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SPAWAR
Systems Center
Charleston

Area Security Operations Command and Control System

NYPD Study Evaluation Report
Version 1.0

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Area Security Operations Command and Control System

Evaluation Report

Version 1.0

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Executive Summary

Numerous considerations must be weighed when applying a military-oriented command and control technology in a local law enforcement environment. The information presented in this report stem from the Area Security Operations Command and Control (ASOCC) system evaluation which took place from September 2003 through March 2005. The Space and Naval Warfare Systems Command in support of the National Institute of Justice conducted this project. The project evaluated the application and utility of the ASOCC system at the New York Police Department.

The results suggest that ASOCC (v.2.0.1), *as currently configured*, would not be appropriate for routine and daily use in the areas in which it was deployed (Patrol Borough Operations). Complaints about certain aspects of ASOCC usability compound this problem. The findings suggest that a combination of process reengineering and software modifications could make ASOCC useful in supporting daily law enforcement patrol operations. ASOCC could be more effective if deployed for counter terrorism and intelligence groups like the Joint Terrorism Task Force (JTTF) and NYPD Intelligence, as well as in Emergency Operations Centers (EOC). The findings also strongly suggest that ASOCC is more favored for large-scale events or incidents. Its collaboration capabilities make it especially suitable for situations involving multiple jurisdictions and agencies. Further research directed toward using ASOCC as an integration tool or as a portal to other law enforcement databases would promote its use in the law enforcement environment. Evidence suggests that ASOCC would have more likely been accepted and used by the law enforcement officers if it provided direct access to the more frequently used NYPD systems or datasets.

ASOCC has tremendous potential to facilitate National Incident Management System (NIMS) requirements; this potential merits further investigation. ASOCC should be examined for its applicability to EOCs (Emergency Operations Centers), law enforcement, and other agencies involved in emergency operations. ASOCC's strength as a collaboration tool for law enforcement should be exploited. Consideration should be given to investigating this strength in a regional environment where law enforcement agencies in the region collaborate without this type of technology.

This evaluation does have its limitations, the most salient of which is the inability of the researcher to observe the system being used in support of NYPD daily processes, even on a trial basis. Since the system was never actually implemented for everyday use, the observations were limited to simulated events with operators being prompted by trainers. Limitations notwithstanding, the findings do suggest that ASOCC has the potential to benefit law enforcement and public safety communities, especially when supporting NIMS requirements. It also suggests that system modifications may be necessary if it is to be used on a daily basis by law enforcement.

Points of Contact

This document represents a collaborative effort between the City of New York Police Department, the Space and Naval Warfare Systems Center, Charleston, the National Institute of Justice, and the U.S. Department of Homeland Security.

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Background

The Defense Information Systems Agency (DISA) developed the Area Security Operations Command and Control (ASOCC) system to provide mission-critical command and control capabilities that aid in the planning, coordinating, and integrating of force protection operations for U.S. military forces at home and abroad. The force protection concept of operations and technical capabilities enable the Joint Rear Area Coordinator to coordinate and integrate joint and host nation security forces overseas, or U.S. military and civil authorities at the local, State, and Federal levels in the U.S. The Homeland Security Online Services (HOLS) program supports this coordination of U.S. military and civil authorities at the local, state, and federal levels.

ASOCC is an interactive computer-based system designed to provide real-time situational awareness capabilities. ASOCC can provide graphic and imagery-based photographs and maps with supporting data, collaboration capabilities, a log and alert function, the ability to display time-phased force deployment data, and a means to access and display updated information from web-based status boards and databases. ASOCC is currently fielded at the U.S. Pacific Command (USPACOM). It provides a common operational picture that monitors friendly forces' developing situations and activities, both military and civil.

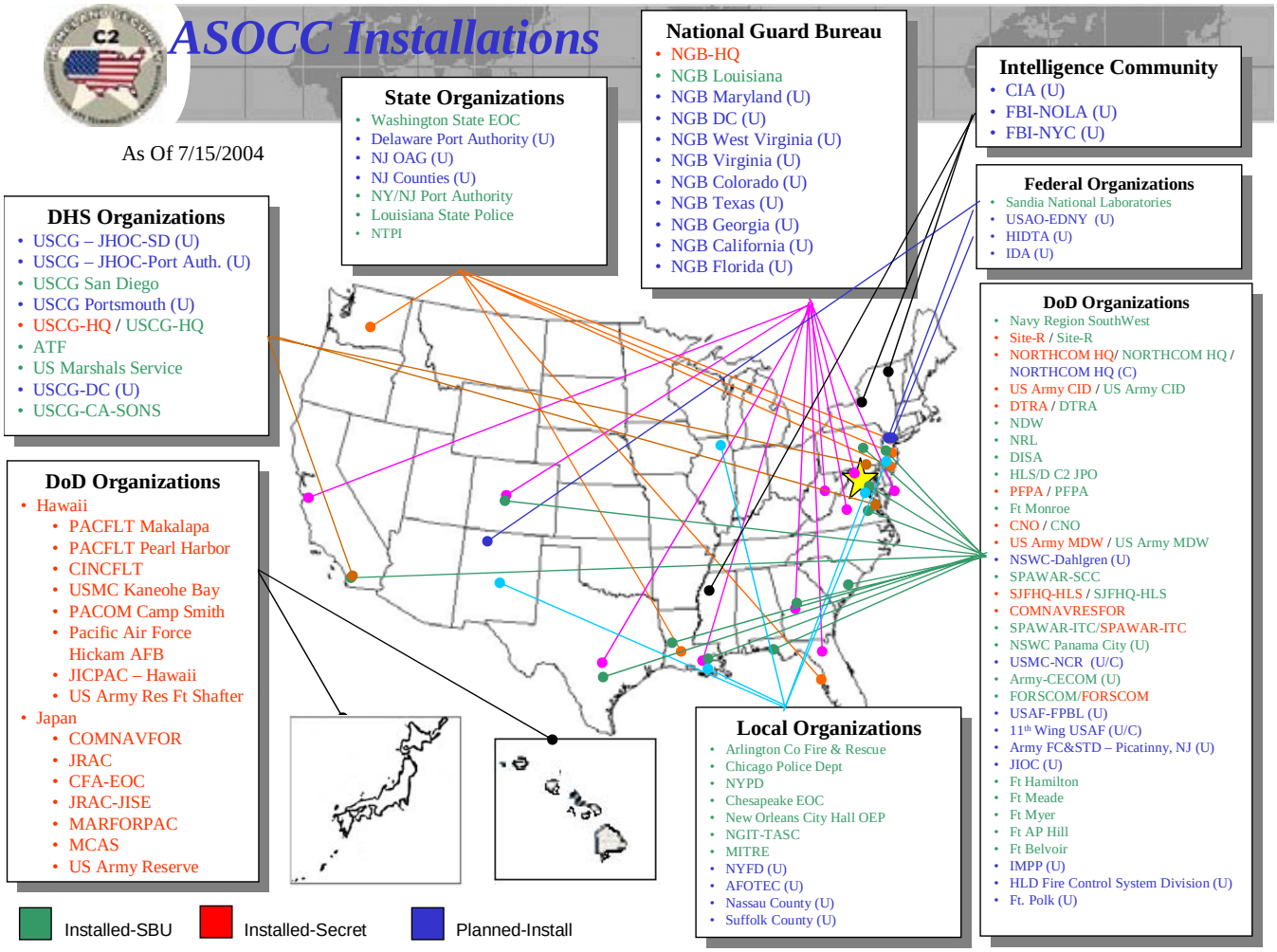
Figure 1 ASOCC

The Homeland Security Online Services (HOLS) program, initiated and sponsored by the US Department of Defense (DoD) Homeland Security Command and Control (HLS C2) Advanced Concepts Technology Demonstration (ACTD) Joint Program Office (JPO), is an evolving research and development initiative that supported a number of active pilot deployments. These efforts were designed to define, refine, and transition technologies and concepts of operations that

significantly increase DoD Homeland Security responsiveness in consequence management, crisis response, deterrence, and intelligence coordination. ASOCC is a component of HOLS. NYPD was selected to be part of this pilot domain as part of a research effort to determine how the ability to communicate, collaborate, and interface with all of the unclassified agencies and organizations currently participating in the HLS C2 ACTD might impact local law enforcement.

ASOCC technical demonstrations have taken place simultaneously in Virginia, Louisiana, metropolitan Washington, D.C., and other areas as designated from time to time. In addition to the DoD, other participants included the City of Chesapeake Emergency Operations Center and Hazmat Response Unit, the Louisiana State Police Headquarters, State Emergency Operations Center, Louisiana National Guard Emergency Operations Center, Louisiana State Police Hazardous Material Response Team, and the Louisiana National Guard Civil Support Team.

The Homeland Security Command and Control, Advanced Concept Technology Demonstration (HLS C2 ACTD) is a five-year project (FY 2002-2006) to improve DoD's effectiveness and efficiency in responding to federal, state and local government requests for assistance in Homeland Security operations. The HLS ACTD mission is to develop, demonstrate, and transition technologies and concepts that support consequence management, crisis response, deterrence, and prevention for Homeland Security. The HLS C2 ACTD was established as a cooperative effort among DoD, federal, state, and local agencies and commercial participants. The ACTD's purpose is to introduce technologies and assist in the development of a concept of operations, explore policy and the process of information exchange at all echelons.



The HLS C2 ACTD will identify technologies that significantly increase DoD homeland security responsiveness in prevention, deterrence, crisis response, consequence management, intelligence coordination, force protection, and threat reduction. Technical demonstrations will be performed to establish participant coordination and to refine HLS C2 requirements, policies, and procedures enabling efficient information exchange. Military exercises will assist in refining defense operations for coordinated and managed response in the Homeland Security environment.

The ACTD's Objective is to improve homeland security through advanced command and control technologies and assist in achieving unity of action across the entire spectrum of DoD and federal responders in homeland security actions. Specific objectives include:

- Coordination of DoD with civil authorities leading to improved efficiency and effectiveness of the entire federal, state and local homeland security team.
- Shared awareness and assured exchange of relevant HLS information before, during, and after a crisis.
- Responsiveness, resource efficiency, and effectiveness of DoD support to lead federal agencies.

Information sharing, especially during time of a crisis, is critical to response management. Under the current national threat environment, further requirements have been identified; specifically the

need of the law enforcement community to have solid connectivity and information sharing capability with other outside agencies at the state, regional and Federal levels. The implementation of the ASOCC system would allow for this key information sharing between law enforcement and outside agencies, to include the Department of Defense.

Based on demonstrations given to NYPD, the police department agreed to participate in this information sharing initiative, this involved implementing and using the Area Security Operations Command and Control (ASOCC) system in an evaluation mode. As a prelude to participation in this pilot, the Chief of NYPD's Office of Technology and Science Division (OTSD) reviewed its command and control structure, including all procedures that track and control critical resources during a disaster and in doing so identified the need for improvement. As stipulated in the original Memorandum of Understanding, NYPD, in seeking solutions for improving information sharing between critical agencies at the City, State, and Federal levels, agreed to install ASOCC and to serve as a test bed in the evaluation of the system.

More generally, this initiative focuses on the automation of law enforcement communications and information sharing related to terrorism while providing critical communication links to various governmental agencies. The ASOCC System installation is expected to enhance communications and information sharing between NYPD's Command and Control Center and Borough Offices as well as providing a solution for information sharing with other agencies and organizations locally, regionally, and nationally.

The objective of the installation of an ASOCC Evaluation System in the NYPD is to collect and analyze relevant performance data of the ASOCC System to determine its suitability for operational deployment in state and local agencies. Another important objective is to identify any further research and development required to make this technology suitable for such deployment. This evaluation is intended to provide useful information to the Law Enforcement (LE) community concerning the application of the ASOCC System to the LE mission.

The ASOCC system was installed for evaluation purposes in support of the National Institute of Justice (NIJ) Office of Science and Technology (OS&T) mission to evaluate emerging technologies with potential application to the Law Enforcement (LE) and First Responder communities. This project is initiated in adherence to the Omnibus Crime Control and Safe Streets Act, as amended, codified at 42 U.S.C. section 3722. The purpose of this Act is to enter into agreements with other public agencies to conduct research, demonstrations, or special projects pertaining to the purposes of improving the Federal, State, and local criminal justice systems and preventing and reducing crime, and to provide technical assistance and training in support of tests, demonstrations, and special projects. Further section 202 (d) (1), permits the Director of NIJ to utilize, with their consent, the services, equipment, personnel, information, and facilities of other Federal, State, local, and private agencies, and instrumentality with or without reimbursement.

This initiative focuses on the automation of communications and information sharing related to terrorism and other major events while providing critical communication links to various governmental agencies. The ASOCC System installation is expected to enhance communications and information sharing between police department's command and control center and satellite command operations centers; in addition, it will also provide a potential solution for information sharing with other agencies and organizations locally, regionally, and nationally.

ASOCC Overview

The Defense Information Systems Agency (DISA) developed ASOCC to provide mission-critical command and control capabilities to plan, coordinate, and integrate force protection operations for U.S. military forces at home and abroad across the spectrum of conflict. In its use within the DoD, ASOCC supports the Commander's antiterrorism engagement efforts to mitigate the asymmetric threat of terrorism. It facilitates a faster emergency response in the event of a disaster and provides analytical support for incidents such as those associated with Weapons of Mass Destruction (WMD).

The ASOCC System is a package of commercial off the shelf (COTS) and government off the shelf (GOTS) software integrated by DISA and accredited for SIPRNET and NIPRNET. It is currently in operation in the US Pacific Command (PACOM), and in the Capital Area Defense Information Initiative (CADII). The system offers commanders' mission-critical capabilities to plan, coordinate, integrate, and manage antiterrorism/force protection operations at home and abroad. The tools and connectivity offered by the system can help prevent a disaster and facilitate faster emergency response when one occurs. It will support the efforts of both:

- U.S. Combatant Commanders, U.S. federal partners and host nation security forces overseas; and
- Military Services and federal, state and local collaborates in the U.S.

ASOCC (v.2.0.1) consists of several core components as outlined below:

- *ExPanel* - is a real-time alerting/status visualization function (using Java-Swing-GUI based views), which provides logging and event visualization capabilities. This is the main application of ASOCC where the alerts and event notification are activated and received. In the DoD application, eX-Panel is also used to show Force Protection Conditions and Information Conditions for military bases. All other applications can be launched from the eX-Panel. Ex-panel is used to initiate or create events that can be shared and managed throughout the system. It allows system users to search, display, and update events. It includes the following
  - Specific event type (e.g., bombing, demonstration, suspicious event, etc.)
  - Location using lat/long coordinates (for mapping the event)
  - DoD installation information (e.g., type of installation, posture or its ability to respond, FPCon – force protection level, etc)
  - Event status (emergency, non-emergency, clear)
  - Civil sector information (denotes info within the US such as city, address, zip etc.)

- *Knowledge Board* – is the information management portal, which can be used to launch multiple browsers in the same application. These browser pages can be refreshed at intervals set by the ASOCC operator. One shortcoming in the tested version of Knowledge Board is that it does not have the ability to launch certain advanced browser functions (e.g., some advanced Flash, Java, Shockwave…etc). Knowledge Board can also be used to track databases and tables that are stored in the Knowledge Board servers. Operators accessing the Knowledge Board need a user name and password. A knowledge management portal supports push or automatic refresh of web-based information. This allows the user to view multiple sites simultaneously for threats and emergency-type information. The types of information provided are advisories concerning terrorism and force protection, advisories from the Department of State, the Intelligence community, and JTF civil support message traffic, and weather.
- *Map View* – (extensible Information Systems (XIS) Viewpoint) is the mapping application of the ASOCC system. It can be used to bring relevant information from disparate domains and formats together into integrated views. Some of the domains, from which the images and information are obtained, require a user name and password. This utility enables the operator to create maps displaying any type of event including the deployment of personnel and other resources. Maps can be published for use by others and for further annotating by storing them in a folder accessible to others on the ASOCC system.
- *Java Imagery and Video Exploitation (JIVE)* – provides multiple formats of geo-spatial imagery with overlay and text capabilities. The JIVE application lets the operator access Geo-registered tactical imagery resources via web servers providing view and manipulation formats of geo-spatial imagery with overlay and text capabilities. It allows a user to use and manipulate data through a GIS interface called Map View. This includes the ability to create and annotate maps, which can be shared and stored for future use. The *JIVE* video tool provides a utility to capture, store and share video clips. JIVE also has built-in symbols used in the DoD (MILSTD-2525).
- *Defense Collaboration Tool Suite (DCTS)* – is a DISA developed application that is incorporated into ASOCC as the collaboration tool allowing system users to communicate in a number of different forms. DCTS provides a suite of collaboration tools including a direct connection to Microsoft NetMeeting, interactive chat, white-boarding, and file-sharing.

The group chat service allows users to navigate through different "chat groups" or "chat rooms," and communicate with others using text messaging. This is similar to instant messaging commonly found in Internet applications. The "space storage" capability of DCTS allows users to upload and store files in the "room" for the use by others. Using MS Windows NetMeeting®, users can establish and participate in net conferences similar to conference calls.

The chatting portion of DCTS is configured in sections referred to as buildings, floors, and rooms. For example, the police department had a floor set up for the entire department. Within this floor each of the satellite commands and the headquarters operations center had designated rooms. Collectively, operators can agree to meet at one room or another depending on the situation.

Operating System and Software.

The minimum software requirements for the ASOCC System (excluding legacy interface requirements) are as follows:

- Microsoft Windows 2000 Professional OS

- Microsoft Internet Explorer
- Microsoft Office 2000
- Microsoft Windows NetMeeting
- WinZip
- Adobe Acrobat Reader
- Norton Anti-Virus
- Zone Alarm

In summary, the major benefits and functions of ASOCC are as follow:

- Automated information, decision, and reporting support to all echelons and all levels of antiterrorism/force protection.
- Provides users with capability to share status, alert and event information with their peers
- Provides a user interface to user documentation, workflow breakdown checklists, and helpdesk information
- Provides capability for collaborative force security planning and response
- Provides the ability to display, manipulate, and annotate any image and video.

Further and more specific information concerning ASOCC can be obtained by contacting the ASOCC Project Manager at: hlsactd@stassociates.com or by visiting the ASOCC web site: www.homelandsecurityactd.org.

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ASOCC NYPD Deployment

The National Institute of Justice (NIJ) Office of Science and Technology (OS&T), entered into an agreement with the New York City Police Department (NYPD) to install and evaluate the Area Security Operations Command and Control (ASOCC) system. ASOCC, a product of Homeland Security On-line Service (HOLS), was installed for evaluation purposes in support of the National Institute of Justice (NIJ) Office of Science and Technology (OS&T) mission to evaluate emerging technologies with potential application to the Law Enforcement (LE) and First Responder communities.

This evaluation of The ASOCC system deployed within this metropolitan police department was in progress from September 2003 until the end of the 30 September 2004. Relevant data was collected and analyzed to evaluate the utility of the ASOCC system in the police department. The results can be used to determine its suitability for operational deployment in the national, state, and local law enforcement agencies and to identify any further research and development required to make this technology suitable for such deployment.

Goal

The purpose of this project was to evaluate ASOCC to determine how well it meets NYPD's requirements and expectations, and to determine whether it is portable to other law enforcement agencies with similar requirements. The goal of this effort was to use the information gathered to develop and publish a report for use by the law enforcement community. This report addresses the potential and applicability of the Area Security Operations Command and Control (ASOCC) system for use in the law enforcement environment.

Objectives

The objectives of the deployment were to determine the following: 1) the effect of ASOCC on task performance, 2) to determine what NYPD processes have been improved or established using ASOCC, and whether ASOCC made a difference in the efficiency or effectiveness of internal operations.

Because little work had been done in defining the role of ASOCC in the NYPD environment prior to implementation, one of the implementation team's first steps was to assist in defining the law enforcement processes that could possibly be impacted by ASOCC. Examples of the types of processes that ASOCC could impact are as follow:

1. Gathering and sharing threat and intelligence information related to terrorism or other major incidents
2. Communicating pertinent information concerning threats, major incidents, etc. with external agencies on the ASOCC network
3. Internal gathering, storage and communication of serious crime and incidents
4. Assisting in tracking and managing major events and incidents
    a. ASOCC's eXPanel application is used for situational awareness and alert notification. The events that are entered into the eXPanel by an ASOCC operator is automatically populated to the ASOCC workstations that are connected to the network. In this evaluation, the police department's ASOCC network is separated from the national ASOCC network with the exception of the two workstations designated to be configured to the national ASOCC standard to enable:
        1. Force protection
        2. Mobilization
        3. Operational plans
        4. Personnel allocation and assignment

Installation and Deployment

NYPD has a subset of units with full access (send/receive) to the existing ASOCC (national) ACTD environment, allowing communications and collaboration with the existing national participants. The majority of the NYPD ASOCC workstations were configured to be used primarily for internal NYPD activities in a send/receive arrangement; the ASOCC workstations that are configured to that of the national participants shall have the same standard capabilities as the existing national participants in the ACTD.

After reviewing the ASOCC system's capabilities, NYPD chose the *Boroughs* and *Operations* as the functional areas that would make the best use of ASOCC. Under the Patrol Services Bureau, the Boroughs within NYPD operate as that of an umbrella organization, each encompassing a number of Precincts. The Bronx Borough, for example, consists of 12 precincts each of which is responsible for providing law enforcement services for the population within a specific geographic area[1]. The Boroughs operations function, also known as the "Wheel," serves as the hub to which certain information from the precincts flow. The Boroughs, in turn pass information upward to *Operations*, which serve as a central repository of certain law enforcement information. Operations personnel distribute information and make notifications as necessary, to the appropriate NYPD personnel, including members of the command staff.

In prior installations, there have been no ASOCC system modifications to tailor it to the needs of the end user. This evaluation sets precedent in that minor software, system, and operations modifications were made to better align the system with the day-to-day processes of the NYPD installations. The results of this evaluation and lessons learned provide valuable insight into the procedures of integrating a system with such capabilities. The Systems Configuration Document designed an installation of 15 ASOCC workstations to be installed in the Headquarters operations center, the satellite commands, and other designated locations.

[1] Source, NYPD web site http://www.ci.nyc.ny.us/html/nypd/home.html

SPAWAR installed a dedicated server to support internal collaboration. Desktop computers serving as ASOCC workstations were installed in the following NYPD Boroughs:

- Manhattan North,
- Manhattan South,
- Queens North,
- Queens South,
- Bronx,
- Brooklyn North (SATCOM),
- Brooklyn South,
- Staten Island.

Installation of the ASOCC System was accomplished in a phased approach and progressed in accordance with the following sequence of actions:

- Installed one system and upgraded existing system at Headquarters operations
- Installed systems at three satellite commands
- Interim Program Review
- Installed remaining satellite commands and other designated locations.

Figure 2 ASOCC in Patrol Borough Brooklyn South

Figure 3 ASOCC in Patrol Borough Staten Island

Site Description

The headquarters operations division is the center of the department's operations. In the headquarters operations unit, there is an open area outfitted with workstations and desks for the operations center personnel. There is a main platform where another workstation is located. Surrounding the open area in the center of the room are network rooms and surveillance rooms.

At each of the satellite commands, the operations unit works as the operations center for the command. The smaller commands in this jurisdiction report to the satellite command.

Incident information is transmitted primarily by telephone or fax from precinct to borough wheel and from borough wheel up the chain of command as necessary. The Emergency Operations Center (EOC) becomes operational in incidents requiring NYPD collaboration with federal, state, and other local agencies and organizations. The EOC also becomes operational for natural disasters. In a catastrophic incident, NYPD has a "stand alone" plan in which the borough commands operate as separate police departments within their corresponding area of responsibility.

Communication between the operations division, patrol boroughs, and precincts are accomplished through the following mediums:

- Telephone
- Fax
- Radio
- Inter-office mail and e-mail
- SPRINT – System that captures calls for service dispatched to NYPD personnel
- 311- system that captures non-emergency calls from the public
- FINEST - system that allows Operations and other areas to send messages and announcements to all commands within NYPD.
- Nextel walkie-talkies

- Zipper - LED display broadcasting brief messages, updated by Police Headquarters.

Legacy Systems Integration

One major legacy application that needed to be integrated into this ASOCC evaluation was the operation unit's incident report database. The patrol boroughs, having disparate (approximately 15) formats and procedures to record incidents, were considered an integral stakeholder in this integration piece. The final decision was to have the satellite ASOCC workstations connect to the headquarters' database and have one general format for the boroughs to communicate to the operations unit. In various interviews, the patrol borough representatives agreed that ASOCC could add a communications portal that could be useful in the department's "stand alone" plan.

The development of a new database consisted of using Cold Fusion and Microsoft SQL to incorporate the boroughs to the headquarters database. A generic form was made out for the all the boroughs to access through a web browser. The department's Information Technology division and the operations division administered the servers for this database. The operations division has the responsibility to operate and edit the forms as necessary to support the operations division mission. The management information systems division had the responsibility to backup the database and be the systems administrator to include development and support of the servers.

System Maintenance

Another consideration is maintenance and support cost. ASOCC is a product of the Homeland Security Command and Control, Advanced Concept Technology Demonstration (HLS C2 ACTD), which is a five-year project (FY2002-2006). At the end of the evaluation year (FY2004), funding will be needed to maintain the services currently provided by the ACTD. These funding issues will need to be resolved by NYPD.

Training

The National Terrorism Preparedness Institute (NTPI) of St. Petersburg, Fl. College, conducted a comprehensive training program for NYPD personnel. NTPI modified the standard ASOCC training program somewhat to be more relevant to law enforcement processes, making it distinct from the program developed for the military. All ASOCC training was interactive and conducted on-site; each participant had a computer.

NTPI conducted the initial introductory training at the NYPD police academy training facility on November 11 and 12, 2003. This was considered Basic Operator (Train-the-Trainer) with12 participants; 1 representative from each borough (that had ASOCC installed), the NYPD project manager Mr. Robert Petway and his Lieutenant, Ralph Andalia, both from Management Information Systems Division (MISD), 1 representative from Operations, and two from the Police Academy.

A second training session was held on May 12 & 13, 2004. Like the others, it was also Basic Operator Training with 15 participants (from the different boroughs) and held at the NYPD police academy training facility. This final training session was created to prepare NYPD members for the practice drills.

Drills

Between June and September of 2004, NTPI conducted five training and exercise sessions, hereafter referred to as *drills*, at different NYPD locations. The National Institute of Justice (NIJ), the Space and Naval Warfare Command (SPAWAR) Systems Center New Orleans (formerly SPAWAR Information Technology Center), the Space and Naval Warfare Command Systems Center (SPAWAR) Charleston, and APOGEN Technologies, Inc. (formerly SEA – Science Engineering Associates), supported the session. The sessions were supported by NYPD and included the following participating locations:

- NYPD Office of the Police Commissioner
- NYPD Office of the Chief of Patrol
- NYPD Operations Unit
- NYPD Backup Command Center
- NYPD Real Time Crime Center
- Patrol Borough Bronx
- Patrol Borough Brooklyn North (SATCOM)
- Patrol Borough Brooklyn South
- Patrol Borough Manhattan North
- Patrol Borough Manhattan South
- Patrol Borough Queens North
- Patrol Borough Queens South
- Patrol Borough Staten Island.

The drills were the final portion of the training program. The drills were developed as a collaborative effort between NYPD personnel and NTPI. Each drill was based on input from NYPD personnel regarding the most logical use of ASOCC in the NYPD environment. The purpose of the drills was three fold:

1. To reinforce training through hands-on usage of ASOCC in an operational environment at each borough, during simulated situations.
2. To further test the functionality of ASOCC in operational use.
3. To collect information to be used in developing the CONOPS regarding the applicability of ASOCC usage for each specific scenario.

Research Methodology

The research methodology employed is designed to assess how well the ASOCC system meets the needs of the NYPD. In conducting this evaluation, information was gathered in support of generalizing the findings to the law enforcement community. To support this effort, a triangulated research methodology was used to aid in strengthening validity.

The research design used in this study began as a panel study, which is a type of longitudinal design. This design allows the researcher to collect information from the same selected individuals for two distinct periods. It is well suited for establishing a baseline and describing changes over time. The approach used in this assessment is formative in nature and is concerned with *ex post* feedback by evaluating the recently developed and implemented system. This approach consisted of several data gathering methods as follows:

- Focus group
- Surveys
- Direct observation
- Individual interviews

Focus Group

The primary goal of the focus group was to identify and bring together key internal and external stakeholders associated with the NYPD ASOCC CONOPS development to explore ASOCC applicability/usability within NYPD.

The secondary goals of the focus group were: 1.) to gain acceptance of the project and commitment of internal NYPD stakeholders, 2.) to ensure that key staff members are available to participate during the course of this project, 3.) to promote an understanding of the drills and weekly collaboration activities.

Surveys

The Purpose of the survey was to discern user-attitude toward ASOCC after the participants had been trained and prior to the ASOCC usage practice drills being conducted. This information served as a pre-drill baseline for the ASOCC technology assessment.

The survey instrument found in Appendix B was developed by examining ASOCC and mapping its salient functions to core NYPD law enforcement processes related to data and collaboration. It

also queried for the respondents' attitude about potential uses of ASOCC within the NYPD environment. The survey provided anonymity to individual respondents but did capture rank and current assignment.

The surveys were administered through the MIS Division of the NYPD to 36 NYPD personnel; the response rate was 100%. The methodology employed in the selection of survey participants was purposive. The sampling frame consisted of NYPD personnel who had been trained to operate ASOCC. These personnel are those who would most likely be users of ASOCC. A profile of the respondents by rank and assignment is outlined in Table 1, below.

Table 1 Survey Participants by Rank and Assignment

		Current Assignment			
		Borough (Wheel)	Operations Unit	Other	Total
Rank	Police Officer	16	4	3	23
	Detective	2	0	0	2
	Sergeant	2	3	0	5
	Lieutenant	4	0	0	4
	Civilian MOS	1	1	0	2
Total		**25**	**8**	**3**	**36**
Percentage		**69.4%**	**22.3%**	**8.3%**	**100%**

Reliabilities and Validity

The MISD staff of the NYPD participated in validating the survey. Lt. Andalia, with input from staff NYPD members, suggested changes to the first draft, which were incorporated into the final survey. In addition, a statistical procedure[2] was conducted to assess validity. Reliability testing was conducted using the SPSS statistical analysis program[3]. The results suggest that the questions within each of the four areas are valid and reliable.

Direct Observation

During the direct observations, the researcher observed NYPD personnel during training at the police academy and while using the ASOCC system during five practice drills at the following Boroughs and installations: Bronx, Manhattan North, Manhattan South, and Operations.

This aspect of the evaluation was important in informing the researcher of how the actors perceive and use the system in their work environments in response to simulated situations.

[2] Principal component analysis

[3] Cronbach's Alpha statistical procedure was used to test reliabilities.

Interviews

The researcher interviewed eleven NYPD personnel. Six of the interviews were formal and were of individuals in the following areas: Bronx, Queens, Manhattan North, Manhattan South, Operations, and MISD. In addition to these interviews, the researcher conducted informal interviews with the five officers who participated in the practice drills. The ranks of the personnel interviewed ranged from Police Officer through Lieutenant. All but one, the Lt. from MISD, had Patrol level responsibilities.

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CONOPS

A well-developed Concept of Operations (CONOPS) with strong support from key stakeholders in the participating agency (NYPD) is important in developing valid evaluation criteria. During the early phases of ASOCC implementation, the attempt to develop a CONOPS was met with little success. After the ASOCC training was completed, the CONOPS development had begun. The National Terrorism Preparedness Institute (NTPI) of St. Petersburg, Fl. College accepted the challenge of developing the CONOPS. This effort began with a focus group meeting. The following attended the focus group:

- 8 Borough Lieutenants
- Representatives from:
  - Operations
  - Real Time Crime Center (RTCC)
  - Police Commissioner's Office
  - NYPD Management Information Systems Division (they were also coordinating the effort)
- NTPI – moderators
- SPAWAR and the principal researcher - Observers

To supplement the information gathered during the focus group meetings NTPI personnel collected information as part of a series of training drills during which Borough and Operations personnel used ASOCC in simulated situations. During these drills, NTPI documented their observations and drew conclusions concerning the most appropriate usage of ASOCC. They followed up with a thorough review of NYPD Polices and Procedures. They documented those procedures most likely to be enhanced using a collaboration tool like ASOCC and mapped them to ASOCC functionality.

CONOPS Validation (Interviews)

In order to establish content validity of the CONOPS, as developed to this point, the researcher visited four different functional areas of the NYPD and interviewed personnel there who received training to use the ASOCC system. The people interviewed were identified as those who will ultimately use the system if the decision is made to implement ASOCC throughout the agency. The following Boroughs were represented: Bronx, Manhattan South, and Manhattan North; Operations was also represented.

The methodology employed consisted of open-ended interview questions driven by the following functional/process areas addressed in the preliminary CONOPS:

1. Reporting and managing threshold events
2. Making required notifications in emergencies
3. Coordinating emergency mobilization
4. Graphically displaying mobilization using Map View and posting maps using the Collaboration tool
5. Broadcasting readiness Levels to all NYPD personnel
6. Alerting non-affected boroughs of major incidents/mobilizations, etc
7. Notifying command staff in both emergency and non-emergency situations
8. Graphically displaying mobilization using Map View
9. Storing all forms for downloading and sharing, on-line
10. Posting and graphically displaying via a mapping tool, stand-off areas or "frozen" zones in hazmat situations or other critical incidents
11. Monitor and make notifications (via Operations) of major events and hazmat situations
12. Using ASOCC as a library to house information concerning hazardous incidents.
13. Inter-agency collaboration
14. Pushing out information concerning bombs or explosive devices from the Wheel
15. Used by the Patrol Supervisor to call a level one mobilization, which can be relayed from the ExPanel.

Their responses to the interview questions are outlined in Table 2 (p 21). NTPI used the feedback received during the interviews and direct observations to develop the core CONOPS document. The information gathered was refined to develop the final CONOPS document. This document was sent to NYPD for review and final approval.

Based on information gained during the interviews, the direct observations made, and from the surveys, ASOCC as currently configured, without enhancements or modifications could be used to facilitate the following NYPD processes:

- Using ASOCC as an electronic library to store and manage NYPD forms
- Standardization and automation of the incident logs
- Mapping and graphically displaying mobilization during planned and unplanned incidents
- Using ASOCC as a content manager for NYPD policies and procedures
- Inter-agency collaboration (Use by Operations and the EOC)
- Intra-agency collaboration and information sharing (instant messaging, sharing documents, etc.).

This inquiry validated the use of ASOCC to facilitate the processes outlined above. Certain processes can best be facilitated by ASOCC with software modifications, while others require the integration of datasets or with other existing systems. The procedural, organizational, and technical implications of attempting to fit the current version of ASOCC into this organization are

many and beyond the scope of this document. None-the-less, they do impact CONOPS development and thus, how and if ASOCC can be used within NYPD.

The CONOPS addressed only that subset of the total available ASOCC capabilities and functions deemed sufficient to evaluate system utility in the NYPD environment. It also only touches on a small fraction of the NYPD operations that might ultimately utilize ASOCC. The focus of the CONOPS and the evaluation itself is on the utility and performance of ASOCC during this limited trial. It does not consider the broader operational and organizational issues that may have a far greater impact on the outcome of a given operation.

Table 2 Interview Responses

CONOPS	Manhattan S.	Operations	Bronx	Manhattan N.	Consensus
1.) Reporting and managing threshold events	NO - To use it this way the Precincts should have access to it; Not enough people know how to use it; Might be "over-kill" for some of what we do; Manpower is not available;	If the events are verified, they could use the system to "tally information" [collect and report on the info collected]	You could send it BUT it must incorporate the incident log	Incident log is now used to do this. Could use it to do more of the things we now do but: We sometimes have problems getting info from the field; Precincts need to be involved for it to work	More people think that this function could be part of ASOCC but there are conditions. Having ASOCC replace the incident log would be a key prerequisite
2.) Making required notifications in emergencies	NO – Most of these incidents are time-sensitive requiring that calls be made directly to individuals, many of whom do not have access to this system; It would require staffing ASOCC on a 24/7 basis which is not possible; Great tool, but not a good fit for what we do here	No – the call would be made immediately. Would not wait to enter the info into any system	No the phone is used ; They couldn't notify narcotics, for example, because they have no ASOCC (Should we link narcotics and others to the web-enabled version?)	Could notify "downtown" (Operations) Intelligence would be the best user of the system	Emergency notifications do not appear to be something they would ever use ASOCC for, as many of the personnel they notify do not have access
3.) Coordinating emergency mobilization	NO - not as currently configured; Precinct personnel are notified (via phone) of the number of people they need	Maybe – in certain aspects They call the precinct and tell them how many people they need Everyone would have to have an ASOCC terminal (including precincts) It would have to be staffed 24/7 – that is a problem	No – putting it in a computer would be a waste of time	No – they do not manage incidents from here	This does not appear to be something the Boroughs would need to use ASOCC for, although if it came from Operations it would probably be used to do this.
4.) Graphically displaying mobilization using Map View and posting maps	YES - Only if people knew how to use the mapping;	No – Operations would not do this. Real-time crime or the Boroughs might do this, not	No – they do not use GIS at this level	Yes – they would map incidents	Mapping could be used on a limited basis but certain system modifications would be

CONOPS	Manhattan S.	Operations	Bronx	Manhattan N.	Consensus
using the Collaboration tool		operations It involves too much effort – constant staffing and entering			required and accompanied by additional training
5.) Broadcasting readiness Levels to all MOS	NO – The radio is used to notify all personnel instantly	NO – The radio is used to do this	NO – The radio does this instantly	We could use it for this but everyone would need access	The radio appears to be a more efficient way of doing this.
6.) Alerting non-affected boroughs of major incidents/mobilizations, etc	NO – not relevant, unless they need help from other Boroughs. They would then make a phone call.	No – sent by radio, city-wide	No – radio does it	We could . . .	Although most indicated "no," this seems practical but would require process changes
7.) Notifying command staff in both emergency and non-emergency situations	Not practical. Command staff does not have access to ASOCC. Contact is made by phone.	Not practical.	Not practical.	No	This is not a realistic use of ASOCC
8.) Graphically displaying mobilization using Map View	They do not display mobilization	You could, especially if you received a live feed from the DOT cameras throughout the City * Cmdr at the scene decides where forces go in mobilizations. This does not occur within HQ	They do not need to do this	They do not do this but it might help for event pre-planning, not during an emergency	This appears to be a logical use depending on the type of event.
9.) Storing all forms for downloading and sharing, on-line	Good idea – would use it	It could	Good idea	Yes – good idea	All agreed with this utility of ASOCC
10.) Posting and graphically displaying via a mapping tool, stand-off areas or "frozen" zones in hazmat situations or other critical incidents	They do not do this. People must be versed in mapping	Could work in the EOC during large scale events (not in Ops or Boroughs). They used maps and the DOT cameras to zoom in on areas during the RNC (Republican National Convention 2004)	Yes – they would use it but the maps would need to display streets more clearly; lat and long are not useful	Yes, the maps would be useful	This could be something they would use the system for but the system needs to be modified and linked to DOT cameras if it is to succeed

CONOPS	Manhattan S.	Operations	Bronx	Manhattan N.	Consensus
11.) Monitor and make notifications (via Operations) of major events and hazmat situations	Done by phone – everyone they notify does not have access to a system	Done by phone – everyone they notify does not have access to a system	You could do this but the call would have to come in from 911 - the radio would be quicker and more pervasive	Mostly done by the Fire Department (hazmat)	They will not use ASOCC for this in emergencies but could use it to collect and share info on certain events (see item 1)
12.) Using ASOCC as a library to house information concerning hazardous incidents.	Not done at the Borough level	No comment	Yes – but this is not done at the Borough level	Yes – this info would be good to access via computer	They would use ASOCC for this
13.) Inter-agency collaboration	No – Borough does not do this. Operations contacts other agencies	Yes – for incidents like the RNC. Getting info from other agencies, assuming they have access. But members of other agencies are at the EOC during these incidents to coordinate collaboration	Could be useful by Operations	This is more of an Operations responsibility, not the Borough	Could be used to do this by Operations and the EOC
14.) Pushing out information re. bombs/explosive devices, from the Wheel	It can be used to "push up" info from Borough to Operations	No, they need to filter out lower priority things before anything is pushed up.	You could, if incident log was part of the system	It can be used to "push up" info from Borough to Operations	Appears to be a good use of ASOCC but would require process change, clearly defined threshold events, and the integrations of other systems
15.) Used by the Patrol Supervisor to call a level one mobilization which can be relayed from the ExPanel	No – Patrol supervisor is out in the field and does not have access to this system. The radio is the most efficient way of making notifications.	→	→	→	Not practical

Findings

This section presents an overview of the findings of each of the methods of inquiry beginning with the *Focus Group*. It also includes *Survey, Interviews*, and *Direct Observation* results.

Focus Group

NTPI personnel moderated the focus group in a conference room at the NYPD headquarters located at #1 Police Plaza. The invited attendees were law enforcement officers from the rank of police officer through lieutenant representing the Boroughs, Operations, Real Time Crime, the Police Commissioner's Office, and the Management Information Systems Division. In addition, observers were present from SPAWAR, NIJ along with the principal researcher. The objectives of the focus group meeting included the following:

- Collect beliefs and insight to how internal stakeholders see ASOCC used in their activities.
- Collectively determine the characteristics that define a 'threshold' event; one that can be handled by the ASOCC system.
- Discuss the values associated with the main ASOCC sub-systems as they relate to activities and events handled by the NYPD functional areas represented.

During the focus group meeting, the attendees made the following suggestions for ASOCC usage:

- Use ASOCC to communicate during parades, e.g. creating alerts when parades go off route and using the mapping and collaboration capability to improve situational awareness. Participants also commented on the use of radio communications during these events.
- This was followed by a discussion of how ASOCC could enhance communications during major events as follows:
  - Level 1-4 notifications for mobilization
  - Large public gatherings, e.g. 4th of July, Parades, Demonstrations
  - Use of ASOCC at the EOC during major events
- Use ASOCC to share information internally about certain police incidents such as shootings, suspicious packages, etc.
- Activate ASOCC immediately and simply use it to communicate daily among Boroughs
- Incident reporting - automate the assignment of borough incident numbers through ASOCC
- Amber Alert notifications extension for missing children

- Link to outside servers through ASOCC
  - To receive DOT traffic info
  - To receive weather info
  - To receive info from 311 system

In summary, much of the focus group meeting was dedicated to preparing the users for to the ASOCC drills. While the moderator solicited feedback from the attendees, it was evident that the majority of the feedback needed to develop the CONOPS would be obtained during the practice drills, as planned. That notwithstanding the feedback provided during this session suggested that ASOCC could be used in the following general ways: to communicate internally, to share information during certain events, to make certain notifications and to link NYPD to outside data sources.

Survey Results

A survey was administered to 36 NYPD personnel who had received training to use ASOCC. The purpose of the survey was to discern user-attitude toward ASOCC prior to the drills being conducted. This information was gathered to serve as a pre-drill baseline for the ASOCC technology assessment sponsored. The survey gathered information in four different areas as follows:

- *ASOCC and Data* – these questions seek to determine the extent to which users believe that ASOCC can assist in aggregating internal and external data and its value in supporting "individual" and "group" tasks
- *ASOCC and Collaboration* – this seeks to determine the extent to which users believe that ASOCC can facilitate communications and information sharing internally (within NYPD) and externally (with other agencies)
- *Suggested uses of ASOCC for NYPD* – this measures user-attitude concerning the uses of ASOCC in the NYPD. These survey questions were derived from ASOCC core functionality and information gathered from NYPD to date, in support of CONOPS development
- *Who would make the best use of ASOCC* – This represents an opinion of users, by "Assignment," of which organizational units within NYPD would make the best use of ASOCC

ASOCC Data-related questions

The respondents overwhelmingly (more than 70%) believe that ASOCC should be used to bring together data from various sources both internal and external to NYPD. The respondents were not convinced of the extent to which the data in ASOCC would be appropriate for their individual or their group's tasks. The responses to the data-related questions are presented in Table 3 (p.26).

Table 3 ASOCC Data-related questions

Survey Question	Opinion	Frequency	Percent	Cumulative Percent
ASOCC should be used to bring together data from various sources *within the NYPD*.	Neutral	3	8.3	8.3
	Disagree	5	13.9	22.2
	Agree	28	77.8	100.0
	Total	36	100.0	
ASOCC should be used to bring together data from various sources *external to NYPD*.	Neutral	5	13.9	13.9
	Disagree	5	13.9	27.8
	Agree	26	72.2	100.0
	Total	36	100.0	
The ASOCC system has the potential to provide access to data, which will be *appropriate for my group's tasks*.	Neutral	8	22.2	22.2
	Disagree	13	36.1	58.3
	Agree	15	41.7	100.0
	Total	36	100.0	
The ASOCC system has the potential to *provide access to data that I use in my daily job.*	Neutral	7	20.0	20.0
	Disagree	16	45.7	65.7
	Agree	12	34.3	100.0
	Total	35	100.0	

ASOCC and Collaboration

The survey results suggest a level of disagreement among users in the extent to which ASOCC could/should be used to communicate and share information. Only *fifty-six percent* of the respondents believe they would use ASOCC to communicate with other members of NYPD, while s*ixty-one percent* believe they would use ASOCC to share information with other members of NYPD. Of those surveyed, *fifty-eight percent* believe they would use ASOCC to communicate with (other) agencies external to NYPD, while *fifty-three percent* believe they would use ASOCC to share information with (other) agencies external to NYPD. Again, a more detailed examination of the data reveals that Borough (Wheel) personnel overwhelmingly disagree that they would use ASOCC to either communicate (73%) or share information (78%) with other agencies external to NYPD. The results suggest that Borough (Wheel) personnel, who make up the majority of those surveyed, do not feel that ASOCC would be a good collaboration tool. The responses to the Collaboration questions are presented in Table 4 (p.27).

Table 4 ASOCC and Collaboration

Survey Question	Opinion	Frequency	Percent	Cumulative Percent

I would use ASOCC to communicate with other members of NYPD	Neutral	4	11.1	11.1
	Disagree	12	33.3	44.4
	Agree	20	55.6	100.0
	Total	36	100.0	
I would use ASOCC to share information with other members of NYPD	Neutral	5	13.9	13.9
	Disagree	9	25.0	38.9
	Agree	22	61.1	100.0
	Total	36	100.0	
I would use ASOCC to communicate with agencies external to NYPD	Neutral	4	11.1	11.1
	Disagree	11	30.6	41.7
	Agree	21	58.3	100.0
	Total	36	100.0	
I would use ASOCC to share information with agencies external to NYPD	Neutral	4	11.1	11.1
	Disagree	13	36.1	47.2
	Agree	19	52.8	100.0
	Total	36	100.0	

Suggested uses of ASOCC for NYPD

This group of questions gathers information reflecting the users' attitudes concerning how ASOCC should be used in the NYPD. *Eighty percent* of the respondents agreed that ASOCC should be used for the following purposes:

- managing and coordinating major events
- sharing Intelligence information

Seventy-five percent of the respondents agreed that ASOCC should be used for the following purposes:

- to store and immediately disseminate information on major events
- to post and share information about major crime or incidents requiring special attention

Between *sixty-four and sixty-seven percent* of the respondents agreed that ASOCC should be used for the following purposes:

- for on-line discussions and sharing of data files w/other members of NYPD
- to share and access information with other government agencies
- to monitor several web sites

The results suggest an uncertainty and general disagreement concerning the extent to which ASOCC should be used to share information with the U.S. military, with 44% agreeing, 25%

having no opinion or being uncertain, and 31% disagreeing. Table 5 provides an overview of the responses to the questions concerning the suggested uses of ASOCC.

Table 5 Suggested Uses of ASOCC for NYPD

Survey Question	Opinion	Frequency	Percent	Cumulative Percent
We should use ASOCC (the ex-panel) to store and immediately disseminate information on major events to all users in the agency	Neutral	2	5.6	5.6
	Disagree	7	19.4	25.0
	Agree	27	75.0	100.0
	Total	36	100.0	
Use ASOCC to post and share information about major crime or incidents requiring special attention	Neutral	4	11.1	11.1
	Disagree	5	13.9	25.0
	Agree	27	75.0	100.0
	Total	36	100.0	
Use ASOCC to share Intelligence information both internally and externally	Neutral	2	5.6	5.6
	Disagree	5	13.9	19.4
	Agree	29	80.6	100.0
	Total	36	100.0	
Use ASOCC to assist in managing and coordinating major events throughout the City	Neutral	0	0	0
	Disagree	7	19.4	19.4
	Agree	29	80.6	100.0
	Total	36	100.0	
Use the ASOCC to have on-line discussions and share data files with other members of NYPD	Neutral	5	13.9	13.9
	Disagree	7	19.4	33.3
	Agree	24	66.7	100.0
	Total	36	100.0	
Use ASOCC to share information with the U.S. military	Neutral	9	25.0	25.0
	Disagree	11	30.6	55.6
	Agree	16	44.4	100.0
	Total	36	100.0	
Use ASOCC to share and access information	Neutral	4	11.1	11.1

Survey Question	Opinion	Frequency	Percent	Cumulative Percent
with other government agencies (Federal and Local)				
	Disagree	9	25.0	36.1
	Agree	23	63.9	100.0
	Total	36	100.0	
Use the ASOCC knowledge board to monitor several web sites	Neutral	4	11.4	11.4
	Disagree	8	22.9	34.3
	Agree	23	65.7	100.0
	Total	35	100.0	

Who would make the best use of ASOCC

This section reflects the respondents' attitude concerning who or what functional areas within NYPD would make the best use of ASOCC. The opinions clearly suggest that personnel from Intelligence would make best use of ASOCC, followed by Special Operations. It is also clear that the respondents feel that Detectives, Precinct, or Wheel personnel should not use ASOCC. The opinions are somewhat mixed concerning whether Operations personnel should use the system. Table 6 outlines the opinions of the personnel within each assignment.

Table 6 Who would make the best use of ASOCC – Opinion, by "Assignment"

		Opinion by Current Assignment[4]			
The personnel in these assignments should use ASOCC		Borough (Wheel)	Operations Unit	Other	Aggregate Opinion
Wheel personnel	Count	7	3	3	13
	Percentage	28.0%	37.5%	100.0%	36.1%
Detectives	Count	7	4	0	11
	Percentage	28.0%	50.0%	.0%	30.6%
Special Op's Div	Count	17	4	1	22
	Percentage	68.0%	50.0%	33.3%	61.1%
Intelligence Personnel	Count	22	6	0	28
	Percentage	88.0%	75.0%	.0%	77.8%
Precinct personnel	Count	3	1	0	4
	Percentage	12.0%	12.5%	.0%	11.1%
Operations Unit	Count	15	6	0	21
	Percentage	60%	75%	.0%	58%

[4] The percentages are more than 100% because the survey respondents indicated that personnel in more than one assignment area should use ASOCC.

Systems that ASOCC could replace

The respondents were clear in their belief that none of the systems that they use could be replaced by ASOCC.

Respondents' "additional thoughts" about ASOCC

Below are the written responses to the open-ended question asking the respondents to provide any additional thoughts they might have concerning ASOCC's applicability in the NYPD environment:

- "The ASOCC system has a great potential if it is reconfigured from a national/military [perspective] to a system designed specifically for NYPD with the capabilities [of] contacting outside city, state, and Federal agencies. I feel that an investigative unit such as JTTF, CTTF, or Intell should be the designated unit for sending out an event on the existing ASOCC. These are units that would ultimately label an incident an "event" related to terrorism, [conferring with] top City officials. Sergeant, Operations Unit
- "In an emergency situation ASOCC can replace some of our systems to coordinate an emergency plan. During everyday police use, it may be easier to call, beep, or raise [someone] on the radio to get information." Police officer, Operations Unit
- "If used properly this application can be very useful within certain departments within the N.Y.C.P.D. Being familiar with this system in the military also known as (GEEKS) [refers to the Global Command and Control System (GCCS)], ASOCC can provide many alternatives to everyday work. What can be done with this system in order to maintain quality work and efficiency is to provide every major office within the department the ability to download data that is already transmitted via Finest, teletype, pager, and other means 24/7. This tool which is somewhat being duplicated in the new office of E.O.C. can allow staff to access information at a rapid pace. This system has already been in place in the military for at least a decade. I have had the opportunity to see these systems being installed on military vessels and installations dating back to 1992. Operations and other departments can prepare forms such as Principal Case, Misc, Memo's, etc. and email them to departments concerned. This tool can be used like a router, routing pertinent information to departments concerned and/or departments with the need to know. If implemented properly this program can be a great tool for the NYCPD. It will cut down on the amount of paper used, and ease the loads on copiers and facsimiles." Police officer, Operations Unit
- "ASOCC would benefit Intelligence personnel. It would not benefit Patrol in any manner. Critical information should not be disseminated or monitored at the Borough level." Sergeant, Borough
- "ASOCC is a worthy system & could be used by Boro [Borough] wheels for information purposes – however, the entry & dissemination of data should be limited to units such as Intell & Counterterrorism. I believe it is those units that are most qualified to link events & determine the importance of same, so as to make the decision to share [those] data. Barring a 9-11 type event, there are going to be restrictions on [blindly disseminating that information]. ASOCC would be great for Borough Wheels & should be used as such. However, given the critical importance of data distribution, ASOCC in that capacity should be reserved for Intell, Counterterrorism, etc." Civilian (MOS), Borough
- "ASOCC has a lot of potential but relies on correct information coming in to the data entry personnel in a timely manner from the field. At present, incidents might change in nature a few times before everything can be straightened out. These errors could cause problems with people who rely on information coming from the ASOCC screen. Also, people who

are [accustomed] to [frequently] calling to receive updates will find it difficult to wait for the information to pop up on the screen." Police officer, Borough

- "This unit [most likely referring to the ASOCC Terminal] deserves strict undivided attention by a specific unit at all times. This system should be utilized and monitored more seriously than coordinated with other agencies." Police officer, Borough
- "Too time consuming. This unit [most likely referring to the ASOCC Terminal]by Ops, Borough CTV, and Intell Units. Police officer, Borough
- "Information is required immediately. The ASOCC system is too complicated to provide this information at the necessary rate required by operations/Duty Captain. Sergeant, Borough
- "ASOCC could be used by Intell Division not at a Wheel office. Wheel does not involve itself with other city, state, or federal government situations." Police officer, Borough

"ASOCC is better suited for a division like Intell who deals directly with outside [agencies] and counter-terrorism." Police officer, Borough

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Direct Observation

Initial observation of NYPD personnel using ASOCC occurred during the two-day training session held in May of 2004. This observation was important because of its close proximity, in terms of time, to the beginning of the drills. The main purposes of the observations were to observe how well ASOCC supported the users' tasks and determine how they viewed the tool in terms of its applicability to their daily work and perhaps to law enforcement in general.

Training Class

The class was composed generally of two main groups of NYPD personnel, those from Operations, and those from the Wheel. Operations personnel serve as an information conduit for the Operations Command staff. Wheel personnel serve at the Borough/Precinct level; they carry out directives from above and are at the center of processing and logging information important to both the Precinct and Operations. The flow of information is upward and downward from Wheel to Operations respectively.

The following are based on my observations and feedback from NYPD personnel:

- Most of the Wheel personnel felt that the ASOCC system had very little applicability to what they do;
  - They felt that ASOCC was better suited for Intelligence or Detective personnel, none of whom were present;
  - Many of them feel that they are not that advanced (re. computers) and that very little computer training exists. Quite a few indicated that they do not use computers very often, thus they see very little applicability to them in their jobs;
- The personnel were generally concerned that if they entered much of the info they deal with on a daily basis into ASOCC, it would be inappropriate to share it with personnel outside of NYPD since its applicability was limited to internal NYPD matters;
- Many had difficulty getting beyond the military terminology (most of which is coded into ASOCC) to envision much applicability to what they do;
- A Planner suggested that ASOCC should not be pushed down to the Wheel personnel. His question whether the Commissioner would want the world to see the miscellaneous events happening in New York? (Probably not);
- Operations personnel felt that the system did have utility for NYPD but their comments were short of being prescriptive. They were concerned that the Precinct personnel would not readily embrace change – the mandate had to be pushed down from the top.

Drills

The researcher, along with the implementation team, had an opportunity to observe NYPD personnel using the system in simulated conditions during the drills. During each observation, the researcher informally discussed ASOCC with each user and asked questions to inform the observations made. The most salient observations, associated with the core components of ASOCC, are outlined below. All of these observations were explored through conversations with the operators; some of the information presented here reflects their remarks during the drills.

- *ExPanel* - real-time alerting/status visualization function. Ex-panel can be used to initiate or create events that can be shared and managed throughout the system.
  - Operators would be more comfortable with an Event Type dropdown menu to relate to day-to-day NYPD activity.
  - The drills suggested that a more user-friendly use and design of the system would be helpful.
  - Accountability of the users in using the system needs to be improved: events can be updated with the original operator's name, but node name appears in event submission spot.
  - The operators were unanimous in their opinion that it was not practical to use ASOCC during emergencies. Waiting for the information to be entered into ASOCC would delay the response or notification process.
  - Most of the information regarding specific events does not need to be shared among Boroughs
  - Those who need to know will be notified via phone, pager or radio before the information is entered into ASOCC
  - Appropriate use would be for pre-planned events, not during real-time incidents.
  - The ideal use of the ExPanel would be to incorporate all of the data elements captured in the incidents logs and replace the incident logs with ASOCC.
  - Accuracy and spelling of what is being input into the ExPanel is critical. ASOCC has no spell checking function nor does it have word wrap. This is a problem for these users.
  - ExPanel should not be used to alert, create events, and share information. It does not capture the data elements they need.
- *Knowledge Board* – a knowledge management portal that supports push or automatic refresh of web-based information. This allows the user to view sites for threats and emergency-type information. The types of information provided are advisories concerning terrorism and force protection, advisories from the Department of State, the Intelligence community, and JTF civil support message traffic, and weather.
  - Most felt that the Intelligence Unit or Counter Terrorism Division should be using this utility
  - Knowledge Board was used and the ability to view multiple websites and the Quick Notes feature were demonstrated with favorable comments from operators.
  - Knowledge board was also used to access real time NYPD traffic cams. This is an area of interest to the boroughs, especially for monitoring events.

- *Java Imagery and Video Exploitation (JIVE)* – provides multiple formats of geo-spatial imagery with overlay and text capabilities. It allows a user to use and manipulate data through a GIS interface called map view.
  - Mapping is the ASOCC utility that they felt would be most useful.
  - The mapping system was viewed as too complex. All operators had difficulty using the mapping system
  - Latitude and longitude had no relevance to the law enforcement officers. NYPD currently uses MapInfo for mapping; it can be used to grab geo-points for incorporation into MapView. The skill level and familiarity with these mapping tools appeared inadequate for them to accomplish these more sophisticated tasks.
  - The ideal use of the imaging function would be to link ASOCC to the DOT cameras located throughout the City, which would enable the Boroughs to observe what was happening in real time.
  - Operators would like to see cleaner satellite images of the boroughs.
- *Defense Collaboration Tool Suite (DCTS)* – allows system users to communicate in a number of different forms. The group chat service allows users to navigate through different "chat groups" or "chat rooms," and communicate with others using text messaging.
  - This had limited applicability to the Boroughs in their everyday work. It would be useful only in events affecting multiple Boroughs.
  - Boroughs would never send information out to the national community
  - This utility would be more in line with the EOC responsibilities during major events.
  - The amount of space available for text in collaboration is too small.
  - The ability to share photos and collaborate would be useful if they could transmit them to the officer on patrol.

Other General Observations

- Most of the operators had difficulty using the system. In all cases, guidance from the NTPI trainer was necessary for them to complete the drills.
- It was the unanimous opinion of the operators that ASOCC was just another system, which they did not need. They have too many "stove pipe" systems to deal with.
- Many of the operators had not received the ASOCC training and had to be walked through each drill.
- Continuity is a problem – turnover is high and not enough people are trained.
- For those trained, it was difficult remembering how to use the system, since the only time they used it was during the drills. Beyond the drills, the training was not reinforced with independent practice.
- The military terminology is inappropriate for law enforcement
- While the drills are a good test of ASOCC they do not accurately represent NYPD daily processes
- The system was generally slow in getting data, bringing up screens

- During major events affecting more than one jurisdiction, the EOC would be activated and would have personnel from the various agencies available in the center to coordinate activities and resources, where necessary.
- System integration was the most obvious need. This was evident from the observations made and unsolicited comments by the operators. One of the operators commented: "We need to consolidate all of the systems into one. If ASOCC could do this it would be the system [of choice.]"
- Security of the system, such as unwanted users accessing storage folders is an issue.
- Placement of the computers was an issue. They were placed wherever they could find space; there seemed to be a lack of standardization concerning the strategic placement of this system.
- Sufficient personnel resources to operate ASOCC are an issue. The opinion of most personnel was the following - for ASOCC to be assimilated into everyday operations, personnel must be dedicated to it on a 24/7 basis.
- Typing proficiency is an issue for many of the operators.
- User's felt that ASOCC can be a benefit to department wide operations if the functionality was expanded.

Interviews

The interviewees were those personnel who were trained to use ASOCC and who participated in the drills. These personnel were assigned to the following areas: the Bronx, Manhattan South, and Manhattan North boroughs and Operations.

The interview questions were open-ended and conducted after the drills were completed. The interviews served several purposes, the most important of which was to validate the information developed for the CONOPS. Detailed information related to the CONOPS can be found in Table 2 (p. 22). The secondary purpose of the interviews was to gather information, after the drills and training were completed, regarding user-attitude and opinion of the ASOCC system and its applicability to NYPD.

The users' comments about the utility of ASOCC are paraphrased below unless in direct quotes.

- "ASOCC could replace the finest system but the problem is that personnel do not always read what is sent via Finest."
- The system has too many required fields to replace the Finest system
- In making critical event notifications, the officers want to speak to someone to ensure that the message is received. This is time sensitive, so an immediate response is necessary.
- ASOCC could replace [and incorporate] the telephone message log
- A chain of command mentality prohibits people at the Borough level from making certain notifications without approval from above. They are very sensitive to releasing info without permission. Collaboration with other agencies could be a problem depending on the kind of information and type of collaboration taking place.
- "ASOCC must be customized to fit what we do."
- Making certain citywide notifications is done via a radio system instantly to all those on the "air". The military has no such information transmittal tool, so they (military) use ASOCC
- "ASOCC is a bit complex and not user friendly"
- Integration is a must – "we have too many systems"
- "It could replace the Finest system. But, we already have too many systems. We have problems making time to use the 311 system"
- "ASOCC will not work in its current state;" It needs to be aligned more with NYPD processes and should incorporate 911 data
- "It would be nice to incorporate the incident log and send it to the Operations instead of faxing it."

- "I think the system is easy to use"
- "The maps are nice but they pixilated too much when zooming in"
- "A better test would be a vertical one from Precincts to Borough to Operations"
- "We need one system, not another addition to all of the others"
- "ASOCC could have been used during the Republican National Convention to record incidents, arrests, etc."

Summary Findings

As part of the triangulated research methodology, this inquiry relied on data collected during a *focus group* session, *surveys, direct observations (*during ASOCC training and Drills), and finally *interviews* of ASOCC users. These disparate data gathering steps were taken during a period of approximately six months beginning with the observations of the training session, followed by the focus group session, then the surveys, the observations during the drills, and culminating with interviews. This triangulation, or data gathering using different methods over time, helped to validate the findings by identifying the recurrent and salient information from a variety of sources. Below are the recurrent themes identified during the data gathering process.

ASOCC should be used in support of major events or incidents

There appeared to be a realization that ASOCC would be most beneficial to NYPD if it were used to collaborate, coordinate, and share information during major incidents or pre-planned events. Because ASOCC was not used daily in normal operations, the probability that a user would use ASOCC in a major incident was unlikely.

ASOCC Map View is not without problems, but it has potential

Most felt that the GIS function, or mapping, would be very useful. Recurrent concerns with mapping were associated with the following:

- Ease of use: The perception was that the mapping application was difficult to use
- Latitude and longitude: This had no relevance to the law enforcement officers. NYPD currently uses MapInfo for mapping; while it can be used to grab geo-points for incorporation into MapView, the skill level and familiarity with these mapping tools appeared inadequate for them to accomplish these more sophisticated tasks.

ASOCC should serve as an integration tool

One of the main issues identified was the existence of too many "stove-pipe" or stand-alone systems. Most see ASOCC in its current configuration as simply another system, which they would not use unless they were required to. They also suggested that ASOCC could be very useful to them if it served as a "front-end" to the key systems that they use to perform most of their functions. Systems integration with ASOCC serving as the "front-end" appeared to be essential for this site.

ASOCC is well suited for Intelligence and Counterterrorism

While ASOCC was perceived as a useful tool, there was little agreement on whether the practitioners who were trained to use it should use it. Many felt that Intelligence and Counterterrorism personnel should use ASOCC. The pervasive feeling was, "ASOCC is a good system but not for me. It doesn't help me in what I do everyday."

ASOCC may not be useful during emergencies

The opinion of most was that it was not practical to use ASOCC during emergencies. Waiting for the information to be entered into ASOCC would delay the response or notification process. The officers were more accustomed to receiving and relaying emergency information via radio, phone, or pager. They had concerns with not being able to notify the people they needed to notify via ASOCC. They also felt the need to be able to verbally discuss incidents, events, etc. with commanders who often asked numerous questions during these events, because verbal communications also provides immediate feedback.

ASOCC may not be a useful collaboration tool for the boroughs

The boroughs generally operate independently and thus only collaborate during major events or incidents that cross borough jurisdictional boundaries. This does not happen frequently. They are also limited (by department policy and chain of command) in the extent to which they can collaborate with others external to NYPD.

NYPD personnel believe staffing levels might need to increase for ASOCC

The prevalent perception was that for ASOCC to be used in NYPD it would have to be staffed on a 24/7 basis. Most suggested that they did not have adequate staffing to do this. In addition, training for an operational system would increase cost and workload. Cost-benefit ratios were not studied.

ASOCC has several flaws and is difficult for some to use

A number of users complained that ASOCC was too complex and not very easy to use. The drills would not have been feasible without the presence of external trainers from NTPI, SPAWAR, etc. The researcher noted that personnel not trained to use ASOCC were participating in the drills, which could explain the complaint about complexity. Most of the NYPD personnel who were trained to use ASOCC were slow to adapt to its use during the drills; they also required assistance. Another issue that increases difficulty in using the system is the lack of training reinforcement. NYPD personnel did not use the system between drills and thus failed to reinforce the training. The most prevalent usability complaints about ASOCC were the following

- Event TYPE consists of a drop-down of pre-determined event types, coded into the software. While static event types are necessary, they shouldn't be coded into the software, especially since the event types for law enforcement will be different from DoD events. User defined event types, which could only be changed by the system administrator, would enhance applicability.
- Event TITLE is case sensitive. This is a major problem when searching for specific types of events. Searching should not be Case sensitive.
- SYNOPSIS of event - this is a free text field with no word wrap or spell check. The lack of word wrap is a problem for operators in a hurry to get the information in the system. Even

if you are careful not to break up words, the output is not the same as you typed it - it breaks up words anyway.

ASOCC performance during the drills

ASOCC did perform the functions required during the drills. Although drills were developed from departmental procedures, the issue often raised was that the drills were not aligned with the users' everyday processes. The information collected during this assessment suggests boroughs might not be the best users of ASOCC in its current configuration. It is a well-established fact that misalignment of a technology with the process that the technology is supposed to facilitate will result in the failure of technology diffusion throughout the organization.

Absence of executive sponsorship leads to failure to adopt on a trial basis

It was clear during the assessment that this project lacked an executive sponsor from the areas most affected by ASOCC deployment, Patrol and Operations. Since their personnel were to be the ultimate users of ASOCC, Patrol and Operations executive support and buy in are essential. The NYPD MIS personnel exerted considerable effort to stage, deploy, and test ASOCC but had no authority to mandate usage, even over a short trial period. They could do little beyond making suggestions. The CONOPS developed by personnel external to NYPD had not been implemented; as of this writing, neither NIJ nor SPAWAR received any substantial feedback regarding the CONOPS.

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ASOCC and NIMS

As part of this technology assessment, the researcher also examined ASOCC in terms of its potential to facilitate requirements of the National Incident Management System (NIMS). It is important to note that a comprehensive review of NIMS and ASOCC are beyond the scope this assessment; this review was conducted at a high level and deals with the more salient NIMS concepts that could be related to ASOCC processes. This section begins with a brief discussion and overview of NIMS[5].

NIMS Overview

Developed by the Secretary of Homeland Security at the request of the President, the National Incident Management System (NIMS) integrates effective practices in emergency preparedness and response into a comprehensive national framework for incident management. The NIMS provides a consistent, flexible, and adjustable national framework within which government and private entities at all levels can work together to manage domestic incidents. This flexibility applies across all phases of incident management, i.e., prevention, preparedness, response, recovery, and mitigation.

The NIMS was developed to enable responders at all levels to work together more effectively and efficiently to manage domestic incidents no matter what the cause, size, or complexity, including catastrophic acts of terrorism and disasters. In doing so the NIMS provides a set of standardized organizational structures – including the Incident Command System (ICS), Multi-Agency Coordination Systems and public information systems – as well as requirements for processes, procedures, and systems to improve interoperability among jurisdictions and disciplines in various areas.

While Homeland Security recognizes that ". . . the overwhelming majority of emergency incidents are handled on a daily basis by a single jurisdiction at the local level, there are instances in which successful domestic incident management operations depend on the involvement of multiple jurisdictions, functional agencies, and emergency responder disciplines. These incidents require effective and efficient coordination across this broad spectrum of organizations and activities. The NIMS uses a systems approach to integrate the best of existing processes and methods into a unified national framework for incident management. This framework forms the basis for

[5] The source of all information concerning NIMS is the Federal Emergency Management Agency web site http://www.fema.gov/nims

interoperability and compatibility that will, enable a diverse set of public and private organizations to conduct well-integrated and effective incident management operations. It does so through a core set of concepts, principles, procedures, organizational processes, and terminology and standards requirements applicable to a broad community of NIMS users."[6] These concepts are fundamental in assessing the possible relationship between ASOCC and NIMS.

The major components of the NIMS approach related to ASOCC are outlined below. Generally, these components are concepts and practices for:

1. Command and Management
2. Resource Management
3. Communications and Information Management
4. Supporting Technologies

The following section provides a more detailed view of the aspects of each NIMS component that appear to have applicability to ASOCC functionality.

ASOCC functionality and NIMS Requirements Convergence

NIMS[7]	*ASOCC*
Incident Command	
The Incident Command System (ICS) is a management system designed to enable effective and efficient domestic incident management by: • Integrating a combination of facilities, equipment, personnel, procedures, and communications • Operating within a common organizational structure, designed to enable effective and efficient domestic incident management.	• ASOCC can serve as a platform to integrate and share information about facilities, equipment, personnel, and procedures while facilitating electronic communications at the command level • The common organizational structure can be facilitated by the ASOCC system's utility in providing a common operating picture for all participants
ICS is Modular and Scalable. It has the following operating characteristics: • Suitable for operations within a single jurisdiction or single agency, a single jurisdiction with multi-agency involvement, or multiple jurisdictions with multi-agency involvement; • Adaptable to any emergency or incident • Have a scalable organizational structure that is based on the size and complexity of the incident.	• ASOCC can facilitate operations of an ICS in single or multi-agency environments • ASOCC can adapt to and facilitate many different types of emergencies or incidents • ASOCC can accommodate a scalable organizational structure • ASOCC can facilitate the use of common terminology, standards, and procedures

[6] Department of Homeland Security. 2004, March. *National Incident Management System* http://www.fema.gov/pdf/nims/nims_doc_full.pdf p. 2

[7] Source - http://www.fema.gov/txt/nims/nims_doc1.txt

NIMS[7]	*ASOCC*
ICS Establishes Common Terminology, Standards, and Procedures that Enable Diverse Organizations to Work Together Effectively.	
Comprehensive Resource Management	
Maintaining an accurate and up-to-date picture of resource utilization is a critical component of domestic incident management. • Integrated Communications: Incident communications are facilitated through the development and use of a common communications plan and interoperable communications processes and architectures. • Resource Tracking: Supervisors must record and report resource status changes as they occur.	• ASOCC can be used as a centralized resource to collect, store, and share resource information in a real time mode during critical incidents • ASOCC can provide integrated communications among disparate command centers using the secure network. It does not solve the problem of interoperability or communications among field personnel. • ASOCC can centralize and share resource status information
Multi-agency coordination	
Regardless of form or structure, the principal functions and responsibilities of multi-agency coordination entities typically include the following: • Ensuring that each agency involved in incident management activities is providing appropriate situational awareness and resource status information; • Establishing priorities between incidents and/or Area Commands in concert with the IC; • Acquiring and allocating resources required by incident management personnel in concert with the priorities established by the IC or UC;	ASOCC as a collaboration tool excels at facilitating coordination between and among entities: • ASOCC's strength is in storing and sharing situational awareness and resource information • Establishing priorities is a process of management; ASOCC can facilitate the centralized storage and sharing of established priorities, including updates and changes. • ASOCC can be used as a vehicle to communicate resource acquisition and allocation information to all on the network
Joint Information Center (JIC)	
The JIC provides the organizational structure for coordinating and disseminating official information. It is important for the JIC to have the most current and accurate information regarding incident management activities at all times. Multiple JICs may be needed for a complex incident spanning a wide geographic area or multiple jurisdictions. • Each JIC must have procedures and protocols to communicate and coordinate effectively with other JICs, as well as with other appropriate components of the ICS organization.	• ASOCC can facilitate the kind of instant communications and publishing of information necessary to support the requirements of the JIC coordination. • The current deployment of ASOCC nationally makes it a noteworthy platform to consider for use in complex incidents spanning a wide geographic area or multiple jurisdictions.

NIMS[7]	*ASOCC*
Information and Intelligence Management The incident management organization must establish a process for gathering, sharing, and managing incident-related information and intelligence. • Information and intelligence must be appropriately analyzed and shared with personnel, designated by the IC, who have proper clearance and a " need-to-know" to ensure that they support decision-making.	• ASOCC is particularly adept at storing and sharing different levels of intelligence information • ASOCC can provide secure access based on permissions

ASOCC can provide the technology infrastructure to support many specific NIMS requirements and thus has the potential for nationwide applicability to the public safety arena. NIMS came into existence after the NYPD ASOCC experiment and was thus not part of this assessment. That notwithstanding, the *ASOCC functionality and NIMS Requirements Convergence* as outlined above suggest opportunities for law enforcement and public safety.

Lessons Learned

The successful deployment and diffusion of a technology, which might affect a significant portion of any large enterprise such as the NYPD, are dependent upon more than just the technology and its functionality. A great deal can be learned by examining the areas tangential but important to, the successful assimilation of technology such as those outlined below.

Deployment

Before deploying a technology like ASOCC for assessment in a law enforcement organization, a number of issues should be addresses to ensure that a structure is in place, which will enhance the potential for success. Below are some of the areas to consider as part of the lessons learned during this deployment of ASOCC.

Executive sponsorship

One of the most important requirements of technology diffusion is executive sponsorship. It is essential to gain the support of an executive in the organization who has sufficient authority to make decisions regarding the deployment and who can ensure cooperation from the right people within the organization. That person should appoint an executive project manager, preferably from the functional area that will use and test the system, in this case the Patrol and Operations functions. Goals and expectations should be established from the top down with greater emphasis on input from functional areas. The key is alignment with and authority within the affected functional area.

CONOPS development

Before deploying the technology, all stakeholders should understand the extent to which its functionality can facilitate processes and decide how it should be used in the organization. This will require involvement and participation of stakeholders at various levels within the organization (i.e., top down and bottom up involvement and decision-making). It is important that the technology align with the business processes. These processes should be well defined in the CONOPS document, which should be developed and agreed upon by key stakeholders within the implementing organization. It is important to remember the technology, with all its wonderment, its functions, "bells," and "whistles" is simply a facilitator of processes not an end in itself.

Training

Alignment with process - As with the functionality of the technology, the training should be closely aligned with the implementing agency's business processes. For example, when deploying a military technology like ASOCC for law enforcement, the training must be modified so that it relates to the types of scenarios to which the users will be exposed when using the system.

Timing – Training should be held as close as possible to the date the system will be used by trainees. Training should be reinforced by well-defined practice sessions during the implementation process.

Personnel turnover – The training plan should be comprehensive enough to train all possible system users. In the case of this project, personnel work schedules were dynamic, therefore personnel that were not trained executed some drills. The plan should also include a way to train new personnel when turnover occurs. A formal train the trainer plan should be considered.

Usage

The implementation plan should leave no doubt about who uses the system and under what conditions it should be used. Systems should not be implemented in a situation where system usage is not mandated. The usage mandate should be documented as a usage plan, directive, or Standard Operating Procedure (SOP). Great care should be taken to ensure that the system is used in accordance with the CONOPS and in support of business processes. As in the case of many newly developed situational awareness systems, if it does not support daily use, it will not be used. The system will be deemed useless as events occur because personnel will revert to the procedures and processes with which they are accustomed and in which they have been trained.

The users' level of sophistication in using technology should also be assessed to ensure that they have the requisite skills necessary to use the system.

Technological issues

Infrastructure and other technological issues should be understood before implementation. The implementing organization should be informed of system deficiencies, if any exist. Issues such as robustness of the network, telecommunications bandwidth, security etc, should be closely examined.

Beyond the capacity of the current technology infrastructure to support the system, other infrastructure-type technology issues are worthy of attention when applying new technology. One of the more important concerns manifest during this research, were integration considerations. Stakeholders must account for these issues during the planning and implementation phase to enhance the likelihood of a successful outcome.

All issues or problems with the system should be explored with the stakeholders in advance of full deployment to ensure that there are no surprises. A good example is the officers' difficulty in getting beyond the military terminology (most of which is coded into ASOCC) to envision much applicability to what they do. This is the type of technology issue that can be inimical to the success of a deployment like this and should have been addressed early during the program.

Policy

As part of the implementation process, a requirements oversight workgroup should be formed and staffed by key stakeholders. This policy-level group should be actively involved in project oversight and policy development and should be tasked with approving deviations from the project plan, change orders, and most importantly, CONOPS content.

Acceptance testing should be part of the implementation process. The implementing organization must play an active role in the planning and staffing for acceptance testing.

The requirements oversight workgroup in concert with the system provider should develop a change management process. The key stakeholders should all agree to this document.

Processes and procedures

An analysis of the processes associated with the system should be conducted as a prelude to system implementation. System functionality should be mapped to the defined processes. Implementers should use this information to take advantage of the opportunity to exploit the software's ability to improve processes. Those processes which could be improved should be documented as part of the process re-engineering plan which should be included as part of the implementation plan.

In the deployment of ASOCC, for example, the implementation team noted that the incident logs created at each Borough were not standardized. They were created with a number of different tools, printed, and faxed to Operations. To improve this process, the team designed a standard central database, which could be launched from the ASOCC computers and could reduce the amount of effort it took to complete (sometimes it was duplicated) and fax these forms. It also provided a vehicle to centralize this information. Unfortunately, that technology has, as of this writing, yet to be assimilated into the organization. This leads to a discussion of organizational assimilation, the final topic of lessons learned.

Organizational assimilation

A plan for full organizational assimilation of the technology should be developed before system implementation and testing begin. This plan should provide for the assessment of progress during defined periods along the project's critical path. It should be aligned with measurable milestones and provide options to exercise "go" or "no go" decisions.

Full assimilation can only occur if both the implementing organization and the system provider have clearly defined roles and expectations. If expectations are not met, the option to terminate ("no go") the deployment can be exercised. Care should be taken not continue to invest in a project that fails to demonstrate utility for the implementing organization.

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Conclusions, Recommendations, and Limitations

The researcher was unable to complete the assessment as planned because the system was not used during a test period. However, researchers gathered a significant amount of information during the implementation. This information enabled the researchers to draw some conclusions about this technology and its law enforcement implications.

Implications for Law Enforcement

The responses and actions of the law enforcement officers who were exposed to the system suggest that ASOCC is more counter terrorism and intelligence oriented and should be used by intelligence groups like the Joint Terrorism Task Force (JTTF), Counter-Terrorism Division, and the Intelligence Unit. The observations made during this assessment support this, especially the DCTS function of ASOCC.

ASOCC also appears to be most appropriate for large-scale events or incidents. Its collaboration capabilities make it especially suitable for use in situations involving multiple jurisdictions and agencies. ASOCC has potential for use in local county and state emergency operations centers. One of the more remarkable findings is ASOCC's potential function as a technology infrastructure that can support many of the NIMS requirements and thus has potential for nationwide applicability to the public safety arena. Because NIMS came into existence after the NYPD ASOCC experiment was almost completed, it was not part of this assessment.

Beyond NIMS, ASOCC appears to offer law enforcement agencies, especially those operating in multi-jurisdictional environments, a tool for collaboration and information sharing. The caveat here is that the usability issues outlined in the findings section (P. 40) such as the use of military terminology, the software- coded event naming conventions, etc. should be corrected to enhance its usability by law enforcement.

The ASOCC mapping function, with modifications also discussed in the findings section, has applicability to law enforcement. If used as part of a collaborative effort, it would allow analyst and officers to post, update and exchange graphical crime information with collaborating agencies using ASOCC.

ASOCC, as currently configured, does not appear to support many of the daily law enforcement functions, and thus might not be efficient for daily use. This might not be so much the shortcoming

of ASOCC as it is the lack of fit between the technology and the tasks of the users[8]. A combination of process reengineering and software modifications could make this tool appropriate for daily law enforcement use. These software changes could be inimical to its utility as a military (and inter-agency communications) tool and thus would have to be carefully analyzed before being considered.

Recommendations

Further research of ASOCC for use in everyday law enforcement activities should be directed toward its use as an integration tool or as a front end to other databases. If, through the ASOCC system, users could also access the more frequently used data from NYPD systems such as SPRINT, FINEST, and the Incident Logs, its potential for use would have been much greater. This, of course would need to be accompanied by the appropriate systems analysis and a process-reengineering plan.

ASOCC's strength as a collaboration tool for law enforcement should be exploited. Consider providing it to a number of law enforcement agencies in a region that do not have any type of collaboration technology, but need to collaborate none-the-less. Small to mid-size agencies located in close proximity to each other and who often depend upon each other for mutual aid would be ideal. This would provide an opportunity to fine tune ASOCC functionality as it relates to law enforcement. It would also be an excellent tool to promote ASOCC as a tool to assist in meeting NIMS requirements.

ASOCC has tremendous potential to facilitate NIMS requirements. This function should be pursued. It should be examined for its applicability to EOCs,' law enforcement and other agencies involved in emergency operations.

Further research related to ASOCC should be done to discern the collaboration needs of the different echelons of law enforcement agencies (e.g., size, geography, population, agency-type, etc.). In doing so, the research could identify the types of collaboration taking place within and between agencies, catalog the types of technologies currently used to facilitate the collaboration (if any), perform a gap analysis, and determine unmet needs. Those needs could then be mapped to ASOCC functionality.

Limitations

This research, like most others, has its limitations. These limitations, which are outlined below, should be understood and taken into account when using the information contained in this report.

- ASOCC Usage - the observations made during this research were limited to simulated events with operators being prompted by trainers. ASOCC was never implemented for everyday use or even during a trial period, as originally planned. The conclusions drawn could be different if it were used as part of everyday operations in real situations.
- Installed sites – The sites and users chosen for ASOCC installation might not have been the most appropriate areas and thus provided limited potential for its successful use. The

[8] This is supported by existing literature concerning the performance implications of the fit between technology and the tasks of its users. For more information see: Goodhue & Thompson. (1995, December) Task Technology Fit and Individual Performance. *MIS Quarterly*, 213-236

information gathered during all data gathering processes (i.e., the focus group, surveys, observations, and interviews) support this observation. Installation at other sites might have resulted in a different outcome regarding ASOCC's usability in law enforcement.

- The CONOPS document - personnel external to NYPD developed the CONOPS document, exercising a great deal of care in creating and validating it. Because there was no direct involvement by the ultimate users in creating the CONOPS nor was feedback received from executive management, it is unknown if the usage suggests is acceptable to the NYPD.

NIMS and ASOCC – The researchers did not observe ASOCC being used in direct support of NIMS. The suggested potential uses of ASOCC in support of NIMS are the opinion of the primary researcher and are based on expert knowledge of law enforcement operations and law enforcement information technology. The conclusions drawn are also based on and supported by the data gathered during the observations, focus group, surveys, and interviews.

Acronyms and Abbreviations

Term	Definition
ACTD	Advanced Concept Technology Demonstration
ASOCC	Area Security Operations Command and Control
CADII	Capital Area Defense Information Initiative
DCTS	Defense Collaboration Tool Suite
DHS	Department of Homeland Security
DISA	Defense Information Systems Agency
DoD	Department of Defense
EOC	Emergency Operations Center
HOLS	Homeland Security Online Services
JIVE	Java Imagery and Video Exploitation
JPO	Joint Program Office
LAN	Local Area Network
LSP	Louisiana State Police
NIJ	National Institute of Justice
NTPI	National Terrorism Preparedness Institute
NYPD	City of New York Police Department
OS&T	Office of Science and Technology
SPAWAR	Space and Naval Warfare Systems Command
SPAWAR ITC	SPAWAR Information Technology Center
SPAWAR SCC	SPAWAR Systems Center Charleston
SPAWAR SCNO	SPAWAR Systems Center New Orleans (from SPAWAR ITC)
USCG	US Coast Guard
WMD	Weapons of Mass Destruction

Appendix A: Survey Instrument

AREA SECURITY OPERATIONS COMMAND AND CONTROL SYSTEM (ASOCC) SURVEY

Please check the appropriate box:

Rank: ☐ Police Officer ☐ Detective ☐ Sergeant ☐ Lieutenant ☐ Captain or above ☐ Civilian MOS

Current Assignment: ☐ Borough (Wheel) ☐ Precinct ☐ Operations Unit ☐ MISD ☐ Other Command

Please circle the number that best describes your response to the following questions

Data	Strongly Disagree			Neither Agree nor Disagree			Strongly Agree
1. ASOCC should be used to bring together data from various sources within the NYPD.	1	2	3	4	5	6	7
2. ASOCC should be used to bring together data from various sources external to NYPD.	1	2	3	4	5	6	7
3. The ASOCC system has the potential to provide access to data, which will be appropriate for my group's tasks.	1	2	3	4	5	6	7
4. The ASOCC system has the potential to provide access to data that I use in my daily job.	1	2	3	4	5	6	7

Collaboration	Strongly Disagree			Neither Agree nor Disagree			Strongly Agree
5. I would use ASOCC to communicate with other members of NYPD	1	2	3	4	5	6	7
6. I would use ASOCC to share information with other members of NYPD	1	2	3	4	5	6	7
7. I would use ASOCC to communicate with agencies external to NYPD	1	2	3	4	5	6	7
8. I would use ASOCC to share information with agencies external to NYPD	1	2	3	4	5	6	7

Please indicate whether you agree or disagree that the below uses of ASOCC are *appropriate for your facility*

Logical Uses of ASOCC	Strongly Disagree			Neither Agree nor Disagree			Strongly Agree
9. We should use ASOCC (the ex-panel) to store and immediately disseminate information on major events to all users in the agency	1	2	3	4	5	6	7

Logical Uses of ASOCC

		Strongly Disagree			Neither Agree nor Disagree			Strongly Agree
1.	Use ASOCC to post and share information about major crime or incidents requiring special attention	1	2	3	4	5	6	7
2.	Use ASOCC to share Intelligence information both internally and externally	1	2	3	4	5	6	7
3.	Use ASOCC to assist in managing and coordinating major events throughout the City	1	2	3	4	5	6	7
4.	Use the ASOCC to have on-line discussions and share data files with other members of NYPD	1	2	3	4	5	6	7
5.	Use ASOCC to share information with the U.S. military	1	2	3	4	5	6	7
6.	Use ASOCC to share and access information with other government agencies (Federal and Local)	1	2	3	4	5	6	7
7.	Use the ASOCC knowledge board to monitor several web sites	1	2	3	4	5	6	7

8. Which of the below areas in NYPD do you believe would make productive use of ASOCC (check all that apply)

☐ Operations Unit ☐ Wheel personnel ☐ Detectives ☐ Special Operations Division

☐ Intelligence personnel ☐ Precinct personnel ☐ Other _____

9. Please check below the name(s) of the system(s) that you use in your normal workday:

☐ Sprint System ☐ Pager ☐ Radio ☐ Fax ☐ 311 ☐ LAN

☐ Phone ☐ Teletype ☐ Other ☐ Banner ☐ Finest

10. Please check below the name(s) of the system(s) that you believe ASOCC could replace:

☐ Sprint System ☐ Pager ☐ Radio ☐ Fax ☐ Finest ☐ LAN

☐ Phone ☐ Teletype ☐ Other ☐ Banner ☐ NONE

Please PRINT in the space below (use the rear of this form if necessary) any additional thoughts you might have about ASOCC and its applicability in the NYPD environment:

_____

Appendix B: Updated ASOCC User Base