

At a Glance

What is it?

■ The Command Decision Making Program is collection of efforts aimed at developing guidance and engineering tools for human-system interaction that are compatible with human cognitive and physical capabilities.

How does it work?

■ The program is centered on cognitive, science-based tools, models and computational models; design methodologies and tools for command decision making; optimized user interaction for improved operator performance; intuitive displays for undertain information; and design for realistic combat conditions.

What will it accomplish?

■ Command decision making tools will enhance the performance of warfighters and improve overall system capability and affordability. This includes user-centered design guidance for systems and team-oriented design of human systems.

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The Office of Naval Research (ONR) Command Decision Making Program concentrates on the development of models—including cognitive architectures, adaptive command and control architectures, and engineering models—to create human system design standards, human system decision support and new interface technology.



The program has successfully completed task-centered design guidance for manpower reduction and reduced errors, cognitive architectures for human performance prediction and modeling for the design of cognitively compatible systems to improve performance; the development of 3D audio for improved spatial awareness and cueing; and human-centric 360 degree imaging systems for improved situational awareness in cluttered littoral environments.

Transitions include a knowledge wall incorporated into collaboration at sea; a tool for maritime operations center pre-accreditation, currently in use the United States Fleet Forces Command; multimodal workstation decision support system to Raytheon and Lockheed Martin Corporation; and theater-level course of action analysis decision support system for Anti-Submarine Warfare Operations – 7th Fleet (IMAT).

Research Challenges and Opportunities:

- Cognitive science-based models of human performance, including social and machine interaction
- Decision-making support and information displays
- Optimization for scalable and adaptive command and control architecture
- Course of action and risk analysis under uncertainty, especially meteorological and oceanographic