadership knowledge and understanding of organizational climate. The survey results are incorporated in the BSC in the Leadership, Quality of Work Life, Recognition, Satisfaction, and Teaming indices. EOS results are addressed in section 7.3, specifically in figures 7-3-a and 7-3-b. The dramatic improvement in performance between 1996 and 1998 provides an indication of the return on investment in the improvement opportunity areas identified by our EOS process.

SECTION 6. PROCESS MANAGEMENT

Processes have been devised and implemented to ensure timely quality delivery of services and products to our customers. The Division's product line structure provides focus and accountability to the customer for specific technical programs/projects that deliver USW products and services. Much of the Division's work is R&D and service oriented. The Division's processes for the execution of these programs are derived from the DoD, DoN, and NAVSEA standards and must first comply with DoD Directives 5000.1 and 5000.2 (Defense Acquisition), and with the implementing guidance of SECNAVINST 5000.1. Guidance for engineering agent roles and technical authority is provided by NAVSEA Instruction 5400.57B (Engineering Agent Assignment and Technical Authority).

The Integrated Product and Process Development (IPPD) paradigm (Division Publication 10608) and its IPT framework are enabling mechanisms for acquisition reform employed in many of the Division's major programs. Process/quality management approaches currently in use at the Division include Electronics Industry Association (EIA) Standard EIA-632 (Processes for Engineering a System), SEI-CMM, and AT&T's PQMI process management methodology.

The Division's Business Resource Directorate (BRD) provides support services with six key processes and plays a key role in the supplier and partnering processes.

6.1 Product and Service Processes

6.1.a Design Processes

6.1.a(1) Products/Services and Related Production/ Delivery Processes.

All of the Division's design processes are ultimately driven by Fleet (customer) requirements, needs, and problems, as shown in figure 6-1. The four key processes for products and services are also shown in figure 6-1 and listed in table 6-1. However, the Division is a program-/project-based organization, and specific customer requirements are addressed through a set of three annual Task Definition and Delivery Processes, as shown in figure 6-2 and table 6-2. The "Engineering for Acquisition and Test" process in figure 6-1 includes the Technical Direction Agent, System Integration Agent, Design Agent, and Acquisition Engineering roles described in NAVSEA Instruction 5400.57B.

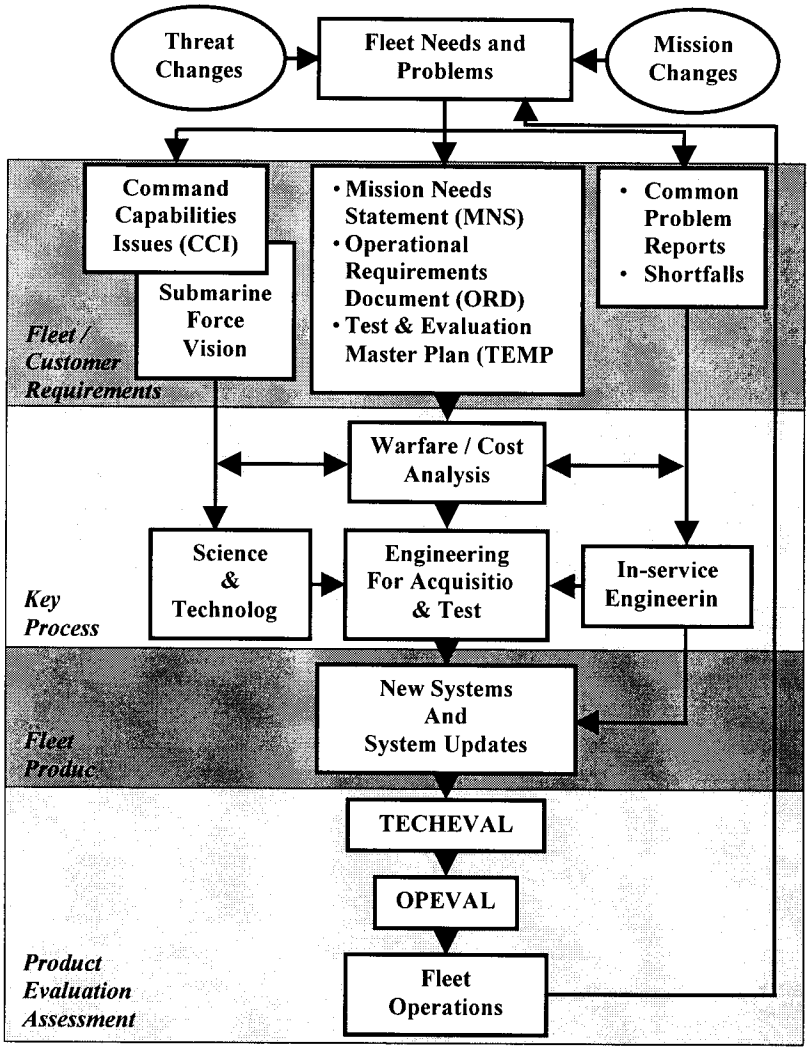


Figure 6-1. Product and Services Design Processes

6.1.a(2)Incorporating Changing Customer/ Market and Mission-Related Requirements into Product/ Service Designs and Production/ Delivery Systems and Processes.

Changes in Fleet (customer) requirements are driven by threat and mission (market) changes as well as Fleet (customer) operational experience. These changes in requirements are documented by Command Capabilities Issues (CCIs) and Force visions for the S&T process; Mission Needs statements, operational requirements, and Test and Evaluation Master Plans for the Engineering for Acquisition and Test process; and Fleet Problem Reports and NAVSEA/Team Submarine semi-annual Top Management Issues/Attention (TMI/A) meetings with the Fleet for the ISE process, as shown in figure 6-1. Changes in specific customer requirements are incorporated annually by the standard task definition process and, if required, updated more frequently by a task change process. These tasks are documented in task statements and Task Books for all programs.

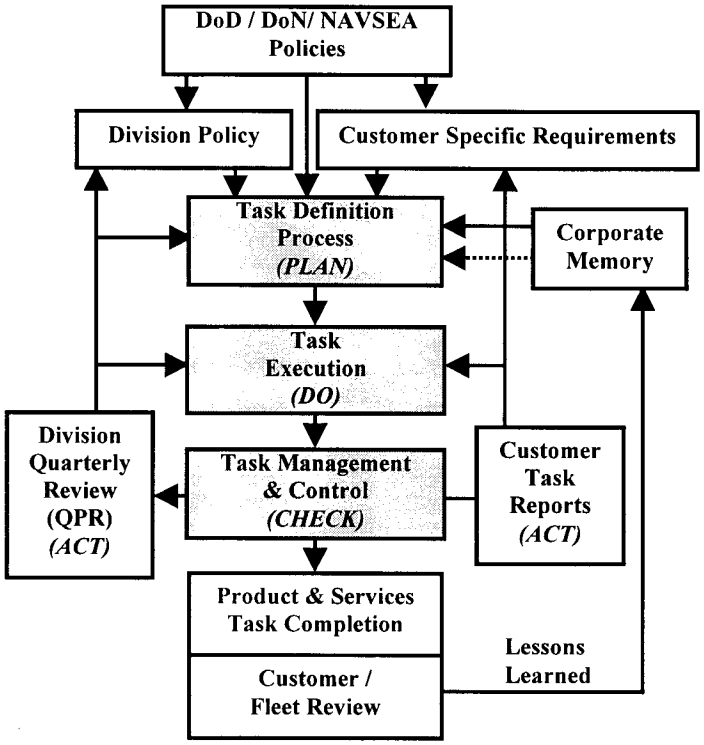


Figure 6-2. Annual Tasking

As discussed in section 2.1.a(2), a variety of processes are used to collect, synthesize, and utilize customer/market information

6.1a(3&4) Incorporating New Technology and Addressing Efficiency/ Effectiveness Factors. Innovative uses of new military technology to meet Fleet needs are developed under the S&T program at Division Newport, and at other Navy laboratories, and in academia and industry. These new military technologies are introduced to the Fleet via acquisition programs or Engineering Change Proposals/Ordnance Alterations (ECPs/ORDALTs). Commercial off-the-shelf (COTS) technology is introduced into Fleet products through rapid COTS insertion programs managed by PEOs with Division Newport support.

COTS technology is also introduced into our delivery processes to reduce cycle time and cost. This is demonstrated by the results reported for the CPRS in section 3, the WAIF in section 7.5, and the Hammer Award-winning Acoustic Rapid COTS Insertion (ARCI) Program Team.

The design of technical product/service processes focuses on the customer performance objectives of cost, schedule, and performance (quality), utilizing technology/innovation and lessons learned to tailor optimum solutions to customer needs. Basic process standards for product requirements and quality management are provided in Division Newport Instruction 5000.7 (Policy for Development, Modification, and Verification & Validation (V&V) of Product Technical Requirements). Specific quality requirements are defined for each program/project by the tasking process.

Table 6-1. Key Design Processes

Key Processes	Key Requirements	Performance Standards	Control Strategies
Warfare/Cost Analysis & Assessment	• Military Utility • Cost Benefit Trade	• Performance Needed for Military Superiority • Affordable Superiority	• Internal, customer, and Fleet reviews
Science & Technology	• Innovation	• Number of Invention Disclosures	• Invention Disclosure Review
Engineering for Acquisition & Test (TDA, SIA, DA, AEA)	• Ensure delivery of ORD/TEMP Compliant System on Schedule	• Technical Evaluations successfully completed on schedule	• IPTs • On-site teams • Independent Validation & Verification (IV&V) • Program reviews • Government testing
In-Service Engineering	• Fleet Readiness	• Availability • No Priority 1 Fleet PTRs	• Fleet feedback • Formal Problem Reporting System

Table 6-2. Key Delivery Processes

Key Processes	Key Requirements	Performance Standards	Control Strategies
Task Definition	-Customer-Specific Requirements -Time	-Complete negotiation process with customers -Complete annual task definition process by end of 3rd quarter	-Quarterly Performance Reviews -Annual 5-Year Plan process
Task Execution	-Plan -Staffing -Facilities -Technical Process	-Documented POA&M -Full Staffing -Sufficient Facilities -Process Defined	-Quarterly Performance Reviews -Internal Dept/Dir Program Reviews
Task Monitoring and Control	-Early Problem ID -Cost -Schedule -Technical Performance -Risk Mitigation	-On or ahead of plan -Cost -Schedule -Tech Performance -No unexpected major problems	-Internal & customer Program Reviews -IV&V -Periodic Standardized Reports -Quarterly Performance Reviews

Knowledge gained from past projects and other parts of the organization is shared through Division-level instructions and documents (e.g., Division Instruction 5000.7 and Publication 10,608), technical reports, journal articles, NUWSCOPE, and project-specific lessons learned. The use of IPTs in the design and conduct of these technical product/service processes allows the sharing of information by multidisciplinary teams and a proactive approach to process evaluation and continuous improvement. Examples include the Mk 30 Mod 2 program and SSN-21 Weapon System Accuracy Trials (WSAT), the Hammer Award-winning Submarine Combat System (SCS) Integrated Development Plan (IDP) Team, and the Miniature/Microminiature Model Test and Repair (2M/MTR) Team. Another mechanism for transferring lessons learned and related information into the product/service design process is technology exchange with other government and industry partners. An example is the Aberdeen/Division Newport Technology Exchange, in which visitors from the Aberdeen Proving Ground and Army Research Laboratory met with Division Newport in 1999. The meeting was a forum for the facilities to share expertise and identify opportunities for future teaming. An agreement was reached to share engineering technologies, testing techniques, and processes. Our Fleet Support Group and Fleet Installation Management Action Team (FIMAT) are also used to share lessons learned.

A number of Division-wide standardized technical implementation processes listed in table 6-3 have been developed and implemented or initiated to facilitate individual programs operating at maximum efficiency and quality while reducing service cost.

Table 6-3. Division-Wide Technical Implementation Processes

- Software Productivity Improvement Initiative
- Simulation-Based Design and Acquisition Initiative (SBD/SBA)
- Common Problem Reporting System (CPRS)
- Common Maintenance Reporting Initiative
- Life-Cycle Change Control Process

6.1.a(5) Ensuring Production/Delivery Process Accommodates Key Operational Performance Requirements. The formal Navy Operational Requirements Document process, in conjunction with the close working relationship with the Fleet at all levels of the organization, ensures that process design accommodates all key operational performance requirements. In addition, the Division holds a formal technical/tactical exchange with the principal submarine development activity (Submarine Development Squadron) at least semiannually, where tactical and technical developments and issues are shared. Division senior leaders also conduct fact-finding and consultation visits at the major submarine and surface ship warfighting commands on at least an annual basis in support of operational performance requirements definition. The Division has an extensive field team with representatives at major Fleet commands who provide day-to-day input from the operational forces. The Division supports the major Acquisition Program Manager with a requirements review and design review process as outlined in IEEE/EIA 12207 (Standard for Information Technology – Software Life-Cycle Process) and EIA 632. The Division stresses the use of cross-functional IPTs, which include Fleet personnel, to perform requirements and design reviews. This process is key to finding requirements and design defects early in the development cycle, which reduces cost-to-correct and schedule (i.e., cycle time) impacts.

6.1.a(6) Coordinating and Testing Production/Delivery Processes. The coordination and test of design and delivery processes is tailored for each of our key processes. The Warfare/Cost Analysis process uses a standard set of computer-based tools. These tools have been tested and validated against at-sea experiment and Fleet exercise data. They also use common U.S. Navy-approved input data sets to ensure consistent analysis. The S&T process develops innovative new concepts and new technologies. The effectiveness of the research and development process is ensured by individual scientist and engineer knowledge, supervisory and peer review, and customer feedback. Both the Acquisition Engineering and Test process and the ISE process require a formal design/delivery process as outlined in IEEE/EIA 12207 and EIA 632. Again, utilizing the tasking process, specifics are negotiated with the customer and documented in task statements or books and reviewed in accordance with Division Instruction 5000.7. Before products are delivered to the Fleet, they go through (1) a formal Navy design certification process, (2) a Technical Evaluation process, and (3) an Operational Evaluation process. To ensure completeness of test coverage, the testing process is based on the operational requirements. Testing includes limits testing, subsystem and system testing, and development testing in the factory. The defect rates for each type of testing are compared to historical rates to provide insight into design and test process effectiveness. The lag indicator for our design and test process effectiveness is the number of latent defects found by the Fleet after formal Operational Evaluation.

6.1.b. Production/Delivery Processes

6.1.b(1) Key Production/Delivery Processes and Their Key Performance Requirements. The Division provides research and engineering services to our customers in the 13 core equity product elements shown in table I in the Business Overview. Our key production/delivery process is the tasking process identified in figure 6-2 and detailed in table 6-2. All work is negotiated and agreed to with our customers on a task basis, in accordance with this tasking process.

6.1.b(2&3) Day-to-Day Operation of Processes and Meeting Key Performance Requirements for Control and Improvement of Processes. The Division's initiative to focus on results and create value involves monitoring and evaluation of the day-to-day operation of key production/delivery processes against their key performance measures. This is done using the control strategies identified in table 6-2 to assess the degree of compliance and extent to which customer satisfaction is being attained. Issues associated with task definition or task execution are reviewed weekly at directorate/department/program staff meetings and quarterly at the Division QPRs and are documented in the customer notebook. Corrective actions are implemented routinely, and major changes are implemented through task change negotiation and documented in the Task Book. Additionally, changes to processes can be initiated when customer requirements change, or when technology/innovation would result in efficiency or effectiveness gains to customer service processes. As figure 6-2 indicates, the customer task reporting and lessons learned recorded at task completion provide the feedback mechanism that drives improvements to the tasking process. An example of this is the Heavyweight Torpedo In-Service Engineering process. Customer requirements associated with responsiveness to Fleet needs (performance), together with budget reductions (cost) and downsizing effects, required the Division's technical service providers to re-engineer their process to (1) maximize efficient and effective coordination of available resources, (2) formalize and streamline the process, (3) integrate recent customer inputs, and (4) provide for continuous customer feedback through weekly conference calls and bimonthly ISE status meetings.

6.1.b(4) Achieving Better Process Performance and Improvements to Products/Services and Sharing Improvements. To continuously improve organization and personal learning, as identified in subsection 6.1.a(3&4), improvements are shared with other organizational units and processes through a variety of means, such as technical reports and presentations, e-mail, symposia, and NUWSCOPE. The Transducer Program demonstrated process improvements through reductions in total ownership cost (TOC). Process improvements resulted from program consolidation, acquisition reform, commercial restoration, and aggressive validation and screening of transducer replacements using automation. This success was shared through the NUWSCOPE. The CO and ED, with the assistance of the Department Head team, review key mission and technical processes using weekly technical highlights and performance measurement results reported at the QPRs. When individual organizational processes have proven successful, IPTs are established to facilitate information sharing and further deployment of the process improvement.

6.2 Support Processes

Support services are provided by the BRD; the elements of the BRD are shown in the organizational chart in the Business Overview (figure I). The BRD's mission is to provide a safe, secure, and pleasant workplace supported by responsive financial, human resources, communications, and acquisition services in alignment with the Division's mission. The BRD's vision is to be a responsible part of the Division team, delivering affordable and efficient services to all of its customers. They are "business partners in Division Newport's future."

6.2.a(1) Key Support Processes. The BRD has six key support processes that comprise 115 subprocesses. The major processes form the framework used to organize, operate, and measure BRD services. The key processes are: (1) Acquire, Maintain, Repair, and Operate the Physical Plant and Real Property (Facilities); (2) Provide Information, Information Technology, and Communication Services; (3) Provide Security, Safety, and Environmental Services; (4) Provide Corporate Financial Services; (5) Provide Human Resource and Workforce Effectiveness Services; and (6) Procure and Manage All Materials and Services.

6.2.a(2&3) Determining Key Support Process Requirements and Designing Processes to Meet Requirements. The BRD has both internal and external customers. Internal customers are all employees

of the Division. External customers are NUWC, the Division resource sponsors, Federal regulators, and Navy and DoD business function managers.

Process owners use the principles of PQMI methodology to bring processes under process management. Key operational requirements for all BRD processes are Timeliness, Reliability, Acceptable Product, "Service with a Smile," Affordability, Accountability, and Flexibility. Other systematic mechanisms also ensure continuous improvement in identifying and meeting current customer requirements, including Continuous Management Review, BSC-enterprise metrics, benchmarking, Reducing the Cost of Doing Business initiative, input from our customers and employees, and the 5-Year Plan. Improvements are shared with the NAVSEA and Navy community by posting selected best practices to the NAVSEA Business Process Improvement Interface Web site. Hammer Award winners include the Classified Material Destruction and the Travel Process Action Teams.

6.2.a(4) Day-to-Day Operation and Meeting Key Performance Requirements. Our Security Office provides an excellent example of the day-to-day operation of a key support process. The Security Office uses a state-of-the-art Integrated Security Management System that (1) provides control of access to restricted areas, (2) provides CCTV viewing and Intrusion Detection Monitoring of sensitive areas, (3) produces badges that are integrated with access control, and (4) supports access auditing and reporting. A firewall was installed in 1999 that prevents unauthorized access to our network and tracks network intrusion activity. Unusual network probes or intrusion attempts are provided to the Naval Criminal Investigative Service (NCIS) for analysis and investigation. The establishment of a classified e-mail system (SIPRNET) in 1998 supports the sharing of technology information with our customers and sponsors in a secure environment. The Security Office works closely with the NAVSEA Security Office and the Navy International Program Office to obtain the appropriate approval for the exchange of information with foreign nationals in support of a broad array of international exchange programs. This ensures protection of the Navy's technology as we pursue new business opportunities with allied navies and expand our market through dual-use technologies and our technology transfer program.

6.2.a(5) Improving Support Processes and Sharing Improvements. In addition to the six Hammer Awards cited in other sections, some recent examples of process management products and initiatives that highlight innovative and improved processes at the Division are listed in table 6-4.

Table 6-4. Innovative and Improved Processes

- **Division Newport Intranet:** Our easy-to-use portal to corporate information and critical administrative processes received the CIO Web Business 50/50 Award in 1997 and 1998.
- **EBIS:** Provides comprehensive online access to information on business management, overall program management, and performance measurement support Division goals, key management tracking, and decision a making. Received the Undersecretary of Defense Financial Management Award for FY98.
- **IntraMart:** World-class system for online ordering of supplies and equipment coupled with extensive use of Bankcard. Received DoN Competition and Procurement Excellence Award for Innovation in Procurement in 1996.
- **eCraft:** Electronic cost reporting and financial tracking system to provide contract data and streamline contract administration process. Implementation planned for October 2000, with potential savings of $2M per year.
- **Intranet Training:** Mandatory courses provided via the Division Intranet. Provides improved convenience and quality to the customer along with costs savings estimated at $300K per year.
- **Environmental / Safety:** ISO 14001 Environmental Management System registered in May 2000. CNO Environmental Quality Award (1998). SECNAV Achievement in Safety Ashore Award (1997 and 1998). CNO Achievement in Safety Ashore Award (1997 and 1998). NAVSEA Large Nonindustrial Safety Ashore Award (1995,1996, 1997, 1998 and 1999). CNO Environmental Nonindustrial Installation Recycling Award (1999).

6.3 Supplier and Partnering Processes

6.3.a(1) Key Products/Services Acquired from Suppliers and/or Partners. In FY99, we contracted for more than $294M in products and services. The majority of the funds were spent for engineering/R&D services (74%) and the balance for supplies/systems. Most items and services were purchased to support sophisticated systems/programs (periscopes, underwater ranges, torpedoes, transducers, and underwater vehicles). While most contracts were standard arm's-length best value contracts, an increasing number were partner-like agreements (IntraMart, EPAs, CRADAs, WFPPs, grants, "other" transactions).

6.3.a(2) Incorporating Performance Requirements into Supplier and/or Partner Process Management. Our agreements incorporate performance requirements in the form of contract type, terms and conditions. The key performance requirements that must be met are Schedule, Quality, and Cost/Price. A business strategy meeting is held at the onset of new major procurements to strengthen the contracts and technical team and to facilitate communications during the process.

6.3.a(3) Ensuring Performance Requirements are Met. We ensure that performance requirements are met through an appropriate level of oversight. Contract administration is assigned to a Defense Contract Management Command (DCMC) office; the customer receives input from that office. The customer reviews contractor cost and progress reports. Our customers and Contracting Officer Representatives (CORs) are empowered and encouraged to hold regular and open dialogue with contractors. The increased use of performance-based, multiple award, and cost-plus award fee contracts provides a structure for this feedback and an incentive to the contractor. We are a leading participant in the Contractor Performance Assessment Reporting System (CPARS), which provides a standard DoD-wide system for measuring and reporting contractor performance. The key performance measures for Services are Quality, Schedule, Cost Control, Business Relations, and Management of Key Personnel. For Systems, they are Technical/Quality, Schedule, Cost Control, and Management. The CPARS requirement that the contractor be allowed to comment on the Government's report promotes good communication. We also play a major role in providing timely feedback to our sponsors' major contractors via the many Division personnel that we have in-plant.

6.3.a(4) Minimizing Overall Costs Associated with Inspections, Tests, and Process and/or Performance Audits. We minimize overall costs associated with inspections, tests, and process/performance audits in several ways. On-site DCMC inspections are used whenever possible. We have a DCMC Customer Liaison Representative co-located with our contracting office personnel. Technical issues are addressed via VTC when possible. When Defense Contract Audit Agency (DCAA) information is required, we first consult our Contractor General File, which contains much contractor rate information. If the information is unavailable, verbal or faxed rate checks are requested from DCAA. CORs review all invoices, but are not required to take action unless they question the invoice.

6.3.a(5) Providing Assistance/Incentives to Suppliers/Partners. We provide a great deal of business assistance to our suppliers. Our Small Business Specialist assists small, disadvantaged, and women-owned businesses by identifying business opportunities for them. The Commercial Acquisition Department posts relevant information and its contract requirements on its web page. The Division also holds a biennial Business Opportunities Conference to promote market interest in future contracting opportunities, to share new topics of interest, and to identify new sources of supply. Division employees attend and make presentations at local National Contract Management Association meetings. When requested, Contracting Officers provide thorough debriefings, which have resulted in almost no Government Accounting Office (GAO) protests. CPARS input also helps contractors to improve.

6.3.a(6) Improving Supplier/Partner Processes. We have taken many actions to improve processes and to turn suppliers into partners. We included contractors in the creation of the IntraMart (a paperless purchasing system, accessible to all Division employees, that simplifies the procurement process for the most common supplies we procure (e.g., office supplies)). Contractors are involved in the design of the eCraft system. eCraft will streamline the process for CORs while also providing new insight to the Division on vendors' incurred costs. Recently, the Division reduced the page count of technical proposals required for service contracts from 80 to 10. One of our newest initiatives is to have Major Supplier Meetings, where senior Division managers meet with senior company officials to discuss process improvements, cost reduction initiatives, and best practices. We plan to meet with each of our top 10 suppliers annually. Improvements are shared using the Intranet, Internet, COR training, NUWSCOPE articles, road shows, and dissemination through the contract liaison offices in each department.

SECTION 7. BUSINESS RESULTS

7.1 Customer-Focused Results

7.1.a(1) Satisfaction Relative to Similar Organizations. We have used a Division-level customer survey since FY95. The survey scale is shown in the box to the right. For the past three years, the survey has asked our customers how we rated compared to similar activities. They have rated us 3.88, 3.81, and 3.85 for FY96, FY97, and FY98, respectively. Information about our competitors is provided in the Business Overview and section 3.1.

Customer Survey Rating Scale		
Performance	**Rating**	***Comparison***
Excellent	5	Best
Very Good	4	
Good	3	Comparable
Fair	3	
Poor	1	Worst

We have used benchmarking study results obtained from NAVSEA. The data, presented in figure 7-1-a, is from a survey conducted by Dun and Bradstreet in which NAVSEA was compared with world-class organizations. The data shows that we rank above NAVSEA in all areas but *Cost* and below the world-class organizations in all areas but *Responsiveness*.

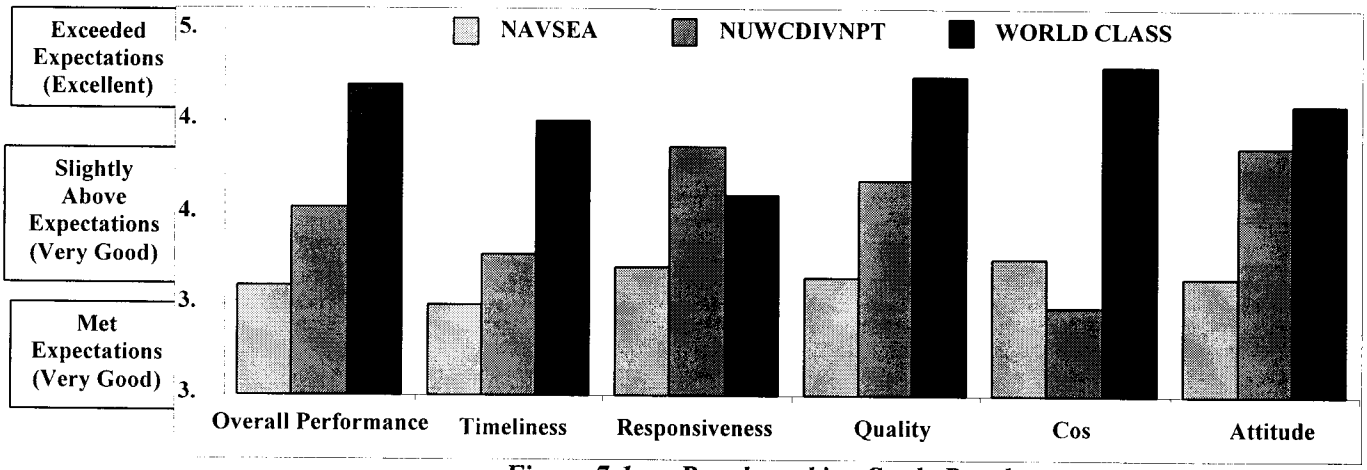


Figure 7-1-a. Benchmarking Study Results

7.1.a(2) Customer Loyalty. Key measures of customer loyalty are *Overall Performance*, *Likelihood to Provide Positive Referrals*, *Customer Retention Index*, and *Likelihood to Provide Repeat Business*. Our past surveys provided *Overall Performance* and *Customer Retention* data and we have added *Likelihood to Provide Positive Referrals*, and *Likelihood to Provide Repeat Business* to our future surveys. Four years of overall customer satisfaction data, a key metric in the Customer Perspective of our BSC, is presented in figure 7-1-b. It has an upward trend over the four years, reaching an average level of 4.13 for FY98. The Customer Retention Index, which is also included in our BSC, has increased from 83.1% in FY97 to 95.4% in FY99.

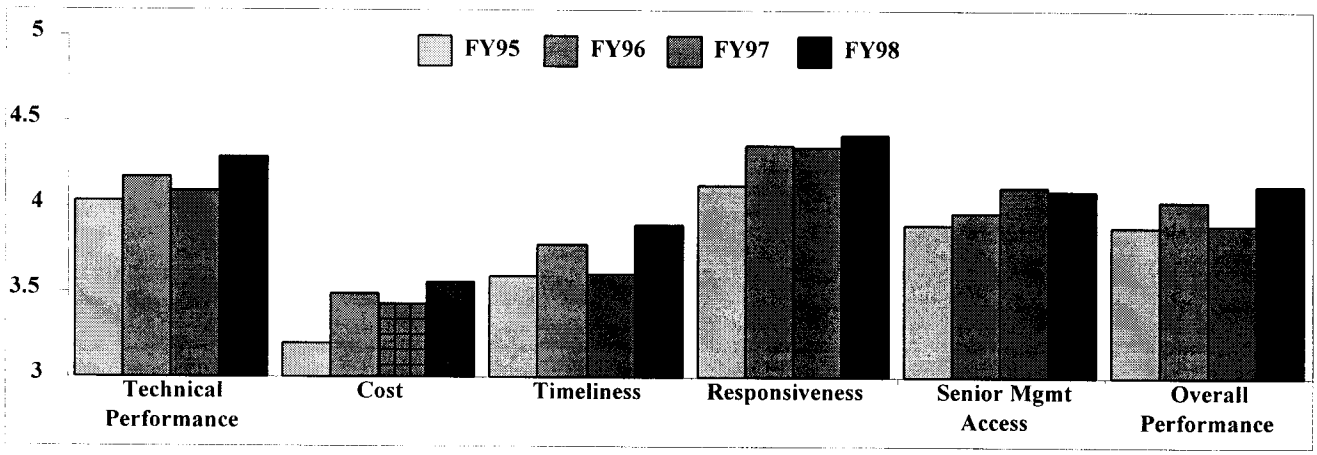


Figure 7-1-b. Survey Results for Product and Services Questions

Empowered and satisfied employees are critical to customer satisfaction and loyalty. As discussed in section 5, the Division has made substantial efforts to improve employee satisfaction since the first EOS in 1996. The success of these efforts is evident in the increase in the Employee Satisfaction Index in the 1998 EOS. This is discussed in section 7.3.

7.1.a(3) Product and Service Performance. As described in section 3.2, the Division has conducted an annual survey of its customers each year from FY95 through FY98. The results of each annual survey are accumulated and reported in the following calendar year. The number of customers surveyed has increased over the four-year period, from 199 in FY95 to 332 in FY98. The survey response rate has remained fairly constant at about 50%, which is considered very good by industry standards. Each year we have asked a set of core questions regarding our performance in meeting our customers' requirements for products and services. The results of these questions, depicted in figure 7-1-b, show that all categories showed a positive trend from FY95 to FY98.

Our eight major customer groups are listed in table I in the Business Overview. To those eight we have added our Fleet customers, the ultimate end-user of our products, as a ninth group. Table 7-1-a presents the results for survey core questions for those nine customer groups for the FY98 survey. (In table 7-1-a, as well as in table 7-1-b, Responsiveness and Attitude are represented by the column labeled R&A and Senior Management Access is represented by the column labeled SMA.)

Table 7-1-a. FY98 Results by Customer Group for Survey Categories

Customer Group	% Surveys Returned	Technical Performance	Cost	Timeliness	R&A	SMA	Overall Performance
PEO-SUB	39.1	3.89	3.00	3.22	4.11	4.13	3.75
PEO-USW	50.8	4.13	3.07	3.43	4.20	3.72	3.77
NAVSEA	55.4	4.56	3.89	4.08	4.68	4.24	4.40
NAVAIR	53.8	4.20	4.00	4.60	5.00	4.00	4.20
SPAWAR	60.0	4.67	3.50	4.00	4.83	4.25	4.20
ONR	45.5	3.86	3.64	3.69	4.15	4.08	3.93
PEO-CU	88.9	4.50	3.25	4.38	4.50	4.00	4.43
ONI	33.3	4.33	3.33	3.67	4.67	4.50	4.00
Fleet	40.0	4.28	3.50	4.06	4.44	4.31	4.17
Average	49.7	4.27	3.46	3.90	4.51	4.14	4.09

Note: See section 7.1.a(1) for definitions of numerical ratings.

Table 7-1-b. FY98 Survey Results by Core Equity Product Element by Survey Category

Core Equity Product Element	% Surveys Returned	Technical Performance	Cost	Timeliness	R&A	SMA	Overall Performance
Submarine Combat Systems	46.0	4.19	3.58	3.78	4.33	4.17	4.04
Submarine Sonar Systems	48.6	4.47	3.76	4.00	4.53	3.76	4.18
Submarine Imaging/EW Systems	33.3	4.00	2.50	3.50	5.00	5.00	4.00
Submarine Communications Systems	30.0	3.67	3.00	2.33	4.00	3.00	3.67
Surface USW Systems	24.1	4.00	3.80	4.00	4.83	4.80	4.17
Torpedoes	66.7	4.00	3.07	3.89	4.17	4.00	3.83
Unmanned Undersea Vehicles	100.0	4.22	3.63	3.44	4.11	4.13	3.78
Submarine Defensive Systems	60.0	4.09	3.36	3.70	4.20	3.90	4.09
USW Launchers	75.0	4.75	3.75	4.00	4.50	4.18	4.42
Submarine Missile/Launcher Integration	72.7	4.38	3.29	4.25	4.63	3.50	4.43
USW Ranges	38.5	4.56	3.89	4.22	5.00	4.33	4.44
USW Analysis	47.4	4.13	3.50	4.00	4.38	4.00	4.00
USW Operational Assessment	85.7	4.56	3.73	4.19	4.56	4.50	4.43
Average	49.7	4.29	3.56	3.89	4.42	4.09	4.13

Customer survey results have also been analyzed as a function of the 13 core equity product elements defined in the Business Overview. A summary of responses for each of the core equity product elements for the FY98 survey is shown in table 7-1-b.

Being aware of our customers' priorities allows us to better address their needs and requirements as well as to better focus our self-improvement efforts. Accordingly, survey data have been analyzed over the four-year period to determine which element of our performance customers considered most important. The data shows that our customers consider Overall Performance and Technical Performance to be the most important rating factors. Because survey ratings of 3 or better (Good, Very Good, and Excellent) are an indication of satisfied customers, we are testing customer satisfaction by examining the percentage of survey scores at those levels. The four-year data for those items is shown in figure 7-1-c. It shows that the level of customer satisfaction for both questions has increased steadily over the four years and reached 97% in FY98

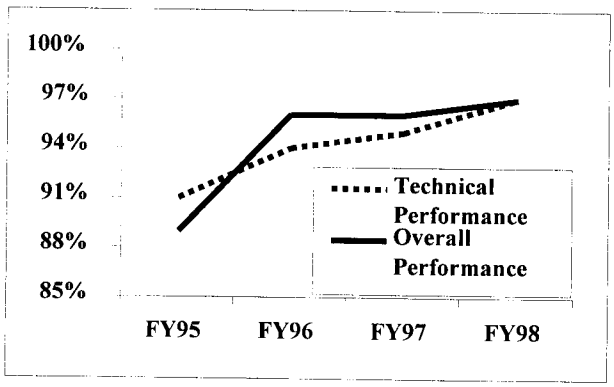


Figure 7.1-c. Customer Satisfaction Trends

Four performance metrics in our BSC that provide an indication of product and service performance are *Infrastructure Cost*, *Technical Operations Cost Savings*, *Number of Post-Delivery Priority 1 PTRs*, and *Number of Technical Processes under Process Management*. As shown in table 7-5-b in section 7.5, the first three measures have achieved a rating of 5, demonstrating excellent performance and positive trends. The fourth measure, *Number of Technical Processes under Process Management*, has received a score of 3, demonstrating significant progress toward the established performance goal.

The BSC also includes a Customer Survey Team Player index that is based on customer survey data. Our performance in that area has been 3.89, 3.81, and 3.86 for FY96, FY97, and FY98, respectively. The values are relative to the customer survey scale. An additional BSC metric related to customer issues is the *Number of New Customers* measure. A new customer is a new organization providing funding and tasking to the Division. Our FY99 target (as shown in table 4-1) was 6. We gained 8 new customers and as a result this measure was assessed to be a 5 in our BSC (shown in table 7-5-b).

7.2 Financial Performance Results

7.2.a(1) Levels and Trends of Key Measures. As an NWCF activity, the Division has fiscal management responsibilities similar to those of private sector organizations. Elements of our fiscal strategy must address workyear rate charged to the customer for a wide spectrum of complex technical and engineering tasks, business base, overhead required, and allocation of scarce fiscal and labor resources—all coalescing to meet the end-of-year fiscal performance target. The previous sections of this application document the fiscal strategies designed to address cost and affordability for the entire Division. This section documents Division financial performance results from FY96 through FY99. From an external perspective, the key indicator of financial performance for the Division is the NOR, a Navy Comptroller (NAVCOMP)-set annual performance target. This complex measure assesses the Division's net business success. As shown in figure 7-2-a, as a result of proactive financial management, we have met or exceeded our performance target each year. The associated fiscal and workyear (WY) performance information shown below are sub-elements of the NOR calculation; they are important parameters that the Division manages to ensure that the NOR is met. In addition, the graphs presented below show the Division business base, or total customer funding, by appropriation and the business base data arrayed by the major core equity categories. Assessment of overall fiscal and workyear trends, by the SES core equity owner, serves as an early indicator of potential erosion in a core equity area.

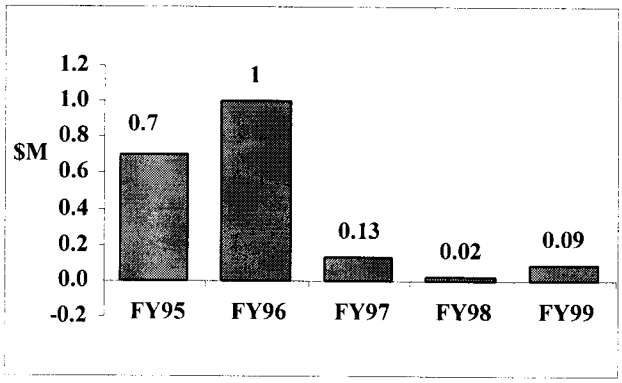


Figure 7-2-a. Net Operating Result (NOR)

With over 50% of our funding outsourced, the Division supports its strategy to deliver high-quality, affordable products and services to its customers through judicious contracting with key partners in the USW community.

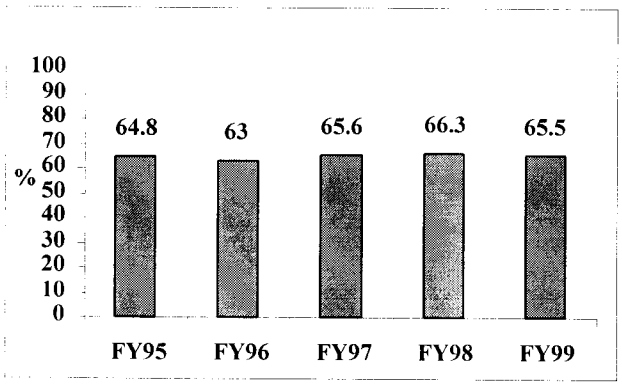


Figure 7-2-b. Productive Ratio (DWY/TWY)

The productive ratio (figure 7-2-b) assesses the percentage of direct WY (DWY) to total workyear (TWY) and is an indicator of the percentage of work associated with technical program execution. Division has worked to increase the productive ratio since Division Newport was established in 1992. Service Cost Center (SCC) work, which is most often associated with technical program work, is not included in accordance NAVCOMP direction. Inclusion of SCC WYs in the calculation results in the Efficiency Ratio metric, which was 74% in FY99.

The average workload measure assesses direct funding per DWY (figure 7-2-c) and is a measure of the health of the business base. This measure has a lower bound goal of $250K per DWY, a bound that is set to ensure that the outsourcing strategy is being supported through fiscal and contracting decisions made at the program level. The stable trend reflects a staff sized appropriately to the business base.

DWY performance (figure 7-2-d) is affected by workforce reductions. It is monitored on a weekly basis and assessed by the CO and ED at monthly reviews. If performance is below target, decisions may be made to limit overhead expenditure, increase in-house DWY performance, and/or decrease SCC labor costs to ensure NOR achievement.

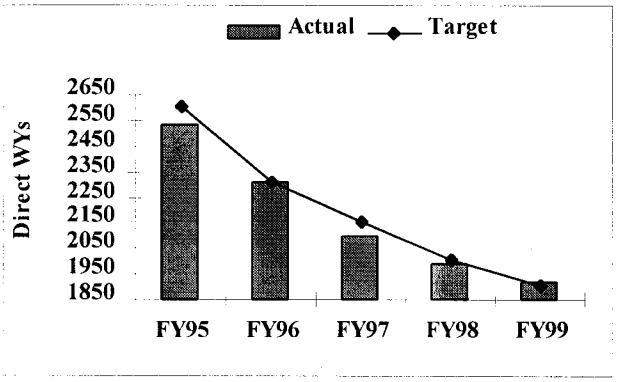


Figure 7-2-d. Direct Workyear Performance

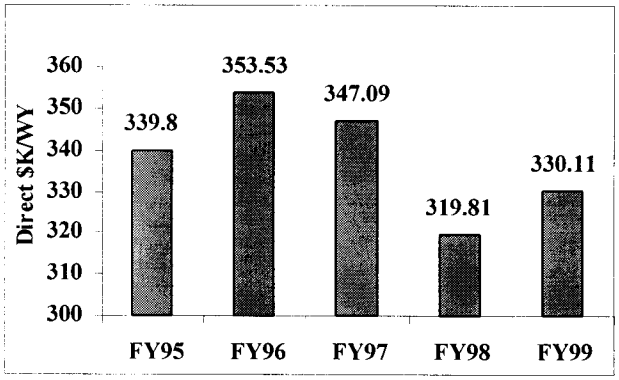


Figure 7-2-c. $K Per Direct Workyear

The challenge to Division Newport has been to successfully control overhead and staffing, and to continue to meet customer needs while controlling cost growth. Trends indicate that overhead costs have been reduced at a rate comparable to business base reductions, thus minimizing any negative impact on stabilized rate growth. Results in section 7.1 indicate that with the management of staffing and overhead, the Division sustained overall customer satisfaction. Figure 7-2-e shows total overhead compared to target.

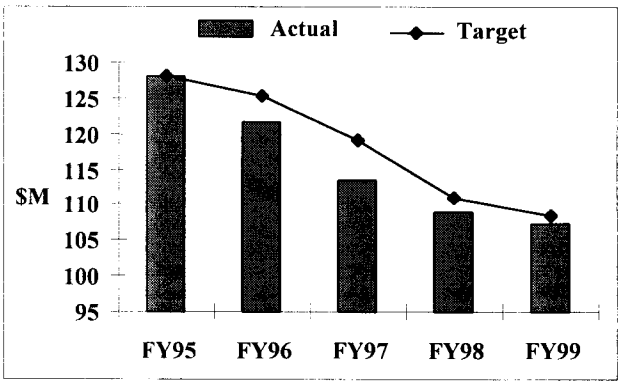


Figure 7-2-e. Total Overhead

The total funding profile shows relative stability, and even slight growth, since FY98. Projections from the planning process (section 2.2) coupled with actual performance data shown in figure 7-2-f, are used to formulate budget inputs and to support resource allocation decisions for the near and longer term. Planning documents describe new start initiatives, which include innovative concepts, concepts to meet stated Fleet needs, and program plans for POM-identified new programs.

The composite stabilized workyear rate has increased since FY97, as shown in figure 7-2-g. While the total overhead costs have been reduced, the decrease in total DWY base and the increase in the direct salary component of the rate have caused the increase. Current strategies associated with mandated cost savings include an initiative to control the growth of the rate charged to our customers.

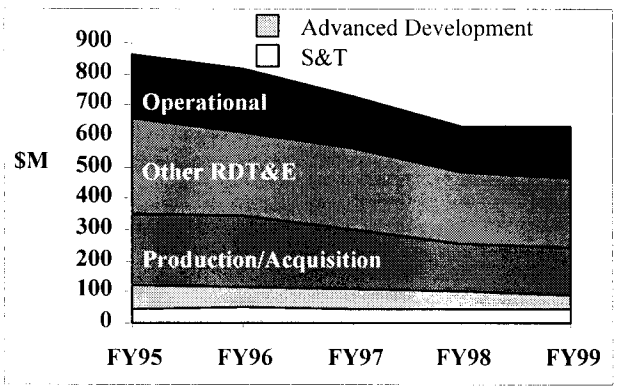


Figure 7-2-f. Business Base by Appropriation

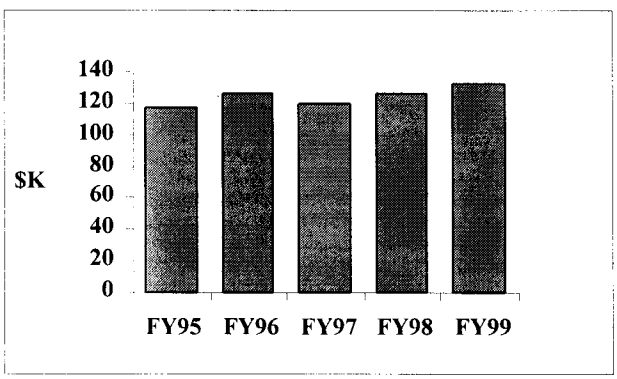


Figure 7-2-g. Composite Stabilized Workyear Rate

7.2.a(2) Market Comparisons. To assess our fiscal performance, certain metrics and ratios are viewed relative to other government NWCF organizations and industry performance. While there is comparability with other NWCF government organizations, comparisons with industry must be done carefully to ensure valid comparison across the private-public sector. The results of the comparative assessments, shown below, indicate that Division Newport has a healthy business base per employee, which also serves to sustain partnerships with industry, academia, and suppliers. The overhead-to-new orders ratio is indicative of the overhead burden customers will pay in the future. This measure has been sustained at 17-18% since FY92 and is reflective of a lean governmental organization. A third-party assessment of this ratio against industry groups and individual firms in the defense community placed Newport in the lean organization category. The Business Plan cites initiatives to address areas of potential concern to Division management, including the projected reduction of DWY and the corresponding implication for core equity sustainment, the increasing direct labor cost, and with the decrease in DWYs, the increasing overhead per DWY burden.

Figures 7-2-h through 7-2-i are two examples from a large data set that illustrate the results achieved through analysis of key business metrics at Division Newport and at similar warfare center divisions. The analyses provide opportunity for learning and sharing best practices to achieve the common goals established by NAVSEA.

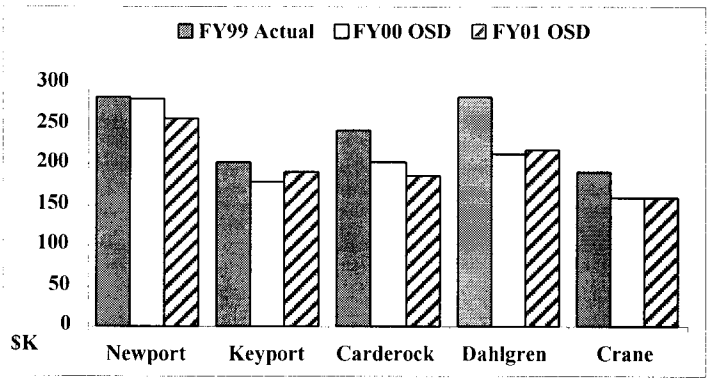


Figure 7-2-h. Overhead/New Orders

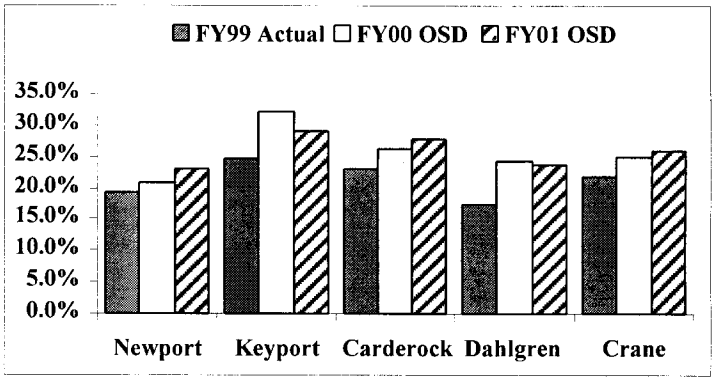


Figure 7-2-i. New Orders/Direct Workyear

As noted in section 2.2 and shown in figures 7-2-j and 7-2-k, the Division uses comparative analyses of industry performance measures and ratios to objectively assess the success and opportunities for further improvement in key business initiative areas. A detailed analysis of Division overhead to total revenue (net total sales) showed that we are a relatively lean organization. Results of the comparative analyses have been presented to NAVSEA and Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN RD&A). Additional comparative measures in key human resources areas are presented in section 7.3.

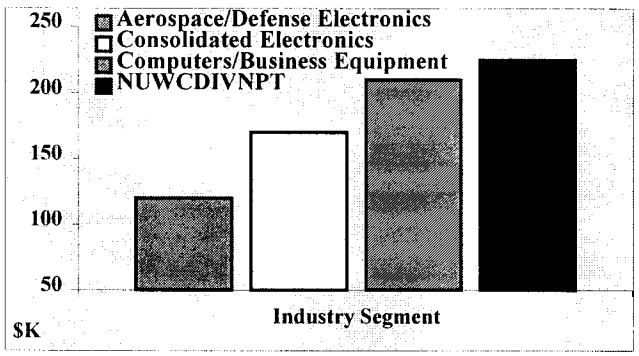


Figure 7-2-j. Net Sales per Employee

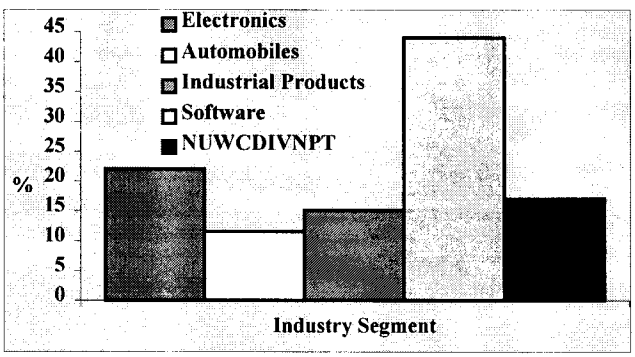


Figure 7-2-k. Average OH to Net Sales Ratio

7.3 Human Resource Results

Our EOS is one of the principal measurement tools used to evaluate the HR focus. We conducted our first EOS in 1996, the second 30 months later in 1998, and will conduct a third in 2001 (33 months after the second). Many dimensions measured by the EOS showed significant improvements between 1996 and 1998. ISR, our survey consultant, stated that our changes, shown in figure 7-3-a, represent *"...one of the most dramatic shifts we have ever seen in a large governmental organization in this country."* In the one area with significant decline (Pay and Recognition), conversion to DEMO and inclusion of Newport in the Boston locality pay area are expected to have a positive impact. DEMO covers 74% of our population: DEMO pay-banding (simplified classification), incentive pay (pay for performance), and performance development will also address pay and recognition concerns.

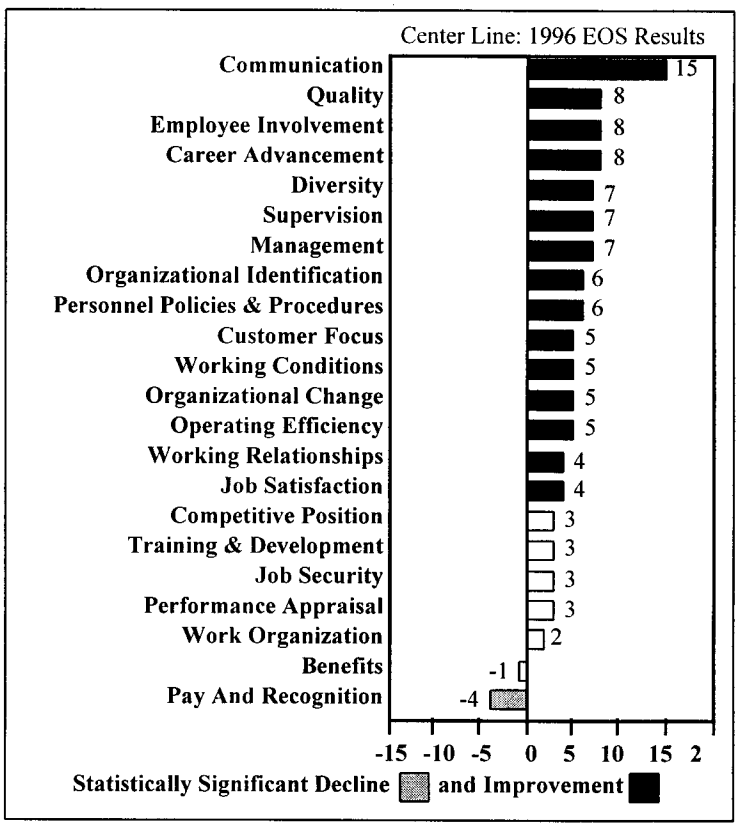


Figure 7-3-a. EOS Results (1996 & 1998)

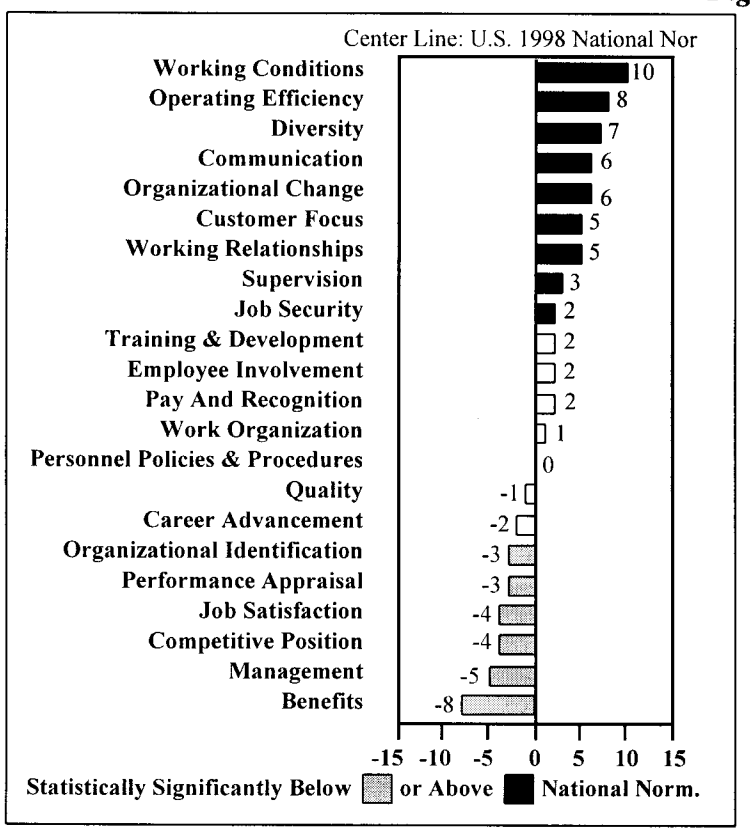


Figure 7-3-b. EOS Results / National Norm

EOS results are benchmarked against three norms: national, R&D, and government composite. Our results in 1998 were positive relative to all three. We use the national norm, which provides the greatest challenge, as our performance standard. This comparison is shown in figure 7-3-b. EOS data is used to construct five BSC indices used to monitor employee issues that are included in the *Employee* and *Learning & Growth* perspectives. The index values displayed are

EOS Indices	1996	1998
Satisfaction	-4.25	-0.76
Quality of Work Life	2.5	6.25
Leadership	-1.25	1.83
Recognition	-1.25	-2.75
Teaming	-5.00	0.00

percentages relative to the national norm; the national norm equals zero. These indices are constructed from the scores realized in 3 to 6 EOS categories (category scores are based on responses to between 2 and 30 items).

One of the initiatives undertaken after the 1996 EOS was a supervisory performance feedback survey (SPFS). The survey provides an assessment of supervisor effectiveness in 37 areas (behaviors and skills) and employee assessment of the importance of those areas. A scale of 1 (ineffective/unimportant) to 4 (effective/important) is used. Results of the three surveys conducted are shown in the box to above. A SPFS metric is included in our BSC. The target for this metric is to make progress against the FY98 baseline SPFS and to close the gap between importance (expectation) and effectiveness (performance).

SPFS Results		
	Effectiveness	Importance
1998	3.27	3.60
1999	3.39	3.60
2000	3.42	3.58

Our R&D mission requires a workforce composition different from that of similar organizations with a manufacturing component. Benchmarking permits us to understand those differences. Benchmarking data shown in figure 7-3-c is from the Saratoga Institute.

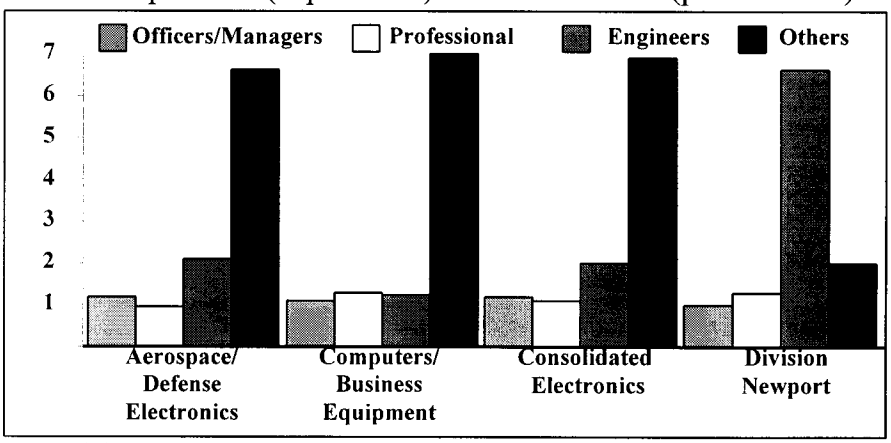


Figure 7-3-c. Industry Benchmark – Personnel Comparison

The Division has an extensive awards and recognition program. Exceptional performers are recognized at the Division Annual Awards ceremony, which honors individuals and teams for significant contributions to the organization. A record 128 employees were recognized for their broad spectrum of achievement in 14 categories at the FY00 ceremony. The Division also conducts periodic ceremonies at which recipients of awards made by outside activities are recognized. At the FY00 ceremony, 63 employees were honored for garnering 21 external awards. These included science and engineering, acquisition reform, safety, environmental, diversity, information technology, small business, logistics, information, and federal employee awards. Table 7-3-a shows the major types of awards and the percentage of employees who have benefited from them. The use of QSIs was increased in FY99 to address EOS-identified pay and recognition concerns.

Table 7-3-a. Award Distribution

Award Type	FY97		FY98		FY99	
	S&E	Non-S&E	S&E	Non-S&E	S&E	Non-S&E
Patent Application	9%	2%	3%	0%	8%	1%
Patent Issuance	5%	1%	2%	0%	5%	0%
Publication	2%	0%	1%	0%	2%	0%
Presentation	5%	0%	3%	0%	6%	0%
Performance	49%	57%	43%	53%	44%	54%
Special Act	44%	50%	31%	33%	35%	37%
Quality Step Increase (QSI)	1%	1%	4%	5%	20%	12%

Employee retention, a BSC measure of employee satisfaction that tracks the percentage of employees that are retained, has been above 92% since FY95. Our turnover rate is significantly better than like-industry averages. Differences depicted in figure 7-3-d may be attributed to layoffs in the production workforce or to economic factors in different years. Benchmarking data (from 1995) is from the Saratoga Institute.

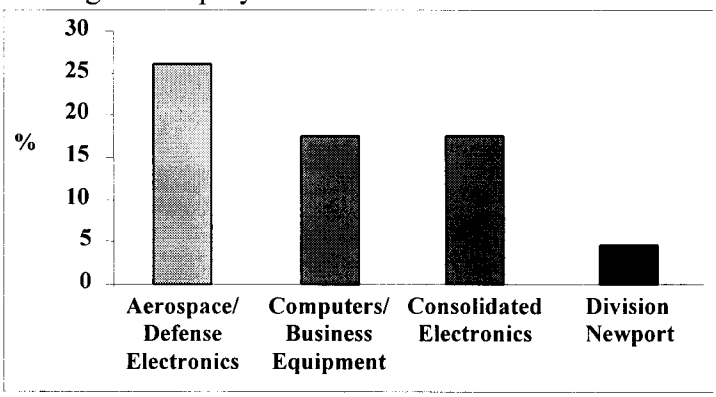


Figure 7-3-d. Industry Comparison – Annual Turnover Rate (% Workforce)

In FY99, 8.5% of new S&E employees left within one year of being hired versus 3% in FY98 and 5.3% in FY97. To address this increase in new employee attrition, a program of interviewing departing S&E employees and new hires was instituted to explore their reasons for leaving and to determine how well new hires were transitioning into their jobs.

Table 7-3-b provides S&E recruitment and hiring data. The acceptance ratio shown in the table is a positive indication of the effectiveness of our recruiting program. The high FY97 acceptance rate corresponds with an unusually high percentage of journey-level versus entry-level new hires in that year. Mid-year hiring figures for FY00 (an acceptance rate of 63%) suggests that higher DEMO starting pay and recruitment bonuses have had a positive impact on our success rate.

Table 7-3-b. S&E Recruiting

	FY96	FY97	FY98	FY99
Interview Invitations	172	125	138	181
Offers Extended	93	44	106	162
Acceptances	75	42	68	83
Acceptance Ratio	81%	95%	64%	51%

Division resources are invested to sustain our core equities. The majority of Division training dollars are allocated to our S&E employees, but, as shown in figure 7-3-e, substantial funds are invested in other segments of our workforce. Spending levels in the training areas have remained high despite difficult financial times. Data shown includes tuition, per diem, travel, and salary expenses.

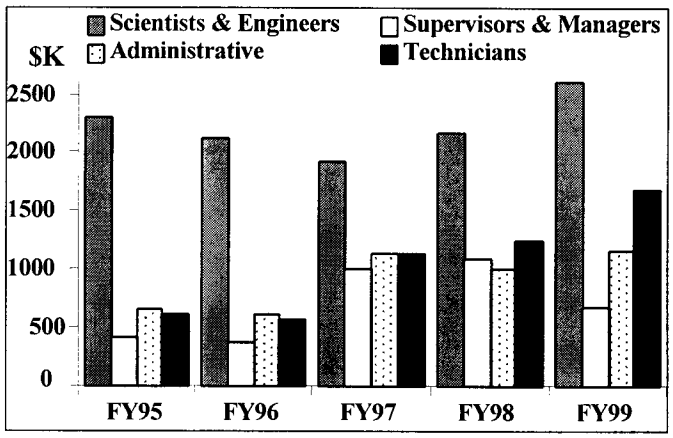


Figure 7-3-e. Allocation of Training Resources

Since FY97 the Division has used online training for mandatory training programs that involve large numbers of employees attending required standard training. Online training, which can be taken at the employee's convenience, has been extremely effective in maximizing participation and reducing cost while increasing employee satisfaction (as measured by participant feedback). In FY96 we conducted no on-line training, but in FY97 we conducted 57% of mandatory training online. That increased to 68% in FY98. In FY99 65% of mandatory training was conducted online. Data from the last three years show that this has become an important training medium.

The Division's core equity sustainment strategies focus in part on sustaining the knowledge, expertise, and workforce capabilities needed to perform our mission. The BSC non-mandatory training metric assesses the development of the Division's workforce. The FY99 target for this metric was to exceed 40 hours of non-mandatory training per person. In a period of decreasing overhead, we have exceeded that target for the past five years, demonstrating our commitment to employee development. This metric is included in both the Employee and Learning and Growth perspectives of the BSC because training is fundamental to learning and growth.

Data on training needs is gathered as part of the 5-year planning process. The number of participants in special focus training programs shown in figure 7-3-f (expressed as a percent of onboard employees) tracks an integral part of the core equity sustainment effort. The target is to achieve a 7% involvement level. We exceeded the target in FY99.

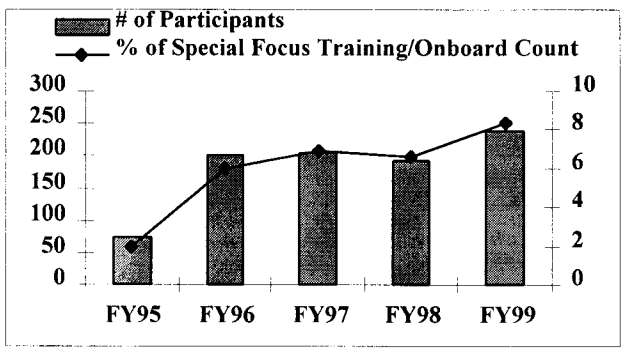


Figure 7-3-f. Number of Participants in Special Focus Training Programs

The Division's emphasis on employee well-being is seen in our "Club Fed" Wellness Program, which offers employees a broad variety of wellness activities and is well utilized. Wellness educational programs cover a variety of topics, including smoking cessation (with the Occupational Health Office), nutrition, and stress management.

The target for the percentage of employees who hold a Ph.D., also a BSC metric, is to maintain the FY97 level (5.1%). We achieved that in FY98 but slipped below 5% in FY99. In response, the Long-Term Training Program has placed increased emphasis on Ph.D. candidates to help address the declining Ph.D. population. The percentage of employees with a masters degree is also a BSC metric used to describe our learning and growth. The target for this metric is to maintain or exceed the FY97 level. The FY99 target was achieved. Achieving this metric is crucial if we are to address the decline in the percentage of Ph.D.s because the employees with master's degrees are potential Ph.D. candidates.

Measures to determine the success of a safe and healthy work environment include tracking of injuries and illnesses sustained by employees throughout the year. The number of injuries has steadily declined during the past five years from over 130 in FY95 to fewer than 60 in FY99. During the same period, the total case rate also steadily declined from over 3.5 in FY95 to 2.03 in FY99. The case rate in FY99 nearly achieved the five-year case rate goal of 2.00 established in the Department of Labor Federal Worker Program.

Several factors have contributed to the decrease in lost-time injuries as shown in figure 7-3-g. The Division's occupational health nurses have played a major role in keeping people at work or getting them back to work as soon as they were medically able. The nurses coordinated their efforts with the HR office and developed a process to track injured employees. A measure of the success of the coordination efforts can be seen in the medical case management of workers' compensation FECA claims shown in figure 7-3-h.

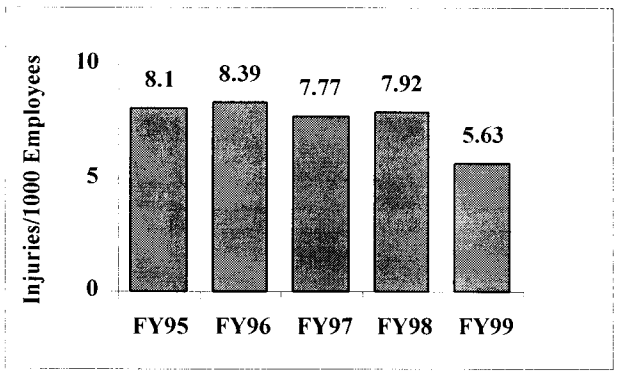


Figure 7-3-g. Number of Lost Time Injuries

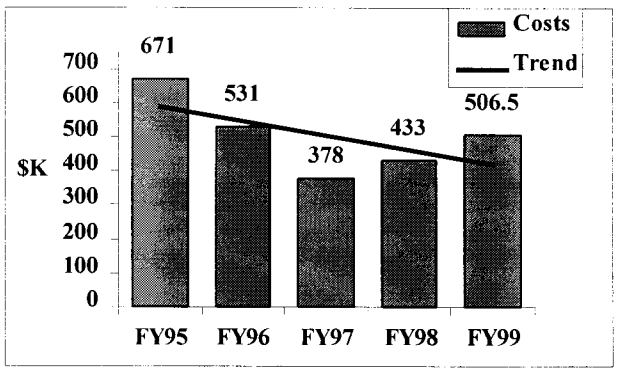


Figure 7-3-h. Total FECA Costs

The Safety and Occupational Health Division and the Engineering Branch of the Facilities Department have partnered on several NAVFAC-funded projects, including use of recycled materials to repair sections of a damaged pier. NAVFAC Hazard Abatement funds received by the Division in the past three years totaled $948K.

As part of the community service initiative, the occupational health staff coordinates four blood drives each year; last year these drives set a record of more than 605 pints donated. In the past four years, our employees have donated 2132 pints.

7.4 Supplier and Partner Results

The CPARS is used to evaluate annually all of our service contracts in excess of $1M. The results for our top 10 suppliers are shown in figure 7-4-a. No supplier received a rating of less than satisfactory in

any of the categories. We are entering data for the second CPARS evaluation of these contracts and eventually will be able to evaluate performance trends.

As part of our effort to improve supplier performance, we increased the number of award/incentive and multiple-award type contracts from 1 in FY96 to 21 in FY99. These provide greater incentive for better performance than the typical cost-plus-fixed-fee arrangement–award/incentive contracts by increasing the fee for improved performance and multiple-award contracts by competing tasks throughout the contract period.

Our use of nontraditional partnering agreements (e.g., CRADAs, EPAs, "Other" Transactions, Work for Private Party (WFPP) Agreements, IntraMart supplier agreements) has increased from 20 in FY97 to 143 in FY99 and is indicative of our efforts to find innovative ways to work with our partners to achieve mutual gains. Our IntraMart agreement with Office Depot has enabled us to dramatically increase purchases of products with recycled content (see figure 7-4-b), achieving compliance with E.O. 13101 and helping us meet our Environmental Management System objectives. IntraMart has also saved us over $300K/yr by eliminating warehousing and secondary distribution costs. We monitor customer satisfaction with all of our IntraMart vendors and hold quarterly meetings to review results and improve performance. An example of customer satisfaction results from our office products vendor is shown in figure 7-4-c (the scale of the survey ranged from 1 = Not at all satisfied to 5 = Delighted).

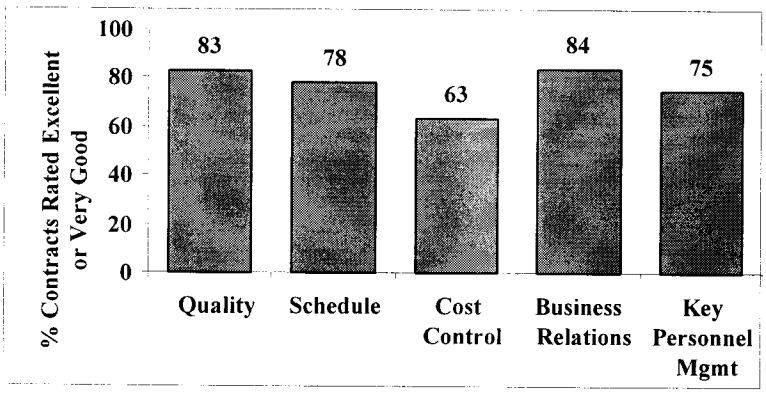


Figure 7-4-a. Top 10 Suppliers' Performance FY98-99

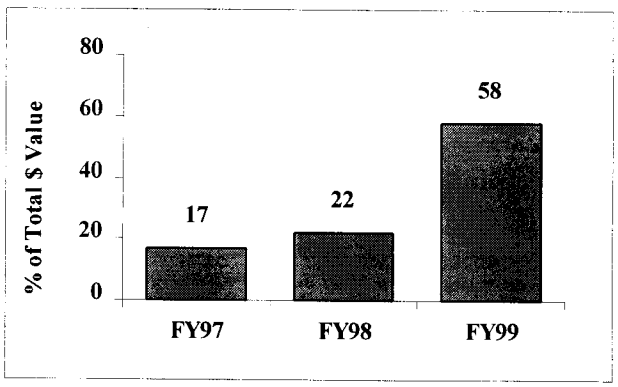


Figure 7-4-b. Paper Products with Recycled Content

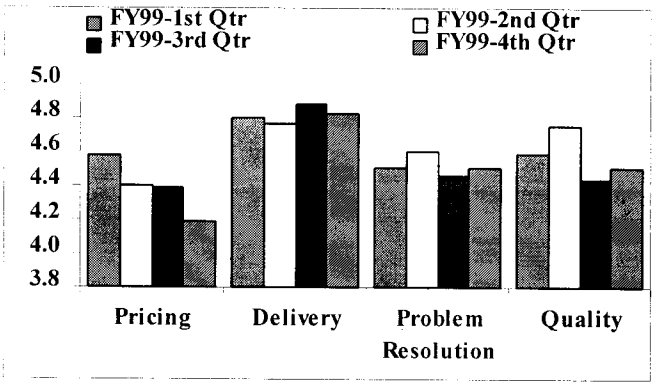


Figure 7-4-c. IntraMart Customer Feedback–Office Products

Bankcard usage has increased steadily since the Division implemented the program in FY95. The number of bankcard holders has increased steadily from 110 in FY96 to 371 in FY99. The percentage of under-$2500 purchases made with the bankcard has increased from 89% in FY97 to over 99% in FY99. Savings from the bankcard program were approximately $650K in FY99 ($400K in labor; $250K in reduced invoicing charges from the Defense Finance Accounting Service (DFAS). Bankcard Online and our IntraMart have been major enablers of this success. In FY97, we implemented a web site to make business opportunity data available to suppliers. In November 1998, we discontinued all paper distribution of solicitations, reducing the cycle time for distribution and mailing from 5-7 days to less than 1 day. The FY99 cost savings from this initiative was $69,000. Conversion to paperless distribution of all of our contract award documents is well underway and will save an additional $89,000 in FY01.

7.5 Organizational Effectiveness Results

Section 4.2.a(3) discusses the tools the Division uses to measure our performance and organizational effectiveness. In this section, we present a sample of the results of our key processes: technical design and delivery processes (defined in section 6.1) and the measures used by the Division to assess and guide improvements in organizational effectiveness. The top-level metrics supporting assessment of progress toward strategic goal attainment, which are Division level measures or measures that can be aggregated across the Division, are included on our BSC. There is a larger set of measures, however, that are most relevant when assessed at the department or project levels, due to the complexity and diverse nature of the full spectrum USW responsibilities executed by the Division. Assessment of these measures is conducted through our QPR and Project Review processes. Customer and stakeholder input to these department and project level measures is acquired through formal program reviews conducted by the external program manager and weekly to monthly program status reporting by the Division's project leader to the external customer.

Table 7-5-a presents results of Division performance on five of the Division's key technical programs that are critically important to our customers, to the Navy, and to our nation's security. Results are reviewed quarterly for all major programs during the QPR meetings, led by the CO and ED. Resolution actions are formulated and assigned during the meetings. The presentation and review of technical programs in customer-mandated performance areas communicate the results of significant program management and oversight/measurement/assessment activity.

Table 7-5-a. Illustration of QPR Roll Call Results for Selected Key Technical Programs

Program	Technical agent responsi-bilities (e.g., TDA, ISEA, etc.)	Life Cycle Phase	Adequately funded to execute responsi-bilities			On track with schedule			Within cost			Customer relationships			Technical authority being executed ***		
			1Q	2Q	3Q	1Q	2Q	3Q	1Q	2Q	3Q	1Q	2Q	3Q	1Q	2Q	3Q
Acoustic Rapid COTS Insertion (ARCI)	TDA, ISEA	Acquisition /ISE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
AN/BSY-2, AN/BQG-5 Sub. Combat System	TDA	Acquisition /ISE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
CCS MK2	TDA, ISEA	Acquisition /ISE	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Towed ISE	TDA, ISEA	ISE	Y	Y	Y	G	G	Y	G	G	Y	G	G	G	G	G	Y
Sonar System Tech Base	N/A	S&T	*	G	G	*	G	G	*	G	G	*	G	G	**	**	**

* Not reported ** Does not apply *** IAW NAVSEA Instruction 5400.57B (FY00 data)
(TDA = Technical Direction Agent; ISE/ISEA = In Service Engineering / Agent; S&T = Science and Technology)
G/Y = *green/yellow* BSC assessments as described in section 4.1.a(1) Q = FY quarter

The BSC, used as a strategic management tool, is a system of inter-related measures used to assess, understand, and guide continuing improvements in organizational performance and effectiveness. The causal linkage of the individual measures augments leadership's ability to develop and assess strategic initiatives developed in response to the results analysis. The "plan-do-check-act" process used ensures forward progress toward achieving our strategic goals. When viewed at the Division level, the FY99 scorecard (table 7-5-b) indicates overall performance close to established targets. The BSC allows us to gauge success in "running the business" strategic dimension. Discussion of the results is presented below.

The BSC is the primary performance measurement tool for assessing overall organizational effectiveness and for assessing progress toward the Division's strategic goals. It is complemented by the technical and project assessment process described above. The technical assessment process allows us to gauge tactical, immediate performance, and to make process improvements to improve overall performance, which is ultimately reflected in customer satisfaction results on the BSC.

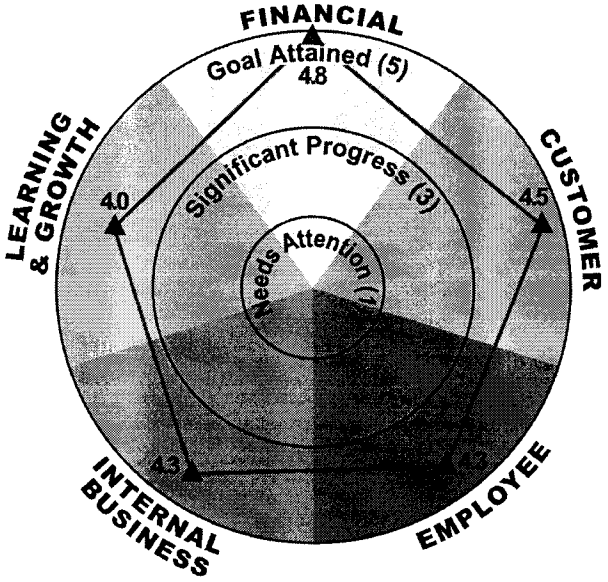


Figure 7-5-a. BSC Perspective Results – FY99

A perspective-level summary of BSC results is depicted in the polar plot in figure 7-5-a. In that plot all of the measures in each perspective have been normalized and synthesized to product a single value to facilitate presentation and interpretation of the overall results. Similar plots are used for individual perspectives to show the performance of their respective measures. Scores assigned are relative to the BSC targets listed in table 4-1. The outer ring equates to a score of 5 and signifies that the target has been attained; the middle ring equates to a score of 3 and indicates there has been measurable progress toward the target; and the inner ring equates to a score of 1 and signifies that the measure needs attention. The 5-3-1 scoring system equates to the *green/yellow/red* assessment process discussed in section 4.1.(a)1. The scores for all 37 measures in our FY99 BSC, organized by perspective, are presented in table 7-5-b.

Table 7-5-b. FY99 BSC Performance Results

MEASURE	SCORE	MEASURE	SCORE
Financial Perspective		*Internal Business Perspective*	
NOR ($M)	5	6.1 & 6.2 RDT&E funds on board (% to total direct funding) ($M 6.1&6.2 RDT&E FOB)	5
DWY/TWY %	4	6.3 & 6.4 RDT&E funds on board (% to total direct funding) ($M 6.2 &6.3 RDT&E FOB)	1
$K/DWY	5	Infrastructure cost (% to direct $)	5
Total leverage ratio	5	Technical ops (cost savings (%))	5
Customer Perspective		No. post-delivery priority 1 PTRs (cum)	5
Customer survey satisfaction index	5	No. technical processes under process management	3
Number of new customers	5	Extent accessibility to IT tools (%)	5
Customer retention index (%)	5	Post-acquisition involvement (%) (IH RDT&E WY	5
Customer survey - Relative to similar activities	3	*Learning and Growth Perspective*	
Employee Perspective		Customer survey - Team player index	3
Recruiting metric	4	EOS - Teaming index	5
EOS satisfaction index	5	No. invention disclosures (cum; (no. per S&E))	5
Retention rate	5	Total waivers submitted (cum over yrs (annual cum)	4
Non-mandatory training hrs/person	5	Non-mandatory training hrs/person	5
EOS - QOWL index	5	Special focus training programs - no. participants (% per OBC)	5
Trend - Safety deficiencies	2	% of employees with Ph.D.	2
Trend - Environmental findings	5	% of employees with Masters	5
EOS - Leadership index	5	EPAs and CRADAs	4
Supervisory feedback process	5	MOAs	4
EOS - Recognition index	2	Workshop/symposia days	2

Hazardous waste (HW) disposal has been tracked since 1992 and solid waste (SW) recycled since 1996 as part of our environmental program. The box to the right shows the quantity of Federal and state regulated waste disposed or recycled. The proportion of HW to SW recycled is an indication of the success of our program. The CY99 increase in HW disposed resulted from the reactivation of a major facility that had been off-line for three years. Our HW disposal goal was to reduce waste shipped off-site by 50%, using CY92 as the baseline, by the end of CY99. Our SW goal has been to maintain a rate greater than 40% for recycled material diverted to total non-hazardous SW disposed. These goals have been met.

(pounds)	Hazardous Waste Disposed	Solid Waste Recycled
CY92	290,585	
CY93	158,867	
CY94	140,784	
CY 95	42,862	
CY 96	28,095	479,000
CY 97	20,831	579,000
CY 98	21,160	1,418,000
CY 99	33,543	1,333,000

The number of invention disclosures is an important metric for the BSC Learning and Growth perspective. The target is to have more than 0.087 invention disclosures per S&E employee. The number of invention disclosures has increased despite the drop in the S&E population (from 2132 in FY96 to 1881 in FY99). As shown in figure 7-5-b, the number of invention disclosures increased by 16.5% in FY99 and exceeded our target.

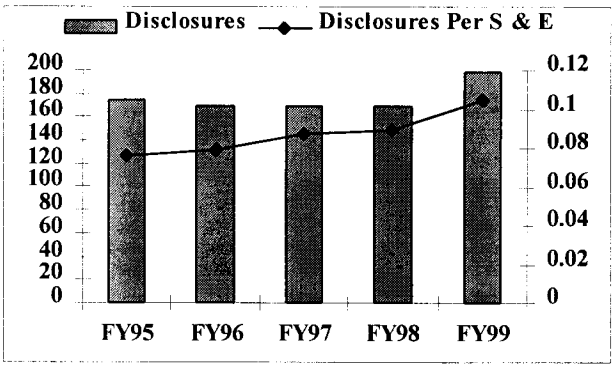


Figure 7-5-b. Number of Invention Disclosures

Today's dynamic and highly competitive environment has led to a greater focus on our partnering initiatives; tools used include EPAs and CRADAs. The number of EPAs and CRADAs established from FY97 to FY99 and those still active, as shown in the box to the right, demonstrates significant progress in this area. The FY99 target is to maintain the number of EPAs and CRADAs from the previous year. MOAs are another link in the partnering chain. We have seven active MOAs, and have met our target in this area.

	EPAs and CRADAs				
	FY91-96	FY97	FY98	FY99	Active
EPAs	2	4	2	1	9
CRADAs	24	8	7	11	20

The workshops/symposia attendance BSC metric documents employee involvement in workshops and symposia, which provide employees with unique opportunities to scan the latest developments in their technical fields. The box above presents the data for the past five years. The target is to increase participation in workshops and symposia. We did not meet the target in FY99, largely because an Acoustic Superiority Workshop, which is usually attended by many Division employees, was not held in FY99 This three-day workshop was held in April 2000 and 140 employees attended.

	Workshop / Symposia Days				
	FY95	FY96	FY97	FY98	FY99
Workshop	452	334	232	293	234
Symposia	2162	2685	3085	3032	2898
Total	2614	3019	3317	3325	3132

Through cost-cutting initiatives and innovation in business processes, the Division has been successful in reducing its overhead infrastructure costs. The FY99 target was to have infrastructure costs of less than $53M; as shown in figure 7-5-c, that target was met.

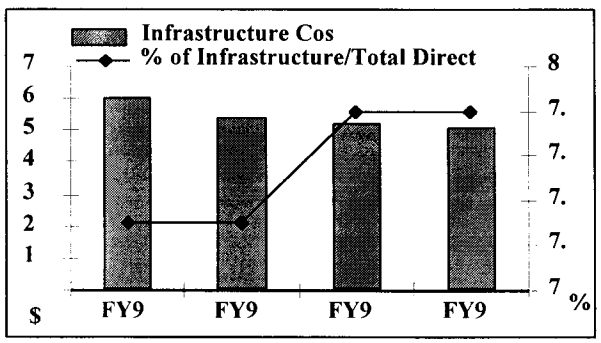


Figure 7-5-c. Technical Operations Cost

Technical Cost Reduction allows the Division to sustain support to the customer with reduced tasking dollars (i.e., doing the same for less). After researching industry best in practice, the Division established 4% as its target, using Motorola's 4% target as the benchmark. Our success in this area is shown in the to the right.

Technical Operations Cost Reduction		
	FY98	FY99
Target	4%	4%
Actual	6.6%	16.8%

The Division's emphasis on improving its technical process has resulted in a substantial decrease in the number of post-delivery Priority 1 PTRs from the Fleet as shown in the box to the right. The FY99 BSC target of ≤8 was achieved. The technical process improvements were focused on testing prior to product release, which was identified as a requirement in the Division's 5000.7 initiative.

	FY97	FY98	FY99
Priority 1 PTRs	10	3	1

Organizational efficiency has improved by increasing employee accessibility to IT tools. The Extent Accessibility to IT tools BSC measure increased from 82% in FY96 to 98% in FY98 and that number was sustained in FY99. By providing IT accessibility to employees, the Division has made extensive use of the Intranet, Travel Order Processing System, EBIS, and the Mail Room Imaging System. This has contributed significantly to our cost reduction successes discussed above.

The three measures that are indicators of the Division's full-cycle involvement are based on the type of funding and tasking received. The percentage of RDT&E funding (referred to as 6.1 and 6.2 in our tracking system) is a measure of our involvement in the front end of the life cycle. The FY99 target was to have RDT&E funding comprise ≥4.3% of total direct funding. As shown in figure 7-5-d, we exceeded the target. The percentage of 6.3 and 6.4 funding is a measure of our involvement in advanced system development and Advanced Technology Demonstrations (ATDs). The FY99 target was to have at least 10.9% of our funding come from 6.3 and 6.4 funds (see figure 7-5-e). As a result of not meeting this goal in FY99, product line managers have focused new business development in this area and presented initiatives to address it in their annual 5-Year Plans.

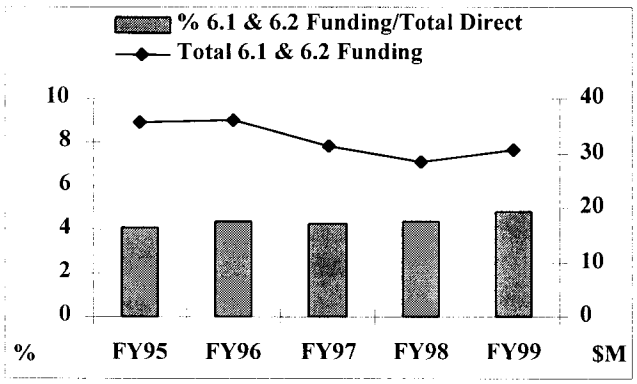


Figure 7-5-d. % 6.1 & 6.2 RDT&E Funding to Total Direct Funding

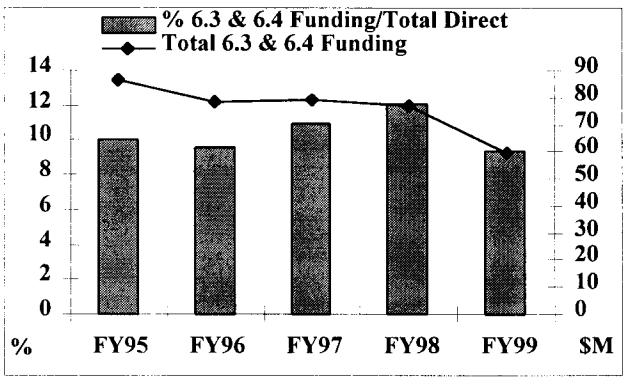


Figure 7-5-e. % 6.3 & 6.4 RDT&E Funding to Total Direct Funding

While business base trends show an overall decline, there has been a slight increase in the S&T area. This is consistent with the internal emphasis on innovation and new concept development to meet the needs of the Navy-After-Next.

Figure 7-5-f measures our post-acquisition involvement. The FY99 target was 56.4%.

Business Unit Examples

All Division units have measures to continually monitor their organizational efficiencies at their operation levels. Seven examples are provided:

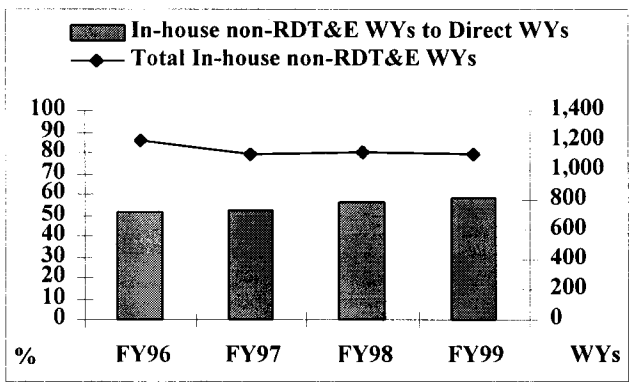


Figure 7-5-f. % Post-Acquisition Involvement

(a) Technical Assistance Visits, (b) Contracting Activity, (c) Transducer In-Service Engineering Program, (d) Wide Area Integration Facility (WAIF), (e) AN/BSY-2 Submarine Combat System TECHEVAL, (f) Acoustic Rapid COTS Insertion (ARCI) Program, and (g) Common Problem Reporting System (CPRS). The business unit measures contribute both directly and indirectly to the Division-level BSC perspective objectives and measures. For example, the Transducer In-Service Engineering and Contracting Activity contribute directly to both the Internal Business perspective and the Reduce the Cost of Doing Business goal.

Example A. Technical Assistance Visits

The heavyweight torpedo in-service engineering agent program surveys Fleet trainees to obtain customer feedback on the effectiveness of each technical assistance visit. Our results have been consistently "above average" to "excellent." When the results of these surveys show that IMA personnel do not feel they have provided above average training, further investigation is conducted and applicable corrective action is taken. To verify that the resources used to support technical assistance are being used effectively, the number of courses taught, number of students and supervisors in each course, and average attendance are monitored. The goal is to teach a minimum of five courses per visit, with a supervisor attending each course. Attendance is also monitored to verify participation. We consistently exceed our goal of 85% attendance; for the last three cycles results exceeded 95%.

Example B. Contracting Organization Business Unit

As discussed in section 6.2, most of our support processes are under process management. An example is the Commercial Acquisition Department contracting process. The metrics used include measures of cost, timeliness, and quality. Results are shown in the box to the right. Quality is measured using a composite error rate based on checking areas in a sampling of all contracts awarded. Customer satisfaction is measured with a survey.

Measure	FY97	FY98	FY99
Cost/Action	$25.3K	$24.8K	$21.5K
Timeliness	150 days	150 days	142 days
Quality (Error Rate)	1.05%	.64%	.59%
Customer Satisfaction*	4.09	4.19	4.28
**Scale: 5 = Delighted; 1 = Not at All Satisfied*			

Example C. Transducer In-Service Engineering Program

Process improvement initiatives have resulted in significant cost savings. An example of this is the Transducer In-Service Engineering Program, which has shown much improvement since 1991. A process improvement was implemented in FY94 requiring validation of every requisition for an acoustic sensor. This aggressive policy of requiring test data to validate that a new component is required resulted in a reduced number of non-faulty item replacements. This reduction directly relates to the cost of restoration, hardware replacement, and the need for technical support. The cost savings that have resulted are shown in figure 7-5-g.

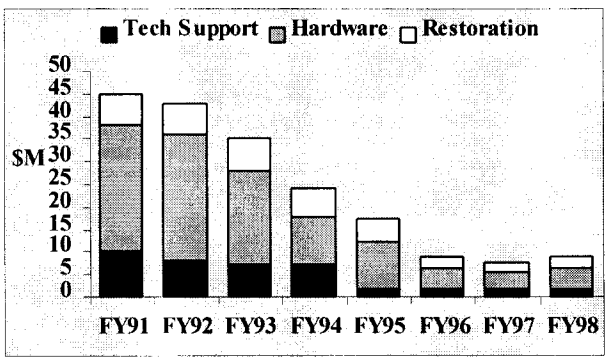


Figure 7-5-g. Transducer Program Total Ownership Cost (TOC) Reduction as a result of Cost Saving Initiatives

Example D. Wide Area Integration Facility (WAIF)

The Wide Area Integration Facility (WAIF) comprises a set of hardware and software that serves as the fabric that connects Virginia class submarine nonpropulsion electronics system (NPES) development sites to form a virtual development and test facility. The lack of funding for a traditional land-based integration and test site drove the decision to implement and operate the WAIF to manage the integration risk. The Division conceived the WAIF and developed a program of early and incremental

integration. It is projected that cost avoidance derived from the WAIF associated with major interface or system requirements problems will be $37.2M. An additional $13.7M cost avoidance derived from early detection and correction of minor interface and requirements problems is also projected. Thus, process innovation in the area of system integration and test will yield a $50.9M cost avoidance from an investment of $13.6M in WAIF, a ROI of 3.73.

Example E. AN/BSY-2 Submarine Combat System TECHEVAL

The AN/BSY-1 TECHEVAL took 110 days, and observations from ship's force noted that there seemed to be a number of events done by independent organizations that could have been done together. A process was initiated that set up an Integrated Product Team (IPT) composed of members from the BSY-2 TECHEVAL, Weapon System Accuracy Trials (WSAT), Launcher Trials, and Acoustic Trials teams.

Table 7-5-c. AN/BSY-2 Submarine Combat System TECHEVAL Cost Savings

Test Activity	Schedule Savings	Cost Savings
On-Range		
Acoustic Trials	6 days	$300K
Pre-PSA WSAT	6 days	$209K
Post-PSA WSAT	4 days	$70K
TECHEVAL/WSAT	7 days	$858K
Other Tests		
DT/OT Tomahawk		$7,000K
Arctic & Minefield		$300K
BSY-2 TECHEVAL	80 days	$1,675K
Range Data Reconstruction		$400K
Total Savings		**$10,812K**

The IPT worked to achieve agreement on sharing resources during their respective test periods and to allow one or more test forms to be signed off, which led to the shortening of the entire SEAWOLF Test Program and significant cost savings that is shown in table 7-5-c.

Example F. Acoustic Rapid COTS Insertion (ARCI) Program

Acoustic submarine superiority has been identified as the number one modernization initiative priority. The Acoustic-Rapid Commercial-Off-The-Shelf (COTS) Insertion (ARCI) Team reinvented the way the U.S. Navy, academia, industry, small business and government laboratories collaborated to develop and field systems for the U.S. submarine fleet. The ARCI team, with its associated Advanced Processing Builds, has used peer review teams and modern commercial information technology to break down the traditional stove-piped programs and the impediments to rapid developments. Advanced Development and Implementation in MILSPEC tactical systems previously took five to ten years using the traditional approach between, but can now be completed in just 18 to 36 months with ARCI.

Example G. Common Problem Reporting System (CPRS)

The CPRS has consolidated myriad program, subsystem-specific paper-based reporting systems into a single collection system, the Submarine Data Collection Module (SDCM). The SDCM connected via the Internet to a single CPRS data base/web site for analysis by the technical communities and response to the fleet. CPRS is the embodiment of IT 21 principles and exploits the use of COTS software that ensures easy access and interoperability for all users. The CPRS provides common problem and fix information to program managers, Navy laboratories, the Fleet (platforms, squadrons, and commands), and support contractors. This consolidation has resulted in higher quality and more timely information. It has reduced the number of problem reporting systems by over 90% and has reduced the staffing resources to operate and service them by over 80%.

Table 7-5-d. Hammer Awards

- AN/SQS-53 Surface Ship Sonar Program (1995)
- Classified Material Destruction Process Action Team (1996)
- Travel Process Action Team (1996)
- Submarine Combat System (SCS) Integrated Development Plan (IDP) Team (1997)
- Miniature/Micro-miniature Model Test and Repair (2M/MTR) Team (1998)
- Acoustic Rapid COTS Insertion (ARCI) Program Team (1999)

Hammer Awards

The Hammer Awards listed in table 7-5-d have recognized Division Newport process improvement results.

GLOSSARY

2M/MTR	Miniature/Microminiature Model Test and Repair
AEA	Acquisition Engineering Agent
AEP	Affirmative Employment Plan
ARCI	Acoustic Rapid COTS Insertion
ASN	Assistant Secretary of the Navy
ASW	Antisubmarine Warfare
ATD	Advanced Technology Demonstration
AUTEC	Atlantic Undersea Test and Evaluation Center
BAA	Broad Agency Announcement
BPR	Business Process Reengineering
BRAC	Base Realignment and Closure
BRD	Business Resource Directorate (Code 50)
BSC	Balanced Scorecard
CCI	Command Capabilities Issues
CCTV	Close Circuit Television
CFC	Combined Federal Campaign
CO	NUWC Division Newport Commander (Code 00)
COR	Contracting Officer's Representative
COTS	Commercial off-the-Shelf
CPARS	Contractor Performance Assessment Reporting System
CPP	Capital Purchase Plan
CPRS	Common Problem Reporting System
CQM	Center for Quality of Management
CRADA	Cooperative Research and Development Agreement
CSD	Corporate Strategy Development
CSLT	Customer Satisfaction and Loyalty Team
CSO	NUWC Division Newport Chief Staff Officer
DA	Design Agent
DARPA	Defense Advanced Research Projects Agency
DCAA	Defense Contract Audit Agency
DCMC	Defense Contract Management Command
DCST	Diversity and Cultural Sensitivity Team
DEMO	Personnel Demonstration Project
DFAS	Defense Finance Accounting Service
DoD	Department of Defense
DoN	Department of the Navy
DWY	Direct Workyear
EBIS	Executive Business Information System
ECP	Engineering Change Proposal
eCraft	Electronic contract cost reporting and financial tracking system
ED	NUWC Division Newport Executive Director (Code 01)
EEP	Executive Education Program
EMS	Environmental Management System
EOS	Employee Opinion Survey
EPA	Educational Partnership Agreement
ERP	Enterprise Resource Planning
FECA	Federal Employee Compensation Act

FFRDC	Federally Funded Research and Development Center
FIMAT	Fleet Installation Management Action Team
FIRST	For Inspiration and Recognition of Science and Technology (an outreach program)
FNC	Future Naval Capabilities
FOB	Funds on Board
FUSE	Federal Union of Scientists and Engineers (a Division Newport union)
GAO	Government Accounting Office
HR	Human Resource (office or staff)
IDP	Individual Development Plan; Integrated Development Plan
IDWY	Indirect Workyear
IntraMart	Online system for ordering of supplies and equipment
Intranet	Division Newport internal network
IPPD	Integrated Product and Process Development
IPT	Integrated Product Team
ISE	In-Service Engineering
ISO	International Organization for Standardization
ISR	International Survey Research
IT	Information Technology
IV&V	Independent Verification and Validation
MIT	Massachusetts Institute of Technology
MNS	Mission Needs Statement
MOA	Memorandum of Agreement
NAGE	National Association of Government Employees (a Division Newport union)
NAVAIR	Naval Air Systems Command
NAVCOMP	Comptroller of the Navy
NAVFAC	Naval Facilities Engineering Command
NAVSEA	Naval Sea Systems Command
NCIS	Naval Criminal Investigative Service
NOR	Net Operating Result
NPRG	National Partnership for Reinventing Government
NUWC	Naval Undersea Warfare Center
NUWSCOPE	NUWC Division Newport Newspaper
NWC	Naval War College
NWCF	Navy Working Capital Fund
ONI	Office of Naval Intelligence
ONR	Office of Naval Research
OPEVAL	Operational Evaluation
ORD	Ordnance Requirements Document
ORDALT	Ordnance Alteration
OSD	Office of the Secretary of Defense
PAT	Process Action Team
PEO	Program Executive Officer
PI	Principal Investigator
PMA	Personnel Management Advisor
POA&M	Plan of Action and Milestones
POM	Program Objective Memorandum
PQMI	Process Quality Management and Improvement
PTR	Program Trouble Report
QOWL	Quality of Work Life

QPR	Quarterly Performance Review
QSI	Quality Step Increase
R&A	Responsiveness and Attitude
R&D	Research and Development
RCI	Rapid COTS Insertion
RD&A	Research, Development, and Acquisition
RDT&E	Research, Development, Test and Evaluation
S&E	Scientist and Engineer; Science and Engineering
S&T	Science and Technology
SBIR	Small Business Innovation Research
SCC	Service Cost Center
SCS	Submarine Combat System
SECNAV	Secretary of the Navy
SEI-CMM	Software Engineering Institute Capability Maturity Model
SES	Senior Executive Service
SIA	System Integration Agent
SIP	Separation Incentive Pay
SIPRNET	Secret Internet Protocol Router Network (classified e-mail system)
SMA	Senior Management Access
SMIC	Strategic Management Information Center
SPAWAR	Space and Naval Warfare Systems Command
SPFS	Supervisory Performance Feedback Survey
SSN-21	Ship, Submarine, Nuclear, 21st Century (nuclear attack submarine class)
SUBLANT	Submarine Forces, Atlantic
SUBPAC	Submarine Forces, Pacific
TDA	Technical Direction Agent
TEMP	Test and Evaluation Master Plan
TIMES^2	To Improve Mathematics Education and Science Studies (an outreach program)
TMI/A	Top Management Issues/Attention
TOC	Total Ownership Cost
TSP	Training Strategy Plan
TTCP	The Technical Cooperation Program
TWY	Total Workyears
UARC	University Affiliated Research Center
URI	University of Rhode Island
USW	Undersea Warfare
UUV	Unmanned Undersea Vehicle
VERA	Voluntary Early Retirement Authority
VTC	Video Teleconferencing Center
WAIF	Wide Area Integration Facility
WFPP	Work for Private Parties
WSAT	Weapon System Accuracy Trials
WY	Workyear