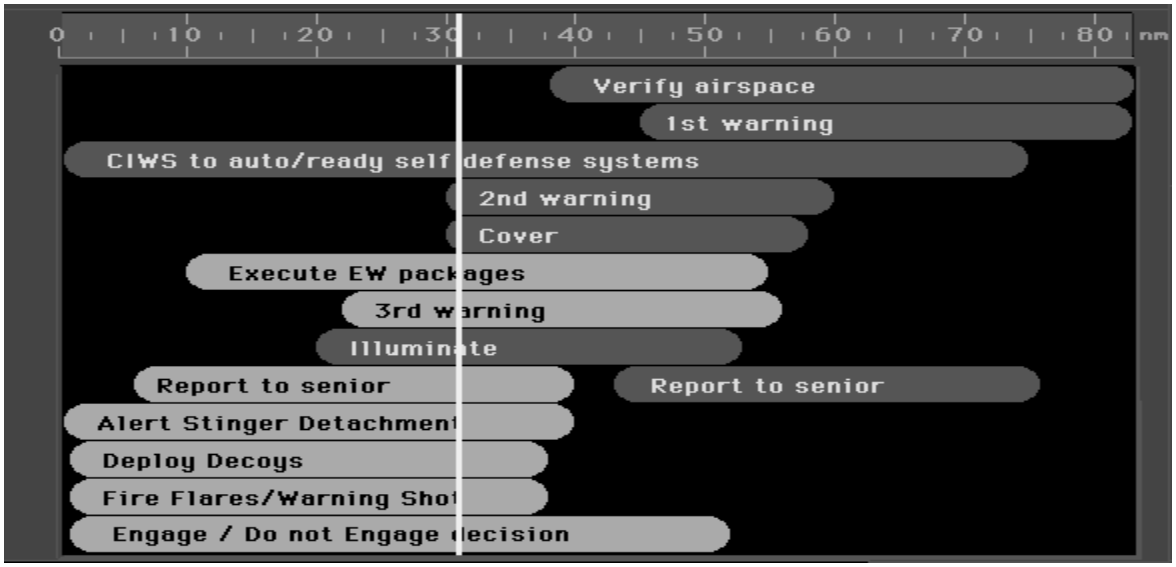
Response Manager



Introduction: The objective of the *Response Planner and Manager* (RPM) project is to design and develop a graphical decision support tool to assist ship Commanding Officers (COs) and Tactical Action Officers (TAOs) in the complex and demanding tasks associated with track and resource management. One of the primary products of the RPM project is a display module within the *Tactical Decision Making Under Stress* (TADMUS) project's Decision Support System (DSS) display.

The Office of Naval Research (ONR) sponsors the RPM project at the 6.2-level (i.e., Applied Research). Unlike many 6.2-level research programs, the RPM project was begun in late 1996 as a direct result of Fleet requests for a *specific* kind of decision aid—one that would help users perform track deconfliction and response management associated with numerous tracks of an unknown or hostile nature.

Based on ongoing research by Space and Naval Warfare Systems Center, San Diego (SSC-SD), the RPM team is developing unique decision support tools capable of supporting tactical decision making in real-time. Once these tools mature, the RPM project is expected to provide a generic decision support model, and human-computer interface (HCI) guidelines and recommendations suitable for application in other Navy and military tactical decision domains. Candidate hosts of this future knowledge and technology transition include the Combat Systems Supervisory Support (CSSS) R&D project; and the 6.3-level *TADMUS to Sea* program—currently being adapted for eventual implementation aboard Third Fleet's USS Coronado in support of Joint and Coalition battle group operations.

Conceptually, the RPM decision support display will use existing ships' C4I datalinks and infrastructure. As appropriate, SSC-SD's RPM team will use Fleet resources to

evaluate and validate the project's HCI designs, cognitive models, and other products.

Background: SSC-SD is designing various prototype systems and displays to enhance Navy tactical decision making based on "naturalistic" decision processes. These systems and displays are being designed to support critical decision making tasks faced by Navy watch officers operating in a shipboard Combat Information Center. Controlled baseline testing in high intensity, peace keeping, littoral scenarios determined that experienced decision makers were not well served by current track management systems, and their performance suffered from periodic loss of tactical situational awareness. Subsequent field research supported the need for a track management tool like the RPM. Other considerations during the genesis of the RPM project included numerous comments received by COs and TAOs participating in TADMUS-related research which indicated a need for a decision aid addressing response issues; and the very obvious need to supplant the common use of 3 x 5 cards, yellow sticky notes, and grease pencils/marker pens to manually manage the diverse response options associated with each of the multiple tracks in a given tactical arena.

Current Progress: The RPM project has three foci: (a) research associated with Fleet user's planning and implementation of tactical responses, (b) development of an accurate model of single ship- and battle group-level tactical response planning, and (c) development of a useful and easy-to-use HCI.

Ongoing work in each of these areas has enhanced our understanding of the complex tasks and planning processes associated with developing and maintaining situation awareness, performing track deconfliction, and managing own-ship and battle group actions/responses with regard to tracks of an unknown and threatening nature. This growing understanding will contribute to the design of a tool that will decrease information search workloads, increase adherence to Rules of Engagement (ROE), and improve overall decision making performance. The continued input and active support of the Fleet is strongly encouraged.

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