

Terms of Reference

Navy S&T in FORCEnet

Objective

To define the concepts and science and technology (S&T) initiatives, including those in the space, atmospheric, surface and subsurface environments, required to achieve the visions of FORCEnet and Sea Power 21.

Background

The role of the Navy in joint warfighting has been further clarified and defined in the Chief of Naval Operation's Sea Power 21 document. FORCEnet is the key enabler for Sea Power 21, which ties together the fundamental capabilities of Sea Shield, Sea Strike and Sea Basing. In order for FORCEnet to meet the challenges of the future, communications capacity must be greatly expanded, sensor accuracy must be increased, and delivery timelines must be shortened through automation and improved decision making. It is critical that Navy's S&T be clearly defined in all areas including the National Security Space (NSS) arena to assure their requirements are met. Leveraging advanced S&T will be critical and should involve all Service assets, including the Naval Research Laboratory.

Some of the important technical issues for FORCEnet include:

- Communications; dynamic bandwidth management (i.e., bandwidth on demand with no restrictions), gigabit per second data transfers, assured IP, user addressing, and the total communications system (within FORCEnet) including the utilization and integration of both internal and external systems, and the transition from legacy to the future Transformational Communications Architecture.
- Battlespace Characterization; enabling the "4D Cube," global and continuous monitoring of Meteorological and Oceanographic (METOC) conditions, and deployed sensor data retrieval.
- Intelligence, Surveillance, and Reconnaissance (ISR); persistent ISR, sensor netting, and fused sensor data in real time.
- Position, Navigation, and Timing (PNT); time transfer and synchronization, transition to electronic charting, and an alternative to GPS.
- Space Control; new technologies in the function areas of prevention (i.e., preventing others from using our space assets), protection (i.e., protecting our space assets from man-made and naturally occurring effects), negation (negating other's satellites through denial, deception, degradation, and destruction), and the surveillance of space.

Specific Tasking

It is not practical to study all these FORCEnet issues simultaneously. The first step is to clearly define the Department of the Navy's current S&T supporting FORCEnet, including space sensors and capabilities, and identify the most critical areas for future Navy investment. The NRAC will conduct a study to identify which S&T initiatives are required and the additional options for how Navy's S&T capabilities should be leveraged to meet Naval requirements of FORCEnet. This will include, but not be limited to:

- Benchmark current S&T in support of FORCEnet.
- Identify the S&T required to enable and optimize FORCEnet and the Navy's ability to use National Security Space.
- Provide a roadmap (with candidate performers) to ensure accomplishment of the S&T goals.