Executive Summary

The United States Navy and Marine Corps, tasked with providing forward maritime presence and the capability to respond rapidly to contingencies and crises worldwide, now confront complex new challenges in carrying out those missions. Continuing evolution in the geopolitical alignments in the Middle East, Southwest Asia, and the Pacific Rim; and the long-term global war on terror are accompanied by the proliferation of advanced weapon systems available to potentially hostile states and non-state terrorist organizations.

At home the sea services face severe budget constraints, debate over the scope of defense "transformation," and such complex problems as the erosion of the U.S. technology base and the decline in the size of the U.S. science and technology workforce.

As the Navy and Marine Corps look toward the global scenarios of 2015 through 2020, they face a rapidly and dramatically changing threat, hence there is a pressing need to develop and field new weapons, sensors, command and control, and information management systems that incorporate advanced technology. These technologies are largely based on breakthroughs by commercial technology enterprises. The move to Commercial-Off-The-Shelf (COTS) technology brings new challenges in logistics support, training, reliability, maintainability, and possible vulnerabilities. Also, COTS hardware and software can be readily available to potential enemies.

The lack of an established long-term planning process for identifying and exploiting new S&T has limited the effectiveness of the Navy's efforts to incorporate new technologies in the systems that will be needed in the 2015-2020 timeframe.

To meet the coming challenges and address the current shortcomings, the NRAC study team urges the Assistant Secretary of the Navy for Research, Development and Acquisition (ASN (RDA)) to develop a long-term S&T planning process to identify gaps and to support the development of new Navy and Marine Corps capabilities. The Panel recommends the establishment of a long-term S&T workforce plan to reverse the "brain drain" faced by the Navy research establishment. It recommends that the ASN(RDA) and Navy acquisition officials find solutions to the growing costs of new systems and platforms through a variety of concepts that should be applied to future ship design on an integrated basis. Finally, the Panel recommends that the Navy establish a task force to identify the value and vulnerabilities of COTS and solve the problems of inserting new commercially developed technology in mission-critical Navy systems.