

ONR Presents...

Exploitation & Deployment...



Future Naval Capabilities— Sustaining Technologies for the Next Navy and Marine Corps

In 1999 the Department of the Navy adopted a new process for concentrating its scientific and technological resources to achieve Future Naval Capabilities (FNCs). Since then much of the Navy's and Marine Corps' nearer-term, applied science and technology effort—its Exploitation and Deployment program—has been devoted to providing the means to achieve the Future Naval Capabilities.

A Department of the Navy Science and Technology Corporate Board, a high-level body composed of the Vice Chief of Naval Operations, the Assistant Commandant of the Marine Corps, and the Assistant Secretary of the Navy for Research, Development, and Acquisition, approves and prioritizes Future Naval Capabilities.

Each FNC is directed by an integrated product team (IPT) that brings the perspectives of all the stakeholders to bear: Requirements, Acquisition, Science and Technology, Resource Sponsor, and above all, the Operating Forces.

Currently Approved Future Naval Capabilities:

In May 2001, the Department of the Navy Science and Technology Corporate Board adjusted its investment portfolio to include these twelve Future Naval Capabilities:

- **Autonomous Operations.** Advances in robotic systems will enhance the capability of all Naval forces. Technologies under development will increase the autonomy, performance, and affordability of unmanned air, sea, land, and underwater vehicles.
- **Capable Manpower.** Sailors and Marines must be fully prepared to fight and win in an information rich, distributed battle-space. We can give them the edge by giving them affordable human-centered hardware and systems developed out of a thorough knowledge of human capabilities, limitations, and needs—including the capabilities, limitations and needs of each individual Sailor or Marine.
- **Electric Warships and Combat Vehicles.** Future warships and combat vehicles will be driven by efficient, powerful, electric power plants. Today, we install dedicated propulsion plants that deliver power for top speed, but use it only a fraction of the time. Electric technologies will unlock this power for other uses. The electrical revolution will permit us to use new hullforms and propulsors; it will eliminate hard-to-maintain hydraulic, pneumatic, and steam systems. It will let us reduce manning and streamline logistics. It will give our vessels and vehicles unprecedented survivability. And it will open the way to novel weapons and sensors.



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- **Knowledge Superiority and Assurance.** The Navy and Marine Corps will develop the capability to distribute information in a dynamically managed, interoperable network that features high capacity connectivity and enterprise-wide integrated information. It's also vital that commanders be able to get inside an adversary's decision cycle when they share common, consistent knowledge, can plan and rehearse in a distributed, collaborative way, and can make sound decisions faster than their opponents can. Decision support technologies can take up the burden of routine information processing and free human beings to use their judgment and insight.

- **Littoral Antisubmarine Warfare.** Submarines—particularly small, quiet, conventional boats—pose a severe asymmetric threat to Naval forces operating near the shore. Work is underway to enable our forces to detect, classify, localize, track and engage these threats before they can get close enough to do us harm.

- **Littoral Combat and Power Projection.** Navy and Marine Corps doctrine emphasizes expeditionary warfare, and expeditionary warfare requires uniquely capable combat systems and the logistics to sustain them. We need to develop the capability of deploying, reconstituting, and supplying our forces from the sea, without building up a large logistical infrastructure ashore. We need combat and combat support systems that will enable the Navy and Marine Corps team to dominate the battlespace across the spectrum of conflict.

- **Missile Defense.** Not only Naval forces, but any unit, group, asset, or population can expect to come under the threat of widely proliferating ballistic and cruise missiles. Naval forces can provide a missile defense by developing 360 degree protection, overland surveillance and fire control capability, a

single integrated air picture, composite combat identification, distributed weapons control, and overland intercept capability.

- **Organic Mine Countermeasures.** Sailors and Marines need to be able to clear mines from their operating areas—at sea, on the shore, and inland—without breaking stride. Organic mine countermeasures—the ability to detect, characterize, and neutralize mines using a unit's own assets—are vital to the Navy and Marine Corps' doctrine Forward...From the Sea and Operational Maneuver from the Sea.

- **Platform Protection.** Naval platforms—ships, aircraft, and other vehicles—face worldwide proliferation of low cost, highly effective anti-platform weapons and other asymmetric threats. We can expect to encounter these in large numbers and great diversity in our future operations, and so our platforms need effective organic means of protection: weapons, sensors, countermeasures, stealth, and damage control.

- **Time Critical Strike.** Battles are fought in four dimensions, not just three. Being able to hit the right target at the right time will give Naval forces the winning advantage in the new century.

- **Total Ownership Cost Reduction.** The most advanced system is no good to you if you can't afford to buy and operate it. This effort is designed to reduce maintenance, reduce manning, advance design and manufacturing processes, ensure environmental compliance, and give the Naval forces reliable cost estimating tools.

- **Warfighter Protection.** When we send Sailors and Marines into harm's way, we owe them the best possible combat casualty prevention, care, and management. We also owe it to them to keep them as healthy and fit as possible.

