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| 16. Abstract (MAXIMUM 200 WORDS) Successful performance of the missions assigned to Coast Guard Groups and Stations requires conducting a wide variety of operations. These operations must be supported with an effective Operational Information Process (OIP) for collecting, analyzing, and disseminating time-sensitive operational information and for providing effective command direction for ongoing operations. The Coast Guard recognizes that advances within the computer industry must be employed to improve the OIP. The current OIP links operational personnel to the required information resources through a combination of voice and written communications. While the process is predominantly manual from the perspective of on-scene personnel, it is fairly robust and reliable through a wide range of environmental extremes affecting ship-to-shore communications. OIS+ is an extensible prototype information system that will serve as the basis for deploying OIP improvements. As implemented in this task, it incorporates functionality necessary to assist operational personnel involved in vessel boardings and sightings. While the production version of OIS is intended to entail all Coast Guard mission areas, not only law enforcement, the functionality of this prototype was limited to the law enforcement mission to enable it to be developed within the time and budget provided. The system has been designed so that other missions can be added in a modular fashion. | | | | | |
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Executive Summary

Successful performance of Coast Guard operational missions requires conducting a wide variety of activities that must be supported with an effective process for collecting, analyzing, and disseminating time-sensitive operational information. The existing operational information process (OIP) is ineffective. It relies on various out-of-date and poorly coordinated systems for information exchange that combine use of face-to-face communications, voice transmission via radio and telephone, written reports and documentation, electronic and hard-copy data bases, and manual charting systems.

The Coast Guard Research and Development Center (R&DC) has conducted two proof-of-concept projects since the early 1990s: Operational Information System (OIS) Phase I and Phase II. Those research and development efforts resulted in the development of both a Mission Need Statement (MNS) and a two-part Mission Analysis Report (MAR), sponsored by the Office of Command and Control Architecture (G-OCC). The MAR Part II proposes an OIS designed to address the current OIP problem areas identified in MAR Part I.

As recommended in the OIP MAR Part II, OIS+ has been developed using browser technology. The WEB browser is used throughout to standardize the user interface and reduce development costs. Upon interactive query, OIS+ provides the operator with a target vessel's most recent sighting and boarding history. OIS+ reduces redundant data entry efforts through one time data capture of sighting and boarding information. This information is automatically distributed to legacy Coast Guard data bases as well as being posted on a geographic display. Communications with the mobile operational platforms is being provided with cellular modems. The prototype was tested within the Group Boston and the Group Portland Areas of Responsibility (AOR).

While the production version of OIS is intended to entail all Coast Guard mission areas, the functionality of this prototype has been limited to the law enforcement mission to enable it to be developed within the time and budget provided. The system has been designed so that other missions can be added in a modular fashion. Once successfully implemented, this structure could be expanded in scope to include other missions, reports, decision-support software, and executive information systems.

The findings of this prototype support the recommendations of the USCG C⁴I Objective Architecture and Transition Plan (ref. 1) and are consistent with the findings of the R&D OIS Phase I & II proof-of-concept projects (refs. 2 & 3). Specifically, those findings are that an OIS is needed and will work to:

- reduce redundant data entry,
- improve command and control and
- provide the right information to the right people at the right time.

The two biggest lessons learned are that (1) the back end data systems necessary to supply real-time operational data to a front-end user system like OIS+ are not available and (2) the communications infrastructure for fast, reliable, and convenient data

communication with CG mobile assets is also not available. The good news is that the Coast Guard currently has projects underway to correct both of these problems. The back end data system problem, at least for the LE mission, should be taken care of when the major portions of MISLE come on line. RCP 99-300 and R&DC project 9250.7 are working together to address the mobile communications infrastructure problem. It is important to note that Coast Guard-wide OIS should not be implemented until these major improvements are completed. Any attempt to do so otherwise will either duplicate these efforts; result in an application which the users want but which the Coast Guard IT can not yet support; or both.

Regardless of how well the communications path is engineered, there are bound to be times when it fails. Once an OIS is operationally fielded, the operators will become accustomed to having it available to assist in the performance of the mission. A minimal set of critical functionality needs to be identified as the OIS is initially designed and then enhanced. The system needs to be designed to provide the operator with this minimal functionality regardless of the presence of a communications path. This offline functionality needs to be part of the primary design consideration and not considered as an afterthought.